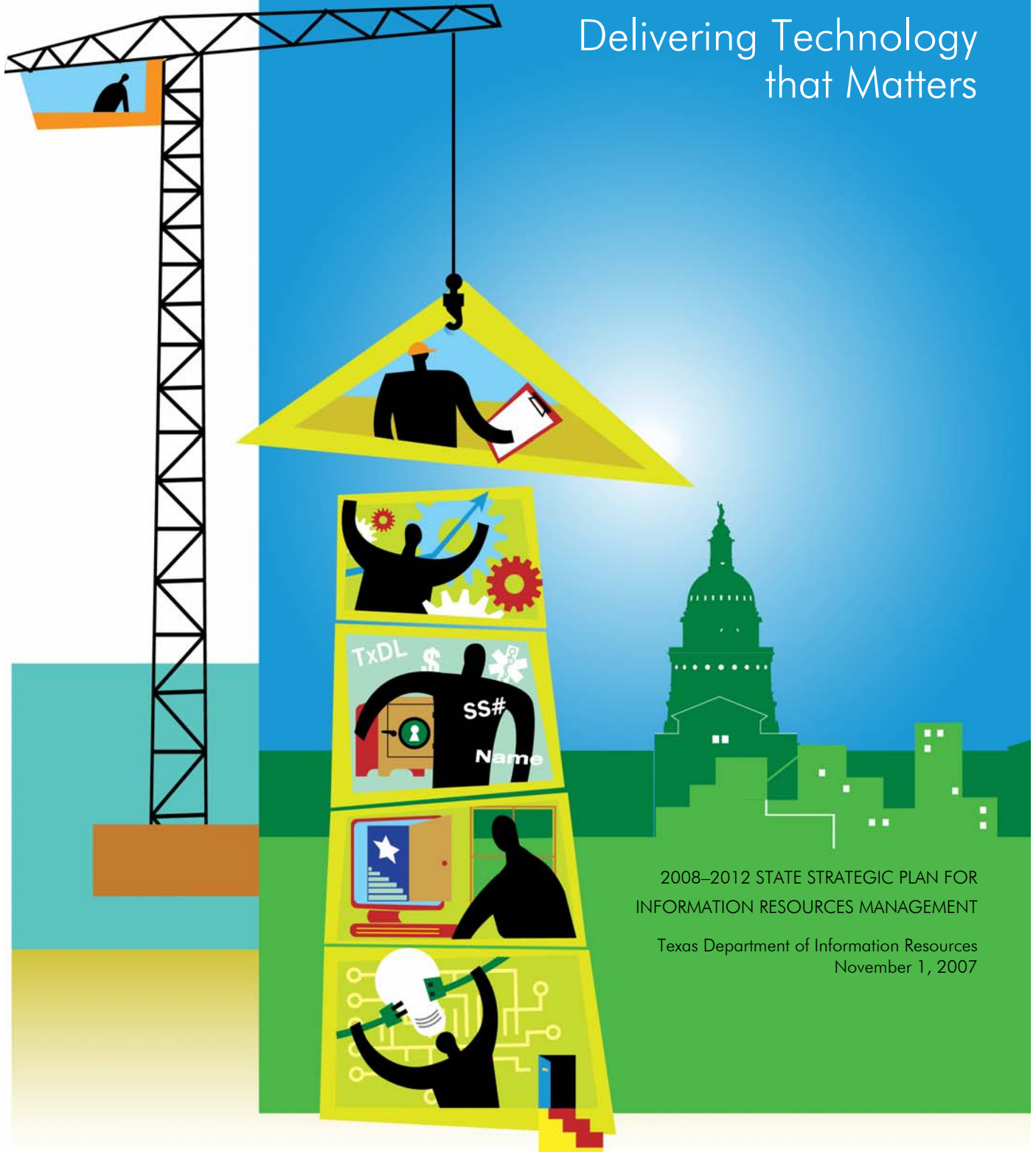


The Texas Transformation

Delivering Technology that Matters



2008–2012 STATE STRATEGIC PLAN FOR
INFORMATION RESOURCES MANAGEMENT

Texas Department of Information Resources
November 1, 2007

FROM THE STATE'S CHIEF TECHNOLOGY OFFICER

Technology touches every Texan every day. Whether you are an employer filing unemployment tax information over the Internet, a driver renewing your driver's license through TexasOnline.com, or a state employee answering a citizen phone call—technology enables this interaction with government.

Behind the scenes, the technology that drives these services is undergoing a transformation that will increase citizen access to government services, provide greater security of information, leverage taxpayers' investment in technology, and promote innovation. It is this transformation in the delivery of technology, which matters to so many, that is at the core of the 2008–2012 State Strategic Plan for Information Resources.

Today Texas state government has begun to build a shared technology infrastructure through managed offerings like data center services, communications technology services, and our award-winning state portal—TexasOnline.com. In addition, the buying power of Texas government is being used to leverage the acquisition of needed technology resources. The solid foundation laid in the past biennium allows us to move forward to dramatically transform how technology is delivered and, ultimately, how government services are provided.

While the Texas Department of Information Resources is the lead agency on this transformation, we certainly do not work alone. Collaboration at all levels of government has been a binding thread through these efforts, and will assuredly continue as government-to-citizen, government-to-government, and government-to-business opportunities are realized.

In the fulfillment of this strategic plan, DIR will be held to the highest standards of exemplary customer service, innovation, collaboration, and accountability. Together, we will continue to implement the technology vision that is transforming state government to best serve all Texans today and tomorrow. We wish to thank all of the elected officials, citizens, partners, businesses, and agencies that have supported this transformation since its inception.

Brian S. Rawson

Executive Director

Texas Department of Information Resources

ABOUT THIS PLAN

The Information Resources Management Act (Chapter 2054, Texas Government Code) requires the Texas Department of Information Resources to prepare a state strategic plan that establishes strategies to meet the changing technology needs of state government to effectively serve Texans for the next five years. This plan outlines statewide technology initiatives that are in place or being planned over the current and next biennium and provides initial guidance to state agencies to plan their information and communications technology initiatives. The department will coordinate with the Governor's Office of Budget and Planning and the Legislative Budget Board to issue detailed instructions for the preparation and submission of state agency strategic plans.

Note: For the purposes of this report, the term "state agency" is used to indicate a state agency or a state institution of higher education.

THE PLAN ONLINE

The 2007 State Strategic Plan for Information Resources Management can be accessed online at (<http://www.dir.state.tx.us>). Detailed information regarding the implementation of a specific strategy is or will be posted as it becomes available.

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CONTENTS

- Executive Summary..... 1
- Section 1. Guiding the Texas Transformation 3
 - Guiding Principles 3
 - Statewide Goals 3
 - The Evolution of the Texas Model for the Enterprise 4
 - Transforming Texas Technology through Innovation..... 4
- Section 2. Major Drivers 7
 - Integrating Managed Service Delivery..... 7
 - Transforming IT Procurement and Contracting Practices..... 7
 - Safeguarding the Technology Environment 8
 - Facilitating Electronic Access to Government 8
 - Managing within Funding, Staffing, and Regulatory Frameworks..... 8
- Section 3. A Roadmap for the Plan 11
- Section 4. Managed Service Delivery 15
- Section 5. Managed IT Supply Chain..... 27
- Section 6. Security and Privacy 31
- Section 7. Technology Policy, Best Practices, and Partnerships 37
- Section 8. Core Missions 49
- Section 9. Championing Success..... 53
- Appendix A. Transformational Opportunities 55
 - Reprocurement of TEX-AN..... 55
 - Reprocurement of TexasOnline..... 57
- Appendix B. Summary of Related Technology Legislation..... 59
- Glossary 61
- Acknowledgments 63
- Endnotes 65

Executive Summary

Information and communications technology is a key enabler for transforming Texas state government to better serve its citizens, clients, and customers. Texas's enterprise approach to technology encourages innovative solutions that serve the state's citizens, promotes collaborative partnerships within and among both public and private sectors, and leverages shared services to reduce costs and gain efficiencies.

In the last two fiscal years, the Texas Department of Information Resources (DIR) and state agencies worked diligently and collaboratively to establish some of the basic building blocks of the state's shared services and technology infrastructure. Several strategies from the 2005 State Strategic Plan¹ have been accomplished: execution of the state's shared data center services contract, new successes of TexasOnline.com, and the continued evolution of the state's telecommunications and Internet protocol network.

The state remains committed to reduce government costs and promote and deliver results using effective technology contracting to deliver technology that matters. The statewide goals that governed the development of this plan are:

- Leverage the state's investment in shared technology infrastructure
- Protect and secure technology assets and information while safeguarding citizen privacy
- Simplify citizen, government, and business access to public-sector services and information
- Promote the innovative use of technology that positively impacts the state's business, as well as its economic development

The 80th Texas Legislature validated its previous charter for DIR by continuing to support a shared technology infrastructure approach. Legislation enacted during the session served to clarify direction and drive the state's technology transformation forward.

The 2007 State Strategic Plan lays out the statewide objectives that will drive government technology transformation in Texas for the next five years. These objectives encompass managed service delivery, managed supply chain, and security and privacy; technology policy, best practices, and partnerships; and innovative technology solutions that serve Texas citizens and meet state agency core missions.

About this Plan

This plan is organized into the following sections:

Section 1: Guiding the Texas Transformation presents the state's guiding principles and statewide goals, highlights the evolution of the Texas Model for the Enterprise, and discusses the transformation of Texas technology through innovation.

Section 2: Major Drivers describes the technology challenges and opportunities that face Texas government.

Section 3: A Roadmap for the Plan presents the components for executing the 2007 State Strategic Plan.

Sections 4 through 8 detail the statewide objectives and describe actions to be undertaken at the state enterprise and agency level to fulfill the objectives.

Appendices to the plan include **Transformational Opportunities**, summarizing the re-bids of the state's TexasOnline.com and TEX-AN contracts, a **Summary of Related Technology Legislation** from the 80th Texas Legislature, and a **Glossary**.

Guiding the Texas Transformation

Government performs best when it focuses on citizen, client, and customer outcomes in its decision-making processes. Information and communications technology (ICT) is a key enabler and critical change agent in delivering those positive outcomes.

State leadership expects meaningful results in the fulfillment of agencies' core missions. Texas's enterprise approach to government technology supports these expectations. This enterprise approach encourages innovative solutions for serving citizens, promotes collaborative partnerships, and leverages shared services among state agencies and local governments to reduce costs and gain efficiencies.

The mission of the Texas Department of Information Resources is to support the effective and efficient use of public funds. DIR achieves its mission by promoting and realizing a shared vision where the state maximizes the value of its technology by identifying common areas of interest, using technology to advance agency-specific missions, and preserving the flexibility to innovate.

THE STATE VISION FOR TECHNOLOGY

Texas maximizes its technology investment to deliver optimal services and vital information to improve the safety, welfare, and quality of life for all citizens. Collaborating across public and private sectors, state government implements strategies and solutions to allow each agency to best serve its customers.

Innovation, strategic partnerships, and exemplary customer service form the foundation for achieving the state's technology vision. State government is held accountable for the attainment of this vision by measuring performance and progress against clearly defined outcomes.

Guiding Principles

The Texas vision frames the guiding principles for technology leadership:

- Customers will receive consistently stellar service
- Business needs will drive technology solutions
- Centrally managed technology infrastructure and shared common services will be the fulcrum that leverages the state's ICT investment and enables agencies to innovate mission-specific processes
- Technology assets will be securely held and managed, and private information will be protected
- Technology resources will be purchased, managed, and used economically and efficiently
- Performance management will be applied against clearly defined benchmarks to measure project outcomes
- Effective strategic partnerships between the public and private sectors will be encouraged

Statewide Goals

Four statewide goals governed the development of this plan. Reducing government costs and driving effective technology contracting, expressed in the 2005 State Strategic Plan, *Shared Success*, remain as key components of this plan and are encompassed within the single goal of leveraging the state's technology investment. The goals are:

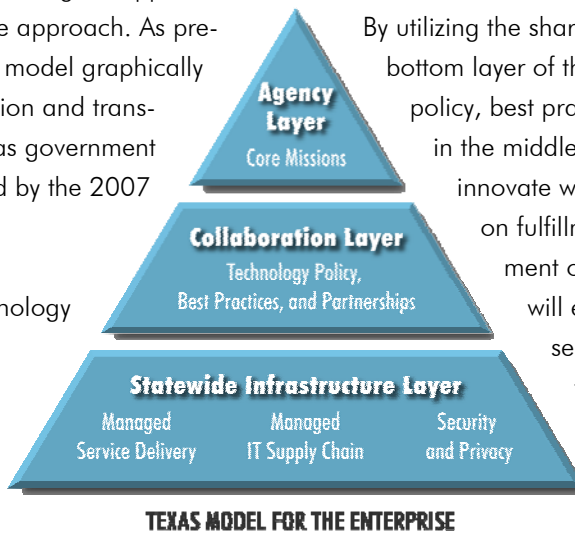
- Leverage the state's investment in shared technology infrastructure
- Protect and secure technology assets and information while safeguarding citizen privacy
- Simplify citizen, government, and business access to public-sector services and information
- Promote the innovative use of technology that positively impacts the state's business, as well as its economic development



The Evolution of the Texas Model for the Enterprise

The Texas Model for the Enterprise was introduced in DIR's 2004 report to the Texas Legislature, *A Foundation for Change*.² The model presents a vision of a shared services and technology infrastructure that is flexible and innovative and serves as a framework for organizing strategic activities across the government enterprise. The model presented in the 2005 State Strategic Plan reflected the structure necessary to develop the shared technology infrastructure that supports the upper layers. The 80th Texas Legislature validated its previous charter for DIR by continuing to support the shared technology infrastructure approach. As presented in this plan, the evolved model graphically represents the ongoing integration and transformation of technology in Texas government and identifies the areas covered by the 2007 State Strategic Plan:

- Managed Service Delivery
- Managed Information Technology (IT) Supply Chain
- Security and Privacy
- Technology Policy, Best Practices, and Partnerships
- Core Missions



The Statewide Infrastructure Layer includes *Managed Service Delivery*, which encompasses state data center services, communications technology services, TexasOnline.com, and shared applications. *Managed IT Supply Chain* represents commodity procurement and contracting initiatives. *Security and Privacy* completes the Statewide Infrastructure Layer.

The Collaboration Layer represents the areas where DIR and agencies work together on statewide policies and practices that leverage Texas's technology investment. Another aspect of the Collaboration Layer is to ensure that effective and innovative solutions are identified and communicated broadly as *Best Practices* across the enterprise. *Partnerships* are an essential element of the

Collaboration Layer as Texas government moves to a new shared services and technology infrastructure.

As the Statewide Infrastructure and Collaboration Layers integrate, the business value gained through managed service delivery becomes more tangible. When innovative ideas are applied in this shared, standardized environment, the benefits are broadly realized.

The Agency Layer of the Texas Model represents agencies' business lines—*Core Missions*. It encourages creative approaches and supports an innovation-centered environment where individual agencies have the time and resources to focus on creative business solutions.

By utilizing the shared services depicted in the bottom layer of the model, and leveraging the policy, best practices, and partnerships reflected in the middle layer, individual agencies can innovate with creative solutions that focus on fulfillment of core missions. Deployment of innovative technology solutions will expand access to information and services, equip employees with the tools needed to accomplish their jobs, and improve decision-making within organizations.

Transforming Texas Technology through Innovation

The critical nature of innovation that drives technology forward to transform not only local and state government, but also the lives of citizens, is apparent throughout the nation. States cited for innovative breakthroughs in government technology often reference solid support for creative technology improvements at all levels of government as a key factor in their success. In its search for innovations throughout American government, Harvard University uses four criteria:

- Novelty – the degree to which a program demonstrates a leap in creativity
- Effectiveness – the degree to which a program has achieved tangible results

- Significance – the degree to which the program successfully addresses an important problem of the public sector
- Transferability – the degree to which the program shows promise of inspiring successful replication by other governmental entities³

DIR has embraced these criteria and added a fifth one:

- Ease of interaction – the degree to which interactions are facilitated between citizens and their government, between governments, and between business and government

This fifth criterion represents government's obligation to provide consistently excellent customer service. As innovative technologies are incorporated into government use, new methods of delivering outstanding customer service will also need to be explored.

This plan maps out the continued transformation of the Texas Model for the Enterprise, in which shared services and collaboration across all levels of government will in turn free up agency time and resources to innovate their own service delivery. Agency development of their 2008 strategic plans will provide the opportunity to create individual roadmaps for this transformation through innovation.

Major Drivers



The State Strategic Plan Advisory Committee and representatives of the Telecommunications Planning and Oversight Council identified the major drivers that will impact the successful implementation of the objectives and strategies in this plan. These drivers acknowledge both challenges and opportunities that will affect the future management of the state's information resources. The state, its citizens, and the business community sometimes have conflicting ideas of government's responsibilities. Citizens expect government to provide services and programs that meet their needs, yet expect public servants to be good stewards of taxpayers' funds. Technology is the means for state government to provide excellent customer service and achieve business efficiencies.

This section focuses on integrating managed service delivery, transforming IT procurement and contracting practices, and managing within agency funding, staffing, and regulation frameworks. It also discusses improving customer service by safeguarding the technology environment and facilitating electronic access to government.

Integrating Managed Service Delivery

Individual technology infrastructure services have provided increased functionality and efficiencies, but cross-functional collaboration will take this progress to the next level. For example, the state's data center services program is using the statewide network to leverage a secure, shared network infrastructure. To facilitate the

provisioning of network communications services for agencies participating in the data center services migration, the state must integrate the efforts of each of these managed services.

Looking ahead, the procurement of the contract for TEX-AN—the state's centralized telecommunications and Internet protocol network—will allow the state to provide a next-generation approach to achieve shared communications services and to expand its suite of managed service options to deliver enhanced business value.

The procurement of TexasOnline.com, the state's official Web site and portal, will allow the state to seize opportunities for enhancements and expansion of e-government services. Electronic court filings, consolidated agency business applications, and mass collaboration tools are a few examples of existing e-government services. TexasOnline.com will maximize the delivery of cross-functional government services by providing a hosted platform. The state portal has been a highly successful public-private partnership that was rated the top state government Web site in the nation in 2006.⁴

Transforming IT Procurement and Contracting Practices

Current IT contracting practices can be time-consuming and expensive for both the public sector and the vendor community. Simplifying complicated, compliance-driven administrative requirements would improve the state's

competitive position by reducing the costs and cycle time of contracting practices and increasing business opportunities for the private sector. Statutory changes should be considered to provide the authority and flexibility to employ private sector procurement strategies that encourage innovation and drive value for taxpayers.

Safeguarding the Technology Environment

Users of government resources expect and need safe and open access to information and services. Continued escalation of security threats and identity theft ensure that sharing sensitive data safely will remain a critical challenge for government agencies. To create and maintain secure environments, agencies must invest in education and training related to security policies, procedures, and technical security skills. Government agencies will also need to dedicate adequate resources to address emerging security threats well before they become crises. Many basic activities, such as simply developing an accurate inventory and risk assessment for an agency's technology asset portfolio, will serve as a fundamental building block to improve security. The Governor's *Texas Homeland Security Strategic Plan*⁵ and DIR's *State Enterprise Security Plan*⁶ provide information and assistance for agencies' security planning.

Citizens must be confident that their personal and private information held in government custody is neither compromised nor inadvertently exposed. Agencies must be diligent about protecting the privacy of their customers by establishing processes and procedures to ensure confidential information cannot be accessed by individuals with malicious intent.

Facilitating Electronic Access to Government

Many citizens who could benefit from government services are either unaware that the services exist or have no idea how to find them. Government needs to make information available in a way that is intuitive to users,

OPPORTUNITY — VISIBILITY OF AGENCY EXPENDITURES

The Texas State Comptroller publishes expenditure information for approximately 200 state agencies and institutions of higher education on its Web site in order to increase accountability in how taxpayers' dollars are spent. Work continues on the development of accounting tools that will eventually ensure that all state agencies and institutions of higher education are able to provide detailed expenditure information through this Web site.

See the *Where the Money Goes Web site* at <http://www.window.state.tx.us/comptrol/expandlist/cashdrill.php>.

accessible to isolated communities, and available during irregular hours. For the customer's convenience, government needs to provide access to services through multiple channels, such as Internet portals, e-mail, instant messaging, telephone, and in person. Government Web sites should be designed from the citizen's perspective to simplify information searches.

As Texas government examines opportunities to move away from reliance on agency-specific technology environments, it must treat information as a strategic enterprise resource, promoting authenticity and reliability, improving data protection, and facilitating electronic access to information and services without compromising security and privacy.

Recent natural and man-made disasters underscore the critical need for citizen access to government information in an emergency. The National Information Exchange Model is an example of a collaboration to develop, distribute, and support enterprise information exchange standards and processes that will help government agencies share critical data in emergency situations.⁷

Managing within Funding, Staffing, and Regulatory Frameworks

Leveraging the state's shared services and technology infrastructure will free agencies to better serve their citizens, clients, and customers. However, government agencies face multiple challenges to fulfill their core missions: limited resources, attracting and retaining qualified personnel, and navigating a complex maze of

regulatory rules and requirements. Agencies also face the challenge to address the current and future needs of citizens, clients, and customers with flexibility, simplicity, and proficiency.

The complexities presented by coordination of multiple funding streams can be particularly difficult for agencies to overcome. Over the past decades, intricate state and federal funding streams have developed that have multiple, sometimes overlapping, and often contradictory, requirements. Innovative technology projects that might transcend the status quo can become impossible to implement due to funding considerations. The source of funds should not become a barrier to shared services. For example, agencies could incorporate charge-back systems that allow services to be charged to the benefiting program. The state's shared data center services program currently provides a Web-based charge-back system allowing agencies to allocate costs to the benefiting programs in accordance with state and federal requirements.

A Roadmap for the Plan




Texas must ensure the effective and efficient use of public funds through the successful application of statewide services and technologies. These services should be beneficial and afford access, while ensuring a secure and safe technology environment. Efficiencies are gained and service delivery is improved through utilization of a statewide shared services and technology infrastructure.

Throughout the last biennium, DIR and state agencies worked diligently and collaboratively to establish some of the basic building blocks of the state's shared services and technology infrastructure. Several strategies from the 2005 State Strategic Plan have been accomplished: execution of the state's shared data center services contract; new successes of TexasOnline.com,

the state portal; and the continued evolution of the state's communications technology services and Internet protocol network. The statewide objectives and strategies, mapped below, build on the commitments and responsibilities articulated in the 2005 State Strategic Plan and reflect Texas's effort to address the drivers identified in this plan.

Statewide Goals and Objectives

DIR has adopted five objectives to achieve the statewide goals. The alignment of the statewide goals and objectives with the Texas Model for the Enterprise is shown below.

ALIGNMENT OF STATEWIDE GOALS AND OBJECTIVES WITH THE TEXAS MODEL FOR THE ENTERPRISE				
GOAL	SHARED INFRASTRUCTURE	SECURITY AND PRIVACY	ACCESS TO GOVERNMENT	INNOVATIVE USE OF TECHNOLOGY
	Leverage the state's investment in shared technology infrastructure	Protect and secure technology assets and information while safeguarding citizen privacy	Simplify citizen, government, and business access to public-sector services and information	Promote the innovative use of technology that positively impacts the state's business, as well as its economic development
OBJECTIVE	<ol style="list-style-type: none"> Solve common business problems through managed services Deliver business value and maximize buying power through integrated technology supply chain services 	<ol style="list-style-type: none"> Provide leadership to secure the state's technology assets and promote appropriate use of citizen information 	<ol style="list-style-type: none"> Enhance Statewide Technology Management and Collaboration 	<ol style="list-style-type: none"> Deploy value-added technology solutions to meet agency core missions and serve Texas citizens
TEXAS MODEL	STATEWIDE INFRASTRUCTURE LAYER		COLLABORATION LAYER	AGENCY LAYER
	Managed Service Delivery Managed IT Supply Chain	Security and Privacy	Technology Policy, Best Practices, and Partnerships	Core Missions

Mapping the Plan

The objectives of the State Strategic Plan map to the Texas Model for the Enterprise. Strategies and actions are mapped for each objective.

STATEWIDE INFRASTRUCTURE LAYER

Managed Service Delivery

OBJECTIVE 1: Solve common business problems through managed services

AREA	STRATEGY	ACTIONS
Texas Data Center Services	1-1 Implement and manage high-performing, secure, and reliable data center services (page 15)	<ul style="list-style-type: none"> Oversee the contract and implement governance processes Manage transition Manage transformation Manage consolidation
Communications Technology Services	1-2 Deliver enhanced business value from managed communications technology services (page 19)	<ul style="list-style-type: none"> Develop and implement a managed communications services business model and governance structure Procure the next generation of TEX-AN
TexasOnline.com	1-3 Establish TexasOnline.com as the nation's premier virtual field office and customer services portal (page 21)	<ul style="list-style-type: none"> Procure the next generation of TexasOnline.com
Shared Applications	1-4 Leverage shared applications and processes where common business needs exist (page 23)	<ul style="list-style-type: none"> Collaborate on enterprise resource planning standards development Implement statewide e-mail, messaging, and Web collaboration

Managed IT Supply Chain

OBJECTIVE 2: Deliver business value and maximize buying power through integrated technology supply chain services

AREA	STRATEGY	ACTIONS
Supply Chain Support	2-1 Develop and deploy knowledge-based procurement strategies (page 27)	<ul style="list-style-type: none"> Deploy business analytics and business intelligence tools
Contracting	2-2 Expand metric-driven contracting practices (page 29)	<ul style="list-style-type: none"> Identify and implement new contracting opportunities and improvements Improve the customer experience

Security and Privacy

OBJECTIVE 3: Provide leadership to secure the state's technology assets and promote appropriate use of citizen information

AREA	STRATEGY	ACTIONS
Security	3-1 Provide leadership and assistance to agencies in the effective implementation of the <i>State Enterprise Security Plan</i> (page 31)	<ul style="list-style-type: none"> Collaborate with agencies to implement the <i>State Enterprise Security Plan</i> Improve capability to identify and reduce cybersecurity risks
Privacy	3-2 Promote effective approaches to information privacy management (page 33)	<ul style="list-style-type: none"> Evaluate opportunities to establish a privacy management program

COLLABORATION LAYER

Technology Policy, Best Practices, and Partnerships

OBJECTIVE 4: Enhance Statewide Technology Management and Collaboration

AREA	STRATEGY	ACTIONS
Availability	4-1 Provide leadership and support in making state information available to all users (page 37)	<ul style="list-style-type: none"> • Promote accessibility • Promote usability and searchability • Promote life cycle management of data and information
Interoperability	4-2 Provide leadership and support for cross-agency initiatives that enable or enhance data sharing and interoperability between agency processes and systems (page 40)	<ul style="list-style-type: none"> • Establish common architectural standards and best practices • Streamline data management and reporting • Improve data sharing • Advance justice information system integration • Implement the Texas State Communications Interoperability Plan
Statewide Project Delivery	4-3 Provide leadership and support for the delivery of the state's technology projects (page 44)	<ul style="list-style-type: none"> • Assist agencies in implementing sound project management practices • Develop procedures for major contracts that outsource a state function or process • Develop additional framework extensions • Deliver technical assistance
Statewide Partnerships	4-4 Provide leadership and support for multi-level government technology collaboration and partnerships (page 46)	<ul style="list-style-type: none"> • Facilitate intergovernmental collaboration • Promote strategic partnerships

AGENCY LAYER

Core Missions

OBJECTIVE 5: Deploy value-added technology solutions to meet agency core missions and serve Texas citizens

AREA	STRATEGY	ACTIONS
Agency Innovation Centers	5-1 Plan and deploy innovative technologies that deliver world-class services to Texans (page 50)	<ul style="list-style-type: none"> • Design from the customer's perspective • Expand communication channels • Unleash information

Implementing the Plan

DIR will continue to work with agencies, other state and local governments, and the private sector to ensure that the state's progress toward fulfilling the objectives and strategies in this plan will be measured and demonstrated. DIR will work in partnership with

agencies and other stakeholders to define next steps and dates for key initiatives described in this plan. Progress on these initiatives will be tracked and reported.

Managed Service Delivery



Objective 1. Solve Common Business Problems through Managed Services

Over the last biennium, DIR's collaboration with state agencies to establish Texas's shared services and technology infrastructure has led to progress in the delivery of data center services, communications technology services, and e-government.

FUTURE OPPORTUNITIES

- Establish enterprise standards for information architecture
- Explore leveraging the Lonestar Education and Research Network (LEARN) for high-speed data communications transport

In the next biennium, the state will continue to advance in these areas. Consolidation activities will continue to transform data center services. State communications technologies will evolve toward a managed communications services model. The state's official portal, used to deliver government services to citizens, clients, and customers across the Internet, will be enhanced through the procurement of the TexasOnline.com contract. Finally, the state will examine opportunities to deploy enterprise applications that deliver common business solutions, utilizing both a shared and managed services approach.

TEXAS DATA CENTER SERVICES

Strategy 1-1.

Implement and manage high-performing, secure, and reliable data center services

March 31, 2007, marked the commencement of the Texas Data Center Services (DCS) contract. At the start of the contract, participating agencies began receiving services and 268 state employees became members of the "Team for Texas," the name for the state's primary service provider and its main vendor partners. As part of this effort, equipment from the agency data centers will be migrated to two locations, one in Austin, one in San Angelo. The legacy agency data center space (approximately 210,000 square feet) will be released for other state uses. Since data centers consume significantly more electricity per square foot than office space, freeing this space for other use provides an opportunity to reduce the state's utility bill and decrease its carbon footprint.

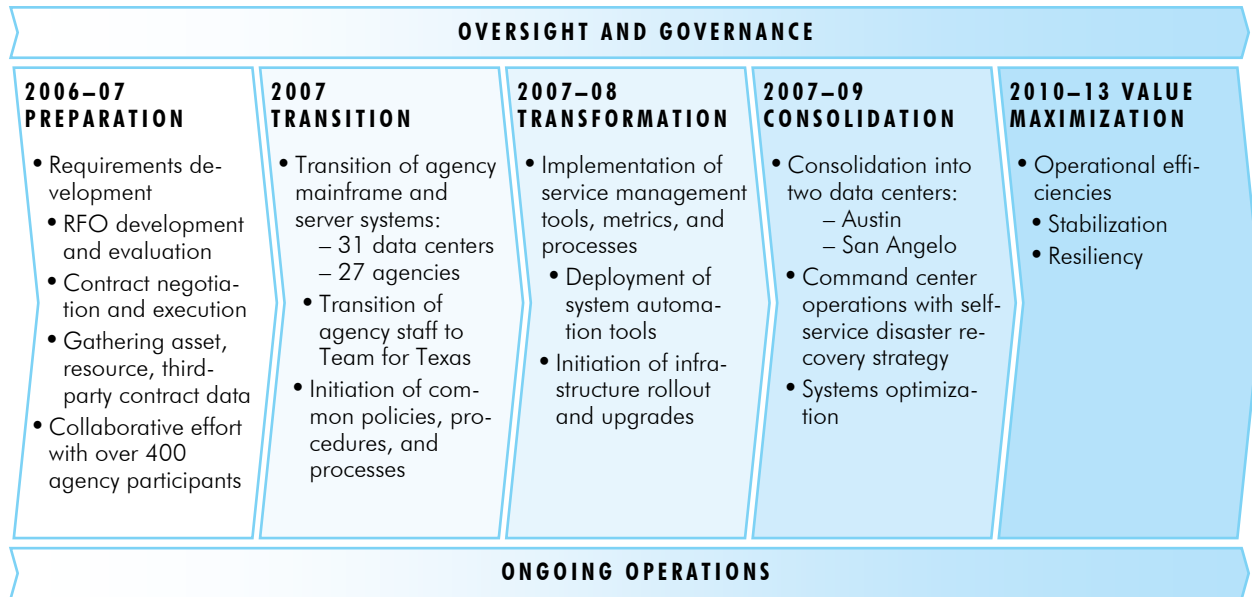
HIGHLIGHT — DATA CENTER CONSOLIDATION

The Data Center Services program will reduce overall costs while improving data center and disaster recovery services.

- All agencies, regardless of size or resources, will share a strong technology foundation including advanced security and disaster recovery tied to business requirements
- Physical and information security measures will include continuous review and revision to protect state assets against internal and external threats
- Industrial class data centers will provide hardened, single-use facilities, advanced cooling systems, and sophisticated power management
- New print/mail facility will embed intelligence into the mail stream for higher accuracy and enable off-site quality assurance monitoring

The state's DCS program has organized contract activities as illustrated below.

STATE DATA CENTER SERVICES – PHASES



Starting in January 2006, DIR and participating agencies prepared the state for the DCS contract by developing request for offer (RFO) requirements, conducting the procurement, and executing the agreement. The key contract change phases are Transition, Transformation, and Consolidation. After the major changes are complete, the DCS program will reach *steady state*, where the value of the shared infrastructure is maximized. Throughout the process, the DCS program will maintain data center operations and deliver services.

To accomplish Strategy 1-1, DIR will:

- **Oversee the contract and implement governance processes**

To manage the complex contract, strong contract oversight and inclusive governance processes must be in place.

ACCOMPLISHMENTS

DIR organized a management and operations team to interface with agency customers and the service provider. DIR service representatives communicate almost daily with their assigned agencies, monitoring service and escalating operational issues as

needed. The DCS manager directs the team and holds the service provider accountable for deliverables and service quality. Additionally, DIR continues to work closely with the agency-led Data Center Services Advisory Council, the primary governance body for agency technology directors. The advisory council meets twice monthly with DIR and the service provider to discuss enterprise issues.

NEXT STEPS

From contract-specified service levels that measure operations, such as system uptime, resolution time, and customer satisfaction, DIR will track, monitor, and address contract performance. DIR will work with the agencies and the service provider to implement a performance dashboard, including quantitative and qualitative measures of service responsiveness and management. Key steps:

- Deploy agency-specific scorecard and enterprise dashboard
- Convene DCS technology steering committee
- Develop DCS technology plan

■ Manage transition

Transition encompasses the transfer of responsibility for data center services to the state's new service provider. Because Texas data center services were not previously managed centrally, transition is a significant project phase, requiring an exhaustive identification of in-scope assets and resources, including hundreds of third-party contracts and hardware assets distributed across the agencies. Transition also includes initiation of service level agreements and establishment of enterprise procedures for service and change management. Transition activities began before contract commencement and are ongoing.

ACCOMPLISHMENTS

The first transition, which occurred on March 31, 2007, affected agency-operated services and staff. The second transition, on August 31, 2007, transferred services operated at the state data center in San Angelo under the previous state master services agreement, and included the transition of critical staff with knowledge of Texas operations.

NEXT STEPS

The third and final planned transition, of Department of Family and Protective Services operations, is scheduled to occur December 1, 2007. As new agencies are added, additional transitions will be scheduled.

■ Manage transformation

Transformation includes standardization and implementation of new management and delivery tools to enable greater control and visibility into services. Through transformation, the state will ensure that unique agency needs continue to be met, while introducing greater standardization of platforms to leverage economies of scale. Governance committees will drive the enterprise goals and standards and agencies will continue to select their solutions based on the best value for their needs.

Transformation has already begun to yield some benefits for the state through improved tracking, re-

porting, and enterprise management of these services. With these changes, for the first time, the state has visibility into its data center operations and costs across participating agencies. Transformation provides the platform for consolidation of facilities, equipment, and service delivery. For example, with agencies using a single system, trends and variations in service requests can be observed.

ACCOMPLISHMENTS

The service provider has completed an \$18 million build-out of a new data center and invested \$1.5 million in upgrades to the existing data center in San Angelo. The service provider has deployed enterprise tools to improve performance monitoring and management and to establish consistency across the enterprise. Implementation of enterprise tools facilitates many transformation activities. A single solution for support center and help desk management unifies incident, problem, change, asset life cycle, and service level management applications for all participating agencies.

TECHNOLOGY THAT MATTERS — DATA CENTER SERVICES

The DCS contract transfers operational responsibility to the state's service provider for 31 data centers, 16 mainframe computers, and approximately 5,300 servers in 1,300 locations. The contract adds value to government programs and services in several ways, such as:

Predictable Costs

Standardized service charges, customers pay based on consumption.

Fulfillment of the State's Contract Goals

- Economical pricing and meaningful service levels
- Strong contract language
- Tight security and improved disaster recovery
- Comparable job offers to affected employees
- Inclusive governance structure

Environmental Efficiencies

- The wattage of the lighting at the Austin facility is approximately 23 percent below the state energy allowance for this size building.
- The Austin facility's uninterruptible power supply direct current units yield 93 percent efficiency, near the highest currently available.

The DCS Web portal provides access to the service management solution, invoicing applications, training, and the Policies and Procedures Manual. Application of the Information Technology Infrastructure Library framework provides industry-standard terms, definitions, and workflow. For the DCS agencies, using these tools will create the consistency that enables enterprise decision-making and consolidation activities.

NEXT STEPS

DIR will manage the effort to initiate the infrastructure rollout and upgrades. Key steps:

- Deploy server transformation support tools
- Develop interim disaster recovery plans for state agencies
- Implement security architecture
- Populate configuration management database

■ Manage consolidation

Consolidation includes the physical migration of assets to the data center facilities and consolidation of these assets for efficiency. Agency data center operations will be consolidated in a series of waves. Each wave will contain several agencies to be consolidated on a similar schedule for organization and risk management purposes. Waves will be carefully scheduled around agency business operations and peak processing times. The enterprise technology infrastructure as envisioned by the 79th Texas Legislature in House Bill 1516 (HB-1516) can only be possible with a shared data center system. As operations are migrated to the two state data centers, they will become part of a unified system for improved consistency, control, planning, security, disaster recovery, and management.

- The mainframe consolidation project will replace 16 mainframes with six new machines. In addition, isolated disk and tape storage devices will be centralized into shared, state-of-the-art storage environments. Where possible, all operating systems that are no longer supported, along with re-

lated program products, will be upgraded to bring agency technologies up to date.

- The server consolidation project will upgrade the state’s server technology while reducing the total number of servers from more than 5,300 to approximately 1,100 for improved management and control. During this process, many servers will be replaced with newer models to reduce risk and lower the overall age of the DCS server population. Depending on the useful life and technology profile of a specific server, consolidation activities will range from server refresh or replacement to relocation of hardware.
- Several of the DCS agencies have significant print and mail operations, with a total of 19 million pages printed per month. These legacy operations range in level of service, data integrity, and quality control. As print and mail operations are consolidated, they will be upgraded to a sophisticated, state-of-the-art operation, with all new

HIGHLIGHT — LEARN

The Lonestar Education and Research Network is a collaborative initiative among 33 state institutions of higher education that provides high-speed connectivity among these universities and with research networks across the country. LEARN supports higher education research, health care, and public service activities. LEARN objectives include the development of a fiber network to provide a virtual environment for real-time collaboration that facilitates communication, shared data, and video for real-time activities in research, education, and health services.

HB-1516 (79th Texas Legislature) allows DIR to utilize the high bandwidth of LEARN for the transport of authorized data communications traffic to and from state data centers. DIR will be working to assess the feasibility and mutual benefit of partnering with LEARN in support of the state data centers. The potential to leverage low-cost, high-speed LEARN for the purposes of transporting approved traffic between the major metropolitan areas, where LEARN is present, and the two state data centers is an attractive prospect for the state.

Source: Lonestar Education and Research Network, <http://www.tx-learn.org>

equipment and multiple quality controls, enabling not only prompt and accurate service delivery, but also a clear audit trail for review and analysis.

ACCOMPLISHMENTS

Consolidation activities began in August 2007, with the migration of the Texas State Library and Archives Commission to the data center.

NEXT STEPS

DIR will manage the effort to consolidate and migrate assets to the data center facilities. Key steps:

- Consolidate mainframes
- Consolidate servers and storage
- Consolidate print and mail operations
- Consolidate facilities

The DCS program is a seven-and-a-half-year journey for Texas. While some benefits have already been delivered, many activities have only just begun. As agencies migrate to the data centers over the next two years, benefits will accelerate through opportunities to share infrastructure and consolidate hardware. The state will have increased visibility into data center services, and common shared processes will allow stronger management controls and enable greater efficiencies.

The unprecedented level of transparency of cost, performance, and utilization will improve statewide technology planning and provide the Texas Legislature with insight into the value returned on statewide technology investments. As agencies participate in DCS governance, they will continue to collaborate, share knowledge, and strengthen customer services. Texas will be able to set a new standard for maximizing the value of the state's shared infrastructure.

COMMUNICATIONS TECHNOLOGY SERVICES

Strategy 1-2.

Deliver enhanced business value from managed communications technology services

Communications technologies can enhance the user experience by simplifying and improving the means by

which a user accesses government services and information. Additionally, indirect benefits can be realized by the public as a result of improved internal operating efficiencies such as process automation, reduced service delivery cycle times, and improved service quality. Furthermore, the use of advanced communications technologies can often offer cost savings for agency operations through improved efficiency and productivity gains.

Over the last biennium, the state has made significant progress in upgrading and optimizing its shared communications infrastructure. The improvements allow DIR customers to meet their agency goals by providing cost-effective, high-quality advanced communications services, enhancing business continuity capability, delivering converged services for greater flexibility, and sharing of underutilized bandwidth.

To efficiently oversee the communications infrastructure, statewide network management functions are now co-located and integrated with security operations in the newly established Network and Security Operations Center. The center provides a secure and resilient facility to deliver enhanced statewide communications services, as well as security monitoring and assessment services. As of September 2007, the center established

COLLABORATION — CALL CENTER SERVICE TRANSITION

In the summer of 2007, DIR worked with the Health and Human Services Commission to ensure a smooth transition and systematic turnover of vendor responsibility for their call center service requirements. Progress on this effort includes:

- Completed transition of data and voice infrastructure to DIR services
- Successfully transferred operational responsibility to DIR for communications technology including routers, switches, load balancers, firewalls, intrusion detection, automated call distribution, interactive voice recognition, telephony, screen capture, and workforce management
- Development and implementation of comprehensive operational policies and procedures

initial operational capability, which fulfills certain requirements of HB-3112 (79th Texas Legislature) to enhance the security capabilities of the state.

Looking forward, the state will focus on developing comprehensive business solutions to gain enhanced value from managed communications technology services. DIR will collaborate with state agencies and others to:

■ **Develop and implement a managed communications services business model and governance structure**

The goal of centrally managed communications services is to offer solutions that do not require ownership or maintenance of assets, and that offer predictable costs, a flexible and guaranteed technology refresh path, and the freedom to concentrate on core missions. To effectively deliver managed communications services statewide, DIR must develop an enhanced business model to meet the needs of a more complex relationship with its customers and vendors. This new business model requires DIR to pursue the role of a customer advocate and service delivery manager, with accountability for the performance of its contracted partners.

Goals for effectively delivering managed communications include:

- Simplify service acquisition
- Simplify service establishment
- Simplify service support
- Enhance value from sharing
- Enhance vendor performance through improved reporting of service levels

Implementing this model will result in easier methods for obtaining integrated communications solutions that meet agency business needs.

ACCOMPLISHMENTS

DIR is in the process of implementing a converged solution for managing communications services for the Office of the Attorney General’s Child Support program. Additionally, DIR is providing assistance to agencies in determining bandwidth and application

performance metrics for connectivity in support of the state’s DCS consolidation project. DIR has also:

- Enhanced TEX-AN to deliver a shared, secure statewide IP infrastructure for delivering voice, data, and video services
- Assumed operational responsibility for supporting the Health and Human Service Commission’s eligibility call centers communications infrastructure
- Migrated the state’s poison control center from disparate voice, data, and video networks to a fully-converged IP solution

NEXT STEPS

DIR will work with state agencies and others to develop and implement a managed communications services business model and governance structure.

Key steps:

- Develop performance management tool for business model
- Develop a governance structure implementation plan

■ **Procure the next generation of TEX-AN**

The current TEX-AN contract expires in August 2009. Contract reprocurement will begin in fiscal 2008. Reprocurement of TEX-AN affords the state an opportunity to introduce innovative methods for delivering comprehensive communications solutions.

The resulting contract is expected to diversify service offerings across multiple service providers, promote reuse and sharing of applications, and provide agencies with the flexibility to choose from a number of approaches to communications solutions delivery. This approach will strengthen the state’s ability to provide a portfolio of high-performance and secure communications services to support an array of business requirements.

ACCOMPLISHMENTS

DIR has established a procurement strategy for the re-bid of the TEX-AN contract. Additionally, DIR is conducting ongoing business research to support these efforts.

NEXT STEPS

With customer input, DIR will develop requirements for the TEX-AN re-bid. Key steps:

- Conduct research and outreach
- Issue RFO
- Evaluate bid responses
- Negotiate and award contract
- Transition services

DIR will serve as a trusted partner and advocate for each agency customer. A governance structure will be established that ensures operational visibility and performance management oversight across all service providers. As the state’s communications technology sourcing agent, DIR will be accountable for the service delivery and performance of the communications technology solutions delivered through its contractors, and will ensure customers are receiving the best value that meets their business needs.

TEXASONLINE.COM

Strategy 1-3.

Establish TexasOnline.com as the nation’s premier virtual field office and customer services portal

TexasOnline.com is the official Internet portal and e-government platform for the State of Texas. The site, which was launched in 2000, has developed an impressive array of online services serving a wide variety of customers—including citizens, businesses, local governments, and state agencies. From the Texas Emergency Portal to the new automated vehicle inspection system, TexasOnline.com has consistently delivered innovative applications that simplify access to government and meet the challenges posed by distance in Texas’s diverse geography. A selection of the more popular services provided by TexasOnline.com includes:

- Driver’s license renewal
- Copies of vital records
- Professional and occupational licenses
- Texas Business Portal
- Texas Emergency Portal

HIGHLIGHT — TEXASONLINE.COM

TexasOnline.com offers more than 800 online services that benefit citizens, businesses, state agencies, and local government. Since December 2000, the state portal has received more than 80 million visits, processed over 70 million financial transactions, and collected more than \$5 billion in revenue.

In the 2006–07 biennium, TexasOnline.com has achieved the following milestones:

- Processed 29 million transactions
- Added 133 new online services
- Launched Texas e-Grants System
- Rolled out an automated vehicle inspection system, in partnership with the Department of Public Safety and Texas Commission on Environmental Quality, to nearly 10,000 service stations in Texas

- Texas Consumer Portal
- Municipal ticket pay
- County property tax payment
- Motor vehicle inspection system

In the process of building its “virtual field office,” TexasOnline.com has established the state as a national leader in the field of e-government. TexasOnline.com was ranked in the top 10 nationally in 2006 and 2007, according to Brown University’s study of more than 1,500 state and federal Web sites. TexasOnline.com has also won numerous other awards and honors.

The self-funded public-private partnership that was created at the project’s inception has allowed Texas to rapidly deploy new services without up-front capital investment from the state. This self-funded model has been a major contributor to the overall success of the state portal and has generated funds to the state treasury through a revenue-sharing agreement that, according to DIR internal benchmarking, is the best of its kind in the nation.

While the state is justifiably proud of TexasOnline.com’s broad range of services and exceptional citizen adoption rate, DIR is also enthusiastically and aggressively seeking out innovative ideas and new possibilities for future e-government services. To establish TexasOnline.com as the premier virtual field office and

customer services portal, DIR will collaborate with state agencies and others to:

■ **Procure the next generation of TexasOnline.com**

The current TexasOnline.com contract expires in December 2009, and a reprocurement effort is already underway. Looking forward to the next generation of TexasOnline.com has afforded Texas a chance to revisit and enhance the project's guiding principles.

Goals for the next generation of TexasOnline.com include:

- Simplify access to government services and information
- Close gaps related to distance, economics, and physical disability
- Support the demand for multi-channel access
- Support new businesses and statewide job creation
- Leverage great ideas from around the globe
- Drive deep e-government transformation
- Set a high standard for online security and privacy
- Deliver solid operational performance
- Deliver superior financial performance

ACCOMPLISHMENTS

DIR issued a request for information (RFI) in June 2007, and conducted several vendor forums, utilizing Webcasts and online chats. The final interactive procurement Webcast during this process yielded the following statistics:

- 183 individual viewers representing 154 companies participated in the Webcast
- 47 percent of viewers were company executives
- 67 percent of vendors were from outside of the City of Austin, including participants from Canada and India

DIR estimates that vendors collectively saved \$108,000 in travel costs for the online event. Additionally, by shifting from an in-person meeting to online, the carbon footprint of such an event almost disappears.

HIGHLIGHT — MULTI-CHANNEL ACCESS TO THE U.S. GOVERNMENT

In October 2007, the U.S. General Services Administration launched GovGab, a new general government Web log. This government blog is designed to enhance citizen access to federal government information and services. As reported by the General Services Administration, 57 million Americans now actively blog on the Internet.

The GovGab blog features daily posts from a team of five managers that spotlight U.S. government information and services of use to Americans. Examples of topics include, "What to Do When an Airline Loses your Luggage," and "Help in Finding Missing Kids." The blog is part of the federal government's ongoing implementation of the President's 2002 e-government initiative.

Source: <http://blog.usa.gov/roller/govgab/> and "GSA Introduces New Weblog: GovGab," news release, October 2, 2007, GSA #10410.

NEXT STEPS

With customer input, DIR will develop requirements for the TexasOnline.com re-bid. Key steps:

- Conduct research and outreach
- Issue RFO
- Evaluate bid responses
- Negotiate and award contract
- Transition services

As the master contract holder, DIR has a responsibility to meet these goals in partnership with other agencies and local governments that already host their services on TexasOnline.com. Along with the Texas Department of Public Safety, Department of State Health Services, Texas Supreme Court, City of Houston, Texas A&M University, and many other government stakeholders, DIR will be working diligently and collaboratively to build the next and best generation of Texas e-government.

SHARED APPLICATIONS

Strategy 1-4.

Leverage shared applications and processes where common business needs exist

Certain business processes across state agencies are ubiquitous and shared. Leveraging a common solution that simplifies agencies' support and improves the reach of those applications makes the best use of the state's investment in technology.

Individual agencies should objectively and continuously assess their own business needs and the underlying processes to determine if there is potential for statewide usage. In conducting this evaluation, agencies may consider the following questions:

- Does this application have broad applicability across many different state agencies?
- Is there a business case for a new statewide shared service in this area?
- Is the requesting agency in need of transformation in the affected area, or is it already a "center of excellence" for the application?
- If this application becomes a new shared service, would it gain significant adoption as a voluntary program?

In addition to working with agencies to examine shared application and process opportunities, DIR will:

■ Collaborate on enterprise resource planning standards development

Effective control over financial and human resources is one of the most complex aspects of agency management. Enterprise resource planning (ERP) is an approach to financial and human resource asset management that is comprehensive, effectively integrates critical human resources and financial asset systems, and ensures ongoing statewide analysis, coordination, and accountability.

DIR's 2006 Biennial Performance Report, *Shared Results*, included a legislative recommendation to evaluate options for a statewide enterprise resource planning implementation.⁸ Strategies to implement

HIGHLIGHT — UT SHARED SERVICES INITIATIVE

The University of Texas System's Shared Services Initiative reports improved efficiencies as well as cost savings to the system. The system has worked to consolidate business functions across universities to add value and standardize higher education processes and reports.

The Shared Services Initiative is organized around three areas: information technology (data center consolidation), business systems (software applications), and business processes.

The shared services model encompasses more than centralized services, it also facilitates shared governance and increased flexibility.

This initiative has already saved millions (shared services activities have already added over \$250 million in value) in actual and projected savings, as well as new revenue.

Benefits of the initiative include cost savings through economies of scale, improved processes through standardization and common data definitions, and application of best practices.

Source: University of Texas System, "Shared Services Initiative Yields Efficiencies, Cost Savings,"

http://www.utsystem.edu/news/features/shared_services_summer07.htm.

this recommendation included establishment of uniform standards to improve state reporting and development of a statewide plan for ERP implementation. The 80th Texas Legislature recognized the importance of a coordinated statewide approach to ERP through the passage of HB-3106. This legislation authorizes the Comptroller of Public Accounts (CPA) to establish standards for modification of existing systems, and to establish a new plan for statewide ERP. Clearly defined and enforced data standards will allow meaningful aggregation and analysis of state government information.

ACCOMPLISHMENTS

HB-3106 directed the CPA to ensure that the uniform statewide accounting project includes enterprise resource planning. Additionally, the bill authorized the CPA to adopt by rule any requirements related to agencies' implementation of individual accounting and payroll systems, including individual

ERP systems, so that those systems are compatible with the uniform statewide accounting system.

The CPA has established an ERP advisory council, composed of representatives from agencies specified in the bill, including DIR.

NEXT STEPS

The ERP advisory council will develop a plan that contains key requirements, constraints and alternative approaches for the CPA's implementation of ERP standards, including related core functionality and business process reengineering requirements. The CPA will report to the Texas Legislature concerning the status of the implementation of the advisory council's plan, including the financial impact of any planned modifications and upgrade requirements of statewide and agency systems. Key steps for the advisory council and the CPA include:

- Develop ERP plan and approach
- Report to the Texas Legislature

■ Implement statewide e-mail, messaging, and Web collaboration

DIR established a statewide e-mail, messaging, and Web collaboration program in 2006. This program was centered around a contract awarded in March 2006 that allowed agencies to purchase e-mail, instant messaging, and Web collaboration tools as a shared service on a per-mailbox basis. The contract was an important business milestone and showed that the State of Texas had the bargaining power and organizational governance required to establish this initiative.

Aware that all new technology ventures have risks, DIR designed a "firewall" provision in the statewide program that would allow Texas to fully assess the quality of the technology in a realistic setting before any funds were expended and before any customer implementations would begin.

This firewall provision in the statewide program proved to be critical, as DIR has concluded that the technology provided under the March 2006 contract

FUTURE OPPORTUNITIES — COORDINATION AND COLLABORATION REDUCE GIS DEVELOPMENT COST

The development of digital base map data for use as a common geographic framework of reference for the state is critical in order for agency's to effectively integrate geographic information system (GIS) technology into the state's services. Base map datasets representing accurate, current, and easily accessible information on the state's transportation systems, water bodies, topography, political boundaries, and aerial imagery are a key resource for agencies in their decision-making and service delivery regarding environmental planning and regulation, land management, social services, health care provisioning, and emergency response. The collaborative development of common base map data has been spearheaded by agencies through the Texas Geographic Information Council, to ensure that these datasets are created to an agreed-upon technical standard and that the work is not duplicative of the efforts of other organizations.

The actual work of developing statewide digital base map data is done by agencies at the state and federal level, typically as a collaborative cost-sharing effort because of the significant expense involved in creating and updating statewide layers. The Strategic Mapping (StratMap) Program, managed by the Texas Water Development Board's Texas Natural Resources Information Systems Division, is charged with the development of several key statewide digital base map layers, and toward that end, leverages state, federal, and local funding partnerships to lower the overall cost per entity. Continued collaboration on data development, shared Web services, and consolidated infrastructure are critical to the successful deployment of this strategic technology.

Source: Texas Geographic Information Council, <http://www.dir.state.tx.us/tgic/index.htm>, and Texas Natural Resources Information System, "Stratmap," <http://www.tnris.state.tx.us/StratMap.aspx>.

was unsuitable to serve as a statewide solution.

DIR's implementation of this provision has protected state funds and avoided implementation issues at DIR's customer agencies. Having seen the usefulness in this case, DIR plans to use similar approaches in other technology contracts as a general risk mitigation strategy.

The business case and customer need for a statewide shared service for e-mail, messaging, and Web collaboration is stronger than ever, and DIR remains

committed to addressing this need. Furthermore, in the past months, market prices have decreased and the number of potential vendors providing such a solution has dramatically increased.

ACCOMPLISHMENTS

DIR has successfully implemented an internal, hosted e-mail solution and is developing a statewide strategy.

NEXT STEPS

DIR will develop a strategy to implement a new contract with a new technology solution. The goal for the new contract is to meet the needs of the State of Texas and allow the program to go forward. As with the past contract, the technology solution will be fully tested using a firewall strategy before it is given the green light to serve as a statewide shared application. Key steps:

- Issue RFO
- Evaluate bid responses
- Negotiate and award contract
- Initiate pilot

DIR will evaluate future shared service offerings and will promote and assist in establishing shared services in centers of excellence when warranted.

Managed IT Supply Chain



Objective 2. Deliver Business Value and Maximize Buying Power through Integrated Technology Supply Chain Services

The competitiveness and complexity of today's technology marketplace require a focus on knowledge-based activities and strategies—such as spend and demand analysis and business analytics and intelligence—to gain real value in high-volume technology procurement

FUTURE OPPORTUNITY

- Cooperative, consolidated procurements

for Texas government. Process-driven and repetitive transactional procurement practices alone are not sufficient

to ensure the best use of taxpayer funds, nor do they maximize savings. Analysis of expenditure and purchasing statistics helps DIR to anticipate customer needs and prioritize contracting opportunities.

The state has worked diligently throughout the biennium to maximize its buying power on quality commodity technologies and services, resulting in significant savings for state agencies, local governments, public schools, and other customers.

SUPPLY CHAIN SUPPORT

Strategy 2-1.

Develop and deploy knowledge-based procurement strategies

The Information and Communications Technology Cooperative Contracts program is designed to generate savings for taxpayers by efficiently leveraging volume buying power to lower the cost and improve the quality of the state's investment in technology commodities. The ICT Cooperative Contracts program plays a key role in reducing government costs and helping agencies serve citizens. Because all cooperative contracts are

competitively bid, the procurement process is streamlined by

eliminating the need for each customer to issue a competitive solicitation individually. Every dollar DIR saves its customers on the purchase of technology goods and services is a dollar that can be spent on mission-critical services such as providing better education or improving health services.

Over the last biennium, the ICT Cooperative Contracts program has continued to advance from transactional-based procurements to a knowledge-driven supply chain that generates value for over 4,400 eligible state agency, local government, and public education customers across the state, and an expanding customer base outside of the state. By coupling Texas's volume buying power with knowledge-based sourcing strategies, the ICT Cooperative Contracts program generates significant cost reductions and continues to increase the value of the state's technology investment.

By realigning and transforming the program's organizational structure, technology infrastructure, and core processes, an effective "knowledge platform" has been established that will continue to increase contracting value to the state. The transformation encompasses people, processes, and tools to analyze spending, metrics, and market intelligence. The ICT Cooperative Con-

HIGHLIGHT — REASONS TO BUY FROM ICT COOPERATIVE CONTRACTS PROGRAM

- Creates savings for taxpayers by aggressively leveraging the state's buying power to lower prices and obtain best value
- Streamlines process for customers
- Reduces duplicate efforts
- Reduces purchasing and contract cycle time
- Provides ICT subject matter expertise
- Simplifies the sales process for vendors

tracts program will deploy and manage a business intelligence technology infrastructure that supports knowledge capture, transfer, and use.

Adopting an enterprise approach to procurement consolidation and business-driven negotiations requires vendors to view the State of Texas as a Fortune 500 company. Formal processes, which underscore the rigor that is applied throughout the program, include:

- Calculation and analysis of monthly spend figures
- Preparation of business cases based on research and market intelligence provided both through analytics and through customer and vendor input
- Demand/opportunity analysis based on quantifiable research and market intelligence
- A validated methodology to calculate and track cost savings that is based on actual contract expenditures, rather than projections
- The use of market intelligence and analytics to drive price reductions and other improvements in the value of state contracts
- Improved commodity and service specifications through knowledge of the competitive marketplace
- Benchmarking DIR contract results against competitive regional/national cooperative buying options

HIGHLIGHT— ENHANCED OPPORTUNITIES FOR HUBS AND SMALL BUSINESSES

DIR has stimulated competition and enhanced opportunities for Historically Underutilized Businesses (HUBs) and small businesses. Overall expenditures with HUBs increased by 25 percent in fiscal 2007. For example, 96 HUB and small business vendors who had never participated in the IT staffing services contracts were awarded one of the new contracts. During fiscal 2007, 59 HUBs have sold services through DIR contracts, as compared to 40 HUBs under the previous process. The IT staffing services reprocurement is one example of the enhanced value that metric-driven contracting affords ICT Cooperative Contracts program customers.

Opportunities remain for increased HUB and small business involvement in technology procurements. DIR will continue to work with HUBs to foster collaboration by participating in innovative outreach efforts such as the current agreement with the Texas Association of HUBs, attending statewide HUB forums, and conducting HUB workshops.

PROGRAMS THAT MATTER — ICT COOPERATIVE CONTRACTS

Statistics for Fiscal 2007

- Purchases through ICT Cooperative Contracts program: \$993 million
- Number of master contracts: 381
- Number of vendors: 387
- Number of eligible public-sector entities: over 4,400

Types of commodities and services offered:

- Hardware and software
- Hardware and software maintenance
- IT staffing services, seat management, and managed print services
- Telecommunications commodities and services
- Networking equipment and services
- Enterprise license agreements
- Business solutions

To continue to develop and deploy knowledge-based procurement strategies to further the state's supply chain management efforts, DIR will:

■ Deploy business analytics and business intelligence tools

DIR will implement a new revenue and sales reporting platform that can support formal processes for supply chain management. This platform consists of an industry-standard data warehouse, a world-class extract, transform, and load tool, and a business intelligence tool that enables reporting and online analytical processing. Together, these tools will enable the knowledge-based decision-making needed to support statewide sourcing efforts. Ultimately, the revenue and sales reporting platform will collect data, generate information, and provide the knowledge needed to make wise sourcing decisions.

ACCOMPLISHMENTS

DIR is in the process of implementing its revenue and sales reporting platform. DIR migrated sales data from legacy systems to the enterprise data warehouse, and business intelligence tool deployment is underway.

NEXT STEPS

Future plans include extending the revenue and sales reporting platform to integrate with portal

technology and customer relationship management tools to facilitate timely communications with the appropriate customers and stakeholders. Key steps:

- Implement hosted customer relationship management tools
- Implement sourcing, procurement, and contract management dashboards
- Extend business analytics and intelligence tools to other areas within DIR

ICT Cooperative Contracts customers, vendors and, ultimately, the taxpayers of the state will benefit from these improvements. Cost savings realized through this program for fiscal 2006–07 total \$197 million, which represents an average savings of 11 percent on total expenditures of \$1.8 billion. These savings were derived from procurement of commodity goods and managed services, including seat management, document output, and staffing services. For the 91 contracts executed in fiscal 2007, DIR has obtained an average savings of 6.08 percent when compared to other states and other cooperative contracting programs.

CONTRACTING

Strategy 2-2.

Expand metric-driven contracting practices

Because DIR contracts are competitively awarded, they eliminate the need for customers to go through an extensive procurement process. All cooperative contracts are based on an indefinite demand/indefinite quantity model that sets not-to-exceed pricing and also allows customers to negotiate further with vendors for pricing and value-added options. This provides smaller agencies and government entities savings based on the state's volume buying power and gives those making large purchases a good starting point for additional discounts.

The value provided to DIR customers and Texas taxpayers is reflected in lower contract rates, more efficient contracting processes, and improved performance standards and accountability requirements.

In addition to the value provided to customers, adoption of technical standards provides a set of metrics by which to gauge success of the ICT Cooperative Contracts program. In support of the products and services advertised in DIR's recent enterprise architecture RFO, several customer focus group sessions were held in 2006. These focus groups identified an initial set of high-priority functional areas and defined guidelines for individual functional areas, statewide interoperability, and security best practices.

To continue to drive business value through the use of metric-driven contracting, DIR will:

■ Identify and implement new contracting opportunities and improvements

DIR continues to evaluate new contracting opportunities to meet customer demand. Additionally, DIR is in the process of deploying business intelligence tools that will enhance the agency's ability to research and identify contracting opportunities through market analysis and identification of trends.

ACCOMPLISHMENTS

DIR accomplished the following steps in the evaluation of new contracting opportunities:

- Reengineered information technology staffing services contracts
- Reengineered seat management contracts
- Initiated a procurement strategy for deliverables-based services contracts

NEXT STEPS

DIR will work with agencies to identify and evaluate contracting opportunities. Key steps:

- Develop requirements and issue RFO for deliverables-based contracts
- Develop a streamlined process for the evaluation of new opportunities
- Develop a metrics-based contracting timeline methodology
- Examine opportunities to improve contracting processes through recommended statutory changes

■ Improve the customer experience

DIR will enhance and simplify the manner in which agency customers utilize its contracts. These improvements include expanding search capabilities through a functional index of software products, providing feature comparisons by vendor across multiple contracts, and enabling agency customers and vendors to access procurement information through a hosted Web-based customer relationship management system.

The addition of a functional index to the DIR Store will help DIR customers locate key software products by category, and quickly identify the range of publishers and products offered within a given functional area. Through a comparison of features across multiple vendor contracts, customers will be able to select the best contracting option to meet their business needs. The customer relationship management system will provide authorized access to historical reports and a means for DIR customers to provide feedback on contracting and consolidated procurement opportunities.

ACCOMPLISHMENTS

DIR has deployed an enterprise data warehouse that will serve as the foundation for an analytical platform. The platform integrates disparate data sources to provide meaningful information and analysis to DIR employees, customers, vendors, and other stakeholders. This enterprise solution provides the tools needed to facilitate effective decision-making.

NEXT STEPS

DIR will implement improvements to enhance customer experience. Key steps:

- Publish a software functional index on the DIR Web site
- Implement DIR vendor-specific information in a contract management information system
- Migrate DIR customer information into a consolidated, centralized repository
- Deploy a Web-based tool to collect customer product and service requests

- Deploy a Web-based tool to facilitate access to information on DIR historical/current contracts
- Deploy a Web-based tool to facilitate comparison of vendor products and services

By actively soliciting and collecting data and knowledge of customer needs, DIR will be better equipped to provide contracts that support customers' mission-critical business processes.

HIGHLIGHT— ENHANCED VALUE THROUGH REENGINEERING

In the reengineering of the information technology staffing services contracts, DIR established contract rates using a detailed statistical analysis of market prices. Average contract rates paid by DIR customers for IT staffing services have decreased by 4.4 percent, from an average hourly rate of \$77 in fiscal 2006 to \$73 in fiscal 2007, resulting in savings (cost avoidance) of \$13.5 million in fiscal 2007.

The new IT staffing services contracts provide a streamlined and efficient contracting process that eliminates unnecessary paperwork and redundant procedures for DIR, its customers, and the vendor providing the services. Additionally, the new IT staffing services contracts include a built-in performance-based metric system that establishes clear performance expectations for vendors and provides a streamlined mechanism for contractor oversight. These metrics also provide a defensible formula to initiate remedial actions against contractors who do not meet performance expectations.

Seat management services, another recently executed contract, was developed with the goal of reengineering the way DIR has historically contracted for these services. In the past, seat management contracts outlined the scope of services included in the contract but did not include pricing due to the varying needs of customers. By defining a base service and allowing other services to be purchased as options, DIR was able to define pricing that allows customers to compare vendors on an apples-to-apples basis. This approach, combined with a keen negotiation strategy, resulted in price reductions of base services by as much as 63 percent.

Security and Privacy



Objective 3. Provide Leadership to Secure the State's Technology Assets and Promote Appropriate Use of Citizen Information

The security of the state's information and communications technology infrastructure and the privacy of citizens' personal information are two of the most complex challenges confronting Texas state and local government.

FUTURE OPPORTUNITIES

- Preemptive malware protection
- Strategies for redressing/responding to incidents where private information is breached or potentially exposed
- Role of technological advances; e.g., VoIP, biometrics, encryption, identity management
- Increased telecommuting and use of mobile devices such as USB drives and laptops

The state has made progress over the past biennium to improve the security of its information assets and data. In fiscal 2007, DIR developed and published the *State Enterprise Security Plan* and the *State of Texas User Access Study*.⁹ New communication strategies were also developed and implemented to heighten state government technology professionals' awareness and knowledge about issues and trends in technology and security.

SECURITY

Strategy 3-1. Provide leadership and assistance to agencies in the effective implementation of the *State Enterprise Security Plan*

The state has enhanced security policy compliance monitoring, increased security-related training, and provided guidance to state agencies regarding security-

related statutes and administrative rules.

Analysis of agency

information resources strategic plan submissions in 2006 indicates that, despite progress in security at the state level, there are still gaps and room for improvement at the agency level, particularly in areas such as patch management, risk assessment, and incident reporting. Also needed are resources and agency prioritization of training and implementation of computer incident response mechanisms, cyber vulnerability detection, and other remediation methods.

Significant commitments and investments in security will be needed as part of agencies' 2008 strategic planning activities, to ensure that all agencies meet the state's enhanced security requirements. DIR will provide leadership and assistance to agencies in the effective implementation of the *State Enterprise Security Plan*.

In addition to meeting its own responsibilities in this plan, DIR will:

■ Collaborate with agencies to implement the *State Enterprise Security Plan*

Texas's *State Enterprise Security Plan* provides clearly defined goals and objectives to secure the state's information and communications technology assets well into the future. The plan is consistent with both the 2005 State Strategic Plan and the *Texas Homeland Security Strategic Plan*. DIR will foster partnerships with state agencies to ensure that systems and applications operate effectively with appropriate confidentiality, integrity, and availability; protect information commensurate with level of risk and magnitude of harm resulting from loss, misuse, unauthorized access, or modification; and regularly assess operations for information technology vulnerabilities and risk mitigation opportunities.

The *State Enterprise Security Plan* provides a vital roadmap for agencies to develop a strong security plan within the information and communications technology sections of their 2008 agency strategic plans, while making necessary investments and taking specific steps to strengthen security for the next biennium. The plan establishes three well-defined goals for the state, as outlined in the text box on this page, each with tactical objectives.

To successfully achieve these goals and objectives, DIR also presented eight strategies:

- Align cybersecurity initiatives and resources
- Conduct statewide annual risk, vulnerability, systems, and equipment assessments
- Establish a state Computer Security Incident Response Team
- Identify, develop, and maintain best practices, performance standards, templates, and guidelines
- Establish a Network and Security Operations Center to focus on network security system services
- Leverage technology to improve information sharing and enhance security communication, collaboration, and information sharing capabilities
- Promote cybersecurity awareness, training, education, and certification
- Integrate cybersecurity into homeland security exercises and promote tailored exercises to reduce network vulnerabilities

Success of the *State Enterprise Security Plan* largely depends on the direct engagement and active participation of each state agency, as well as a strong commitment to make adequate risk-based security investments. The plan outlines a prioritized set of implementation responsibilities and outcomes that will help protect statewide and agency information assets.

ACCOMPLISHMENTS

The eight strategies articulated in the *State Enterprise Security Plan* apply specifically to DIR; however, Texas's statewide security posture depends upon the

HIGHLIGHT — STATE ENTERPRISE SECURITY PLAN GOALS AND OBJECTIVES

Goal 1.

Prevent Cyber Attacks and Incidents against Critical Infrastructure

- Establish a statewide analysis, monitoring and reporting capability to address all cybersecurity incident related matters 24/7
- Integrate training, education, and certification across all jurisdictions and disciplines
- Support improved budget tracking processes and group purchase agreements to ensure that state information and communications systems have strong IT security, authentication, and identification features

Goal 2.

Reduce Vulnerability to Cyber Attacks and Other Disruptions

- Identify risks and vulnerabilities for critical infrastructure and key resources
- Increase awareness and information sharing about cybersecurity attacks, threats and vulnerabilities
- Identify and facilitate implementation of cybersecurity best practices

Goal 3.

Respond and Recover to Minimize the Impact of Successful Cyber Attacks and Disruptions

- Establish a capability for responding to state-level cybersecurity incidents
- Promote cybersecurity exercises and integrate cybersecurity elements into homeland security exercises
- Integrate cybersecurity into continuity of operations and continuity of government plans

Source: *State Enterprise Security Plan*,
<http://www.dir.state.tx.us/pubs/securityplan2007/index.htm>

collective actions of individual state agencies and institutions of higher education. To date, DIR, in coordination with state agencies, institutions of higher education, and other stakeholders has:

- Tested and implemented a Web-based risk assessment, analysis, and compliance tool for state agencies
- Launched a new secure information-sharing Web portal for state information security officers
- Achieved initial operational capability to provide security services, co-located with network man-

agement operations, in the Network and Security Operations Center

- Established partnerships with leading providers of security training that afford deep discounts for comprehensive training and certification for public-sector IT professionals in Texas

NEXT STEPS

DIR will work with state agencies, institutions of higher education, and other stakeholders to implement each of the strategies of the *State Enterprise Security Plan*. Key steps:

- Establish a state Computer Security Incident Response Team
- Develop a Network and Security Operations Center roadmap
- Work with agencies on an ongoing basis to identify, develop, and maintain best practices, performance standards, templates, and guidelines
- Expand the portfolio of statewide security services and products

■ Improve capability to identify and reduce cybersecurity risks

DIR is developing a program that will sustain and expand the ability of state agencies to conduct annual cybersecurity risk, vulnerability, systems, and equipment assessments and track strengths, weaknesses, and remediation activities. These assessments also help identify agency IT security needs and provide specific direction and focus for new security initiatives. Agencies with excellent cybersecurity postures typically have participated in regular controlled penetration tests and network assessments. This gives all state agencies the ability to introduce and sustain a regular program of IT security evaluations and risk assessments that protect sensitive information resources and create a security environment that evolves beyond compliance and enforcement to one of collaboration and partnership.

ACCOMPLISHMENTS

DIR currently offers, through services provided by the Network and Security Operations Center, an annual

controlled penetration test program for state agencies that are part of the consolidated state network. Additionally, DIR is currently evaluating vendor responses to RFOs to obtain a broad spectrum of security services through DIR's ICT Cooperative Contracts program. DIR anticipates that multiple contracts offering deep discounts on security services will soon be available to all state agencies. DIR also deployed a tailored risk assessment tool for state agencies and facilitated Web-based agency planning and tracking of risk analysis and reduction.

NEXT STEPS

DIR will work with state agencies, institutions of higher education, and other stakeholders to improve capabilities to identify and reduce cybersecurity risks.

Key steps:

- Execute contracts for managed IT security services
- Activate real-time monitoring of external network security status
- Develop a process for providing and funding additional security services as part of DIR's converged communications services offering
- Increase participation in the Web-based risk analysis and reduction program

Successful implementation of the *State Enterprise Security Plan* will improve the security posture of the state government enterprise and will ensure that Texas will be positioned to protect its vital information and communications assets effectively and efficiently.

PRIVACY

Strategy 3-2.

Promote effective approaches to information privacy management

The privacy of citizens' information is a critical concern, due to an increasing number of privacy breaches, including exposures that involve personal information in government custody. The ongoing evolution of new and converging technologies will likely introduce additional privacy concerns.

The National Association of State Chief Information Officers (NASCIO) asserts that information privacy is “a defining issue of the day for both the public and private sectors.”¹⁰ The Federal Trade Commission reports that identity theft has been the top consumer complaint for the past seven years, representing 36 percent of all 2006 complaints.¹¹ Identity theft has now surpassed drug trafficking as the nation’s top crime.¹²

Despite the large number and increasing risks of privacy breaches, NASCIO notes that the field of privacy management has not kept pace with new and emerging technologies. However, NASCIO also reports that risk can be minimized through sound privacy policies, best practices, business process improvements, and appropriate security measures.

State and local governments are among the primary collectors and users of citizen information. Government agencies face an ongoing challenge to be open and accessible to the public while protecting the privacy of citizens. Sensitive personal information that government collects to provide services must remain private. Privacy and security are separate, but closely linked, concepts. Privacy policy indicates which information is personal and how government will collect, store, use, disseminate, and dispose of it. Security policy dictates how government will protect personal information from misuse.

Security initiatives seek to reduce unauthorized access to or exposure of information resource assets and information, while privacy initiatives seek to reduce inappropriate use of these assets and information. Agencies must determine the best methods to prevent inadvertent release of personal or sensitive information, such as Social Security numbers, financial data, medical data, or an individual’s legal status.

Additionally, agencies need to consider how to limit collection of personal information that is not needed to fulfill a specific task, the appropriate length of data retention, and appropriate disposal. Questions might include the following: What information is gathered and why? Where is it maintained? What additional training needs to be established for persons involved in design

and development of systems containing citizen records? These questions illustrate some of the critical emerging issues for agencies to confront.

Finally, agencies need to put policies in place for response to incidents of inadvertent breaches or exposures and inappropriate use. Incident management should focus on establishing a formal incident response capability, creating an incident response policy, and identifying groups or individuals within an agency that need to participate in incident response handling.

DIR will promote effective approaches to information privacy management and will:

- **Evaluate opportunities to establish a privacy management program**

Ensuring the privacy of citizen information will be an area of increased focus and emphasis for state government in the coming biennium.

ACCOMPLISHMENTS

DIR adopted administrative rules for disposal of data in surplus computer equipment and for protection of unencrypted confidential, mission-critical, or restricted personal information transmitted over a network.¹³

NEXT STEPS

The state will work to identify and disseminate information on best practices to ensure the security and privacy of sensitive citizen information. To this end, DIR will evaluate opportunities to establish a privacy management program that can serve as the basis for statewide improvements in privacy management. DIR will work with state agencies, institutions of higher education, and other stakeholders to identify the needs of such a program. Key steps:

- DIR will provide instruction and guidance on privacy practices for agencies’ use in developing their strategic plans
- DIR will evaluate privacy practices reported in agency strategic plans and report on the results of this evaluation in its 2008 Biennial Performance Report

Agencies' internal assessments of their privacy risks should consider their policies and procedures for containing a breach, evaluating associated risk, notification considerations, and preventive strategies. These measures will help to ensure that each agency adequately addresses privacy considerations related to sensitive and confidential data residing in their information systems.

Technology Policy, Best Practices, and Partnerships



Objective 4. Enhance Statewide Technology Management and Collaboration

The Collaboration Layer of the Texas Model for the Enterprise provides for shared development of guidelines and practices that improve the use and management of information and communications technology. DIR provides a critical venue for innovative problem-solving and collaboration on issues of statewide technology policy, best practices, and partnerships.

FUTURE OPPORTUNITIES

- Automation of statewide project delivery tools and processes
- Performance reporting and performance management guidance
- Quality Assurance Team project scorecards
- Incentives and support to innovative interagency and public-private partnerships

The ability to share data and information across all levels of government is a critical component of government technology policy. Guidance and direction to support agency accountability for project outcomes and performance monitoring of technology projects at a statewide level are also fundamental components of technology policy. Effective and innovative technology solutions should be identified and communicated broadly as best practices across the government enterprise.

Partnerships are essential as Texas government moves to its new shared services and technology infrastructure. DIR must continuously engage stakeholders to maximize technology resources, knowledge, and expertise that can benefit the government enterprise. Intergovernmental

partnerships will also continue to be forged. Texas state government can only move forward through concerted, collaborative efforts on the part of state agencies, local governments, and public schools to harness the power of technology to serve all Texans.

AVAILABILITY

Strategy 4-1.

Provide leadership and support in making state information available to all users

Government information must be accessible, usable, searchable, and readily retrievable to provide value to citizens, clients, and customers. By incorporating these characteristics into the design of both internal- and external-facing information systems, agencies can provide an environment where citizens and other users are able to access the services and information they need.

Users must be assured that the information they obtain from the state is accurate, authentic, and complete and that it will be available whenever it is needed. Agency customers need access to the correct forms, and need to be assured that personal information such as birth certificates, property records, or arrest records are authenticated. Individuals who find errors in personal data held by the government must be provided with a means to correct it.

DIR will work with agencies as they incorporate appropriate Web site and application design principles and standards to ensure state information is available to all users. In this role, DIR will:

■ Promote accessibility

The Texas Legislature has set clear expectations that

citizens and state employees with disabilities will enjoy the same access to electronic and information resources as citizens and state employees without disabilities. In the coming biennium, DIR will provide statewide leadership to ensure that the state's electronic information resources support assistive technology.

ACCOMPLISHMENTS

In April 2006, DIR updated its administrative rules on Electronic and Information Resources for State Agencies to reflect increased accessibility requirements mandated by the 79th Texas Legislature.¹⁴

DIR also issued a survey as a component of the Information Resources Deployment Review to determine what state agencies and institutions of higher education need in order to be in compliance with state-mandated accessibility rules.

COLLABORATION — AGENCIES IN ACTION

- The **Governor's Committee on People with Disabilities** serves as the state's central information and education resource on the abilities, rights, problems and needs of Texans with disabilities. The committee has developed a statewide network of volunteer community-level committees to disseminate information about the implementation of state and federal law addressing rights and opportunities for persons with disabilities.
- The **Health and Human Services Enterprise Electronic Information Resources Workgroup** is composed of members from the state's five health and human service agencies:
 - Department of State Health Services
 - Department of Assistive and Rehabilitative Services
 - Department of Aging and Disabilities Services
 - Department of Family and Protective Services
 - Health and Human Services Commission

To ensure all five agencies follow the same accessibility policies, the work group has collaborated to write the Health and Human Services Enterprise Electronic Information Resources Accessibility Policy.

Source: *Governor's Committee on People with Disabilities*, <http://www.governor.state.tx.us/divisions/disabilities> and *Health and Human Services Enterprise Electronic Information Resources Workgroup*, http://architecture.hhsc.state.tx.us/myweb/Accessibility/policy_htm/default.htm.

NEXT STEPS

DIR will work with state agencies and accessibility advocates to promote improved accessibility of agencies' electronic and information resources. Key steps:

- Finalize adoption of revised accessibility rules for Web sites and electronic information resources
- Establish commodity contracts for accessibility-related products and services
- Publish guidelines that address accessibility best practices for Web sites, applications, and agency procurement policy
- Report on accessibility survey results in DIR's 2008 Biennial Performance Report

■ Promote usability and searchability

Usability relates to how intuitive and easy a system is to use. Information that is available, but lies hidden behind confusing or un-navigable processes has no more value than unavailable information. Improving the consistency of Web site design throughout Texas government, adhering to standardized organizational approaches, and conducting routine usability and accessibility testing of Web sites will make information more readily available to all. Improved Web site usability will reduce training requirements for state employees, and increase the successful use of new services by the public.

The state's approach to searchability must leverage public search engines, while protecting sensitive information. Although much information on the Internet can be retrieved by using search engines such as Google and Yahoo, information residing in agency databases and behind agency firewalls often remains hidden. This data can be made available to Web crawlers through careful coding of Web index pages to identify what information can be revealed and what must remain protected.

Agencies can provide better service by improving the searchability of information on their Web sites. This can be accomplished by using descriptive information (metadata), standard design principles, and us-

ability testing. Sitemap protocol, an open technical standard that can be adopted by any Web site owner, allows search engines to crawl Web sites more effectively.¹⁵

ACCOMPLISHMENTS

Senate Bill 687 (SB-687), 80th Texas Legislature, requires DIR to adopt standards for state agency Internet Web sites to ensure consistency and compatibility with TexasOnline.com.

The Texas State Library and Archives Commission requires agencies to provide standards-based de-

HIGHLIGHT — ELECTRONICALLY STORED INFORMATION AWARENESS CAMPAIGNS

The National Association of State Chief Information Officers has begun an e-discovery awareness campaign for state chief information officers. Guidelines specific to Texas, titled “Electronically Stored Information and the New Federal Rules of Civil Procedures,” have been published by the Office of the Attorney General (OAG). These guidelines, which were developed by the OAG in collaboration with DIR, the Texas State Library and Archives Commission and other agencies, are available on CD-ROM through the OAG.

Most state information currently exists in electronic form, such as in e-mail, databases, instant messages, blogs, spreadsheets, word processing documents as well as servers, thumb drives, PDAs, laptops, and employees’ home computers. Good asset management practices will help agencies locate needed or requested information.

Recent amendments to the federal Rules of Civil Procedure expand earlier duties to preserve and produce electronically stored information. Information may be requested in its “native format,” which is the format in which it is normally maintained and, for most state information, that is electronic.

With the consolidation of data centers and hosted sites, electronically stored information may not be directly under an agency’s custody. Therefore, clearly defined service level agreements must be in place between host vendors and customer agencies to clarify responsibility and ownership for the storage, preservation and availability of electronically stored information.

Source: *National Association of State Chief Information Officers*, <http://www.nascio.org>; *Texas Office of the Attorney General*, <http://www.oag.state.tx.us>; and *Federal Rules of Civil Procedure*, <http://www.uscourts.gov/rules/index2.html>.

scriptive information on each state publication available on the Internet.¹⁶ Standards-based descriptions, or metatags,¹⁷ allow the commission to index Texas agency Web pages and publications and make them readily available through the Texas Records and Information Locator Service.¹⁸

NEXT STEPS

DIR will collaborate with state agencies and local governments to promote improved usability and searchability of agency Web sites and cross-Web site navigation. Key steps:

- DIR will adopt rules to implement provisions of SB-687
- DIR will develop an outreach plan to assist agencies in improving Web site usability and searchability

■ Promote life cycle management of data and information

Most government information is created and maintained in electronic form and stored in a variety of information systems. Because information is easy to generate, save, and share, it can quickly fill storage systems with duplicate or outdated information. Locating specific items in a timely manner, particularly for legal and public information requests, is made more difficult and expensive by such uncontrolled proliferation. Despite the plethora of information in existence, identifying and preserving information of historical value to the state and ensuring its continued existence presents challenges with no easy solutions. However, both agency risk and maintenance costs can be reduced by planning for and building information management capabilities into core business processes and systems design, and by following industry best practices for life cycle management.

ACCOMPLISHMENTS

DIR participated with staff from the Texas State Library and Archives Commission in an e-records preservation workshop sponsored by the U.S. Library of Congress. This work resulted in several publications by the Center for Technology in Government in

Albany, New York, including *Preserving State Government Digital Information: A Baseline Report*.¹⁹

This report indicates that a number of gaps exist in the ability of state and local governments to preserve electronic information. These include a lack of comprehensive program strategies, skilled personnel, technology infrastructure, and funding issues.

NEXT STEPS

DIR will work with state agencies to standardize life cycle management practices for agency data and information. Key steps:

- Collaborate with the Texas State Library and Archives Commission and others to develop policies, procedures, guidelines, and best practices for managing digital information
- Collaborate with the Texas State Library and Archives Commission to provide training about e-records management to agency staff and records managers
- Collaborate with the Office of the Attorney General, the Texas State Library and Archives Commission, and others to update guidelines for handling electronic discovery requests as needed

INTEROPERABILITY

Strategy 4-2.

Provide leadership and support for cross-agency initiatives that enable or enhance data sharing and interoperability between agency processes and systems

Agencies and government entities across the state must adopt and implement statewide integration and information exchange standards to effectively share critical information for both daily and emergency operations. The state's interoperability strategies seek to effectively bridge business processes and information systems, and to facilitate interagency collaboration in terms of both technology and business.

Through a better understanding of how agencies are planning to deploy technology to support their business processes, the state will be able to proactively identify

areas where common processes could be developed through interagency initiatives. DIR will provide leadership and support for cross-agency initiatives that enable or enhance data sharing and interoperability. This will include efforts to:

■ Establish common architectural standards and best practices

DIR will develop common standards that will facilitate and promote agencies' ability to leverage shared resources and to integrate with each other in providing service to their customers. Additionally, DIR will advance interoperability by applying common technical standards to application development, procurement, and managed services contracts statewide. DIR's approach to architecture standards is focused on improving interoperability and reducing risk associated with technology that is obsolete or that cannot be easily integrated with other systems.

ACCOMPLISHMENTS

DIR collected critical enterprise architecture information from agencies' 2006 information resources strategic plans. This information spans business and technology planning and collaboration practices, platform and standards roadmaps, and target architectural practices.

Additionally, DIR took steps toward standards-driven interoperability when it developed the Enterprise Architecture RFO in 2006. The RFO successfully established commodity contracts for products and services in 22 functional areas collectively defined as "enterprise architecture." In order to be approved for a contract under this RFO, all products were required to meet five basic standards:

- Industry-standard operating system (Windows, Unix, Linux, mainframe, or server)
- Industry-standard database management system (DB2, SQL Server, Oracle, Teradata)
- Open applications programming interface or XML-standards-based

- Lightweight directory access protocol compliant (identity management/security)
- Application-level for role-based-privilege authorization

NEXT STEPS

DIR will work with agencies to develop common standards for interoperability. Key steps:

- Develop a standards clearinghouse to organize and present information on common standards for enterprise and service-oriented architecture
- Provide a forum to enhance and support effective collaboration between agencies’ business and technology areas

■ Streamline data management and reporting

The 79th Texas Legislature directed DIR, in collaboration with the Legislative Budget Board (LBB), Comptroller of Public Accounts, and the former Texas Building and Procurement Commission (TBPC)²⁰ to develop recommendations and report on strategies to improve technology management. DIR collaborated with these agencies, and through the establishment of a state-level Technology Reporting Alignment Committee, began implementing the recommendations published in its December 2005 streamlining report to the Legislature.²¹

The goal of the state’s streamlined reporting initiative is to support a “collect once, use often” philosophy for data related to information technology analysis. The initiative seeks to (1) eliminate redundant reporting requirements on agencies, where possible, and develop a more “apples-to-apples” statewide taxonomy, (2) streamline oversight agency reporting in terms of sequence and content, and (3) improve technology data life cycle reporting capabilities.

To reduce the burden of agency reporting requirements, the 80th Texas Legislature enacted HB-1788, which significantly restructured agency strategic planning and reporting requirements. Agency information resources strategic plans are no longer required. Instead, agencies must submit a biennial In-

formation Resources Deployment Review of their information resource assets, and include strategic planning for information resources management in their agency strategic plans. This action improves alignment between business and technology planning and reflects a more logical sequencing of technology information reporting required of state agencies.

ACCOMPLISHMENTS

DIR, in collaboration with the LBB, CPA, TBPC, and OAG developed the 2005 *Statewide Technology Management: Opportunities for Improvement* report. DIR worked with the Technology Reporting Alignment Committee, composed of representatives from DIR, the Office of the Governor, LBB, CPA, TBPC, OAG, and State Auditor’s Office, to evaluate opportunities to standardize statewide technology information data models, collection methods, and reporting processes.

NEXT STEPS

DIR will continue to work with oversight and other agencies in the coming biennium to enhance statewide government technology data analysis and reporting. Options under consideration include common defined data models and taxonomies for statewide data used by state agencies. Future efforts will promote increased data sharing among agencies, and facilitate data exchange between government oversight agencies based on improved security, timing, and data integrity. Key steps:

- Establish common data models where appropriate to improve apples-to-apples reporting and data sharing
- Issue corrective action plans for agency Information Resources Deployment Review submissions
- Submit Automated Information Systems Report to state leadership
- Issue instructions for inclusion of information resources management in 2008 agency strategic plans
- Review 2007 agency Information Resources Deployment Review submissions

■ Improve data sharing

Government agencies often serve the same clients and customers. Improved data sharing will help achieve the state's goal to "collect once, use often." Improved efficiencies in data sharing will also facilitate the state's emergency and disaster response capabilities. The 2005 State Strategic Plan advocated improved data management that would serve both the oversight needs of the state and enhance the technology planning and implementation requirements of each agency.

The 80th Texas Legislature passed several bills designed to improve statewide data sharing, specifically to exchange eligibility and benefit information among physicians, health care providers, insurance companies, hospitals, and patients to provide a more efficient and effective health care delivery system. HB-522 created a technical advisory committee on electronic data exchange, to be led by the Texas Department of Insurance. The committee will advise the commissioner of insurance on technology standards to be used by health plan issuers in providing eligibility information and on data elements to be provided by health plan issuers. HB-921 requires the Texas Health Care Policy Council, in consultation with DIR, to develop standards for electronic data sharing among health and human service agencies as well as several other agencies. The council is also required, in consultation with DIR, to evaluate how agencies manage and exchange data.

ACCOMPLISHMENTS

The Technical Advisory Committee on Electronic Data Exchange has been established and convened by the Texas Department of Insurance. The committee is investigating the development of technology standards for health plan issuers that will provide eligibility information and data elements to be used. Work on this committee is ongoing. DIR has also worked with the Texas Health Care Policy Council to commence work on standards for electronic data sharing among health and human services agencies.

NEXT STEPS

DIR will collaborate with agencies in the coming biennium to identify or establish data standards that meet the provisions of both HB-522 and HB-921. The Texas Health Care Policy Council, in collaboration with DIR, will establish data sharing standards for agencies. To support this effort, the council will:

- Publish the final report of the Technical Advisory Committee on Electronic Data Exchange
- Develop and publish standards required by Section 113.052 of the Texas Health and Safety Code for the secure sharing of information among agencies

■ Advance justice information system integration

Many criminal justice agencies, local law enforcement, correctional authorities, and the courts have developed information technology systems independent of one another. As a result, these systems cannot fully exchange data with systems used by other justice agencies that need the same information.

The National Information Exchange Model (NIEM) is an emerging national standard that, if widely implemented, will facilitate the exchange of criminal justice information at all levels of government. NIEM is a collaborative effort between the U.S. Department of Justice and the U.S. Department of Homeland Security.

In Texas, a concentrated effort has been underway to produce an updated strategic plan for criminal justice information systems based upon the *Texas Path to NIEM* update to the 2002 *Texas Justice Information Integration Initiative Plan*. Implementation of the NIEM Plan in Texas will provide a foundation for improved criminal justice information sharing by establishing a technology platform for standards-based exchange of information among justice, public safety, homeland security, and other organizations.

ACCOMPLISHMENTS

The *Texas Justice Information Exchange Strategic*

Plan will be completed in November 2007. The planning process was led by the Texas Department of Public Safety, Office of Court Administration, and the Texas Department of Criminal Justice in collaboration with the Texas Integrated Justice Information Systems Steering Committee. The plan proves five major goals to facilitate the use of the NIEM throughout Texas criminal justice organizations.

NEXT STEPS

The Department of Public Safety will collaborate with state agencies and local government to implement the Texas Justice Information Exchange Model (TJIEM) and NIEM. Activities include establishing standards, developing data models, providing enterprise procurement solutions, and facilitating training opportunities. Key steps:

- Formalize the governance structure for inter-agency cooperation in the development and

- maintenance of the TJIEM in support of collaborative interagency information sharing
- Create a TJIEM that conforms to NIEM
- Establish standards to improve integrity, accuracy, and timeliness of criminal justice, public safety, and homeland security information
- Create an operations plan to increase access to and improve the response from criminal justice and public safety data systems and enable sharing across other domains in support of homeland security efforts
- Explore funding opportunities to support the efforts of local governments

■ Implement the Texas State Communications Interoperability Plan

Governor Perry established radio interoperability for public safety services as a top homeland security goal in 2005. The specific technical goal is to achieve Level-6 radio interoperability within the first government responder community throughout Texas, consistent with commonly accepted interoperability level definitions, and to adhere to the U.S. Department of Homeland Security SAFECOM Program's Interoperability Continuum.²² Statewide Level-6 attainment is important for local, state, and federal fire fighters, emergency medical responders, and law enforcement personnel to have immediate radio communications with each other from anywhere in the state using their own equipment on specifically designated interoperability channels.

The Texas Radio Coalition²³ is developing the Texas State Communications Interoperability Plan (SCIP). The plan will provide a roadmap to achieve the state's communications interoperability objectives. The plan will be implemented regionally—through the cooperative efforts of the state, the Texas Association of Regional Councils, all 24 Texas Councils of Government and their local government customers—using the Department of Homeland Security's national technical planning criteria for wireless public safety communications and interoperability.

OPPORTUNITY — NATIONAL INFORMATION EXCHANGE MODEL

Federal agencies have long grappled with the issue of maintaining computer systems that facilitate information sharing to improve both public safety and homeland security.

The National Information Exchange Model is a federal initiative that facilitates information exchange among law enforcement and other agencies such as emergency response and disaster management.

This effort seeks to develop, distribute, and support enterprise information exchange standards and processes that will help agencies share critical data during emergencies.

NIEM builds upon the success of the Global Justice XML Data Model. The NIEM Web site reports that the model encompasses seven domains: emergency management, immigration, infrastructure protection, intelligence, international trade, justice, and person screening.

In addition to providing data exchange standards, the NIEM initiative offers a structured methodology and technical tools for building standards; training, technical assistance, and help-desk support for users and developers; and an effective governance structure that promotes user input and involvement.

Source: *National Information Exchange Model*, <http://www.niem.gov>.

ACCOMPLISHMENTS

The U.S. Department of Homeland Security and National Telecommunications and Information Administration initially allocated \$65 million to Texas under the Public Safety Interoperable Communications Grant Program. A draft grant package has been submitted to the federal government, and Texas hopes to receive funding in fiscal 2008 from the grant program. This grant funding will support the first phases of acquisition and implementation of new programs, equipment, and services to provide and enhance radio communications interoperability across the state.

NEXT STEPS

In March 2008, the U.S. Department of Homeland Security will allocate grant funds. Affected local, regional, and state entities will begin the implementation and oversight of selected Texas SCIP grant investment projects. Participating agencies will work to refine and formalize the governance, duties, and responsibilities of the interoperability efforts (both radio and data) of the Texas Radio Coalition and the Texas State Interoperability Executive Committee for State Communications. SCIP will lay out several short- and long-term initiatives. Key steps:

- Identify new and existing sources of funding
- Promote state legislation that enforces timely and cost-efficient execution of strategic plan initiatives that support statewide communications and interoperability
- Secure consistent funding for ongoing development, capital replacement, and maintenance costs
- Establish and mandate technology standards for the Texas SCIP and provide a migration path
- Implement an IP interface between regional interoperable communications systems and the statewide IP-based system
- Provide online training programs with testing and certifications

SUCCESS STORY — DATA MINING

One example of improved citizen access to government services identified by the advisory committee for this strategic plan was data mining.

Homeland security, law enforcement and emergency management officials need tools to search and link information geographically. Fusion centers provide centralized clearinghouses to mine emergency data and information. The North Texas Fusion Center is able to compile and analyze information from police, homeland security, and other emergency response related reports, and identify data trends. This center provides the ability to analyze both natural and man-made emergency data and help emergency responders determine where resources will be most effectively deployed.

Source: "Narrowing the Focus," by Jim McKay, Government Technology, September 12, 2007.

STATEWIDE PROJECT DELIVERY

Strategy 4-3.

Provide leadership and support for the delivery of the state's technology projects

DIR established the Statewide Project Delivery program to help improve the value of services delivered by Texas state government through major technology projects. As the foundation for advancing the delivery of technology projects, the Texas Project Delivery Framework (Framework) establishes a consistent, statewide method for project selection, control, and evaluation.

The Framework provides a bridge between individual agency accountability and statewide accountability. While agencies are accountable for delivery of their technology projects, statewide accountability is borne by the Quality Assurance Team (QAT), composed of the Legislative Budget Board, State Auditor's Office, and DIR. The QAT's role is to perform quality assurance review as a basis for statewide accountability.

The QAT continues to align statewide processes with agency business processes to support a more integrated approach to managing major technology projects. The Framework has become increasingly integrated into agency practices, with the QAT providing project re-

view, monitoring, and approval of agency projects based on tools and guidance specified in the Framework.

To further ensure agency accountability, the 80th Texas Legislature broadened project delivery requirements to encompass project management practices. HB-1789 requires DIR to establish requirements for project management practices to guide state agencies. To advance effective statewide project delivery, DIR will collaborate with state agencies to:

- **Assist agencies in implementing sound project management practices**

This effort will focus on project management at an agency level and will provide a basis for integration with related disciplines that influence technology project delivery. Statewide requirements for project management practices enable a more complete integration between agency project management and the Framework. DIR will also seek to promote a foundation for effective performance management in areas such as program management and portfolio management.

ACCOMPLISHMENTS

DIR adopted administrative rules (1 TAC 216) concerning project management practices as required by the 80th Texas Legislature.²⁴

NEXT STEPS

At the state level, DIR will partner with other agencies to implement the legislatively enhanced role of the Framework as a common bridge that spans project management and contract management activities across state government. DIR will also collaborate with other oversight agencies to develop transparent, formal policies and procedures in project management that will promote and emphasize advancement of best practices rather than the state's historical focus on compliance issues.

DIR will offer assistance to agencies on project management practices, through the expansion of the Statewide Project Delivery services, clinics, and brief-

ings. DIR will consult in specific critical disciplines that influence delivery of technology projects, such as integrating contract and project management practices. Key steps:

- Deliver training on project management practices requirements
- Develop a platform to share project management best practices, tools, and techniques

- **Develop procedures for major contracts that outsource a state function or process**

HB-2918 (80th Texas Legislature) expanded the scope of the state's *Contract Management Guide*.²⁵ DIR, in consultation with other members of the state's Contract Advisory Team, will develop guidance for major contracts that outsource a state function or process to a contractor, including, when applicable, the use of tools required by the Framework.

ACCOMPLISHMENTS

DIR developed the scope and definition for determining which major contracts are subject to the Texas Project Delivery Framework. A key component of establishing use of the Framework for major contracts, in addition to major technology projects, is providing guidance and criteria on major contract applicability.

NEXT STEPS

DIR will work with agencies in the coming biennium to assign existing and develop new Framework tools for major contracts that outsource a state function or process to a contractor. Key steps:

- Consult with oversight agencies to determine Framework applicability to specific major contracts
- Collaborate with the Comptroller of Public Accounts on methods to advance project management and contract management practices

- **Develop additional framework extensions**

Framework extensions interpret and extend the base set of Framework practices. Separate and distinct from the base Framework, extensions include guidance and tools, such as the System Development

Life Cycle (SDLC) Extension, that may be voluntarily used to deliver technology projects.

ACCOMPLISHMENTS

DIR collaborated with state agencies to develop and implement Framework extensions. DIR deployed the SDLC Extension, which provides a consistent toolset for addressing requirements, design, testing, and implementation of systems and system components. Future Framework extensions will provide guidance for project requirements in areas such as security, e-records, accessibility, and privacy.

NEXT STEPS

DIR will work with agencies in the coming biennium to advance project management practices and Framework extensions. Key steps:

- Evaluate agency business needs, make recommendations, and provide guidance on project delivery requirements
- Benchmark and assess the use of Framework extensions within the context of statewide technology standards

■ Deliver technical assistance

The Statewide Project Delivery Program encompasses disciplines focused on both statewide and agency accountability and strives to integrate effective practices in each of these areas. Technical assistance will be provided as needed to support state agencies as they advance the consistent use of the products and services of this program.

ACCOMPLISHMENTS

DIR worked throughout the biennium to identify and deliver Framework enhancements. As part of its efforts to provide continuous process improvements, DIR established a Change Advisory Board and a formal method by which any agency may submit change requests. DIR, in collaboration with the QAT and other state agencies, established the Statewide Project Delivery Education Series. Educational events conducted throughout the biennium provided agencies with guidance on implementing the Framework and related practices.

NEXT STEPS

DIR will work with agencies in disciplines such as governance, cross-agency initiatives, and independent verification and validation. Key steps:

- Develop and promote best practices and standards in project delivery, including implementation of a best practices repository
- Develop and deploy a multi-agency collaboration plan
- Develop and deploy an independent verification and validation plan

Advancing project delivery capabilities and project management maturity at the agency level will improve the state's overall effectiveness at executing technology projects. Successful implementation requires full alignment of agency and statewide practices in order to improve the value of state services. The Statewide Project Delivery program will continue to provide guidance that complements and bridges agency and state business needs.

STATEWIDE PARTNERSHIPS

Strategy 4-4.

Provide leadership and support for multi-level government technology collaboration and partnerships

DIR has strong multi-level relationships with state agencies, institutions of higher education, and local governments. In the past, DIR has acted to bring technology practitioners together to accomplish specific activities, promote cost-saving opportunities, develop new policies and procedures, and provide educational events. There are, however, additional opportunities to nurture collaboration and partnerships at all levels of Texas government.

Strategic partnerships are key to the DIR commitment to a customer service culture. For example, local government officials, in meetings with DIR, asked for the cooperative contracts for court management software to be expanded to include a broader range of services. DIR worked with the Office of Court Administration, the

Texas Association of Counties, and key city and county chief information officers to gather requirements for a court management software procurement that is now in the evaluation process.

DIR will provide leadership and support for multi-level government technology collaboration and partnerships and will:

■ **Facilitate intergovernmental collaboration**

DIR will assemble local governments, state agency field offices, and the education community for a series of regional meetings to identify common needs and resources. The meetings will provide a forum for sharing information about similar projects, lessons learned, and the use of DIR contracts and resources. The meetings will provide DIR with a better understanding of agency concerns and challenges, so that DIR can evaluate future options for providing assistance.

ACCOMPLISHMENTS

DIR has developed the overarching plan and is currently working on specific meeting goals and logistics.

NEXT STEPS

DIR will schedule targeted regional meetings over the next year, report on collaboration opportunities, and measure benefits of these efforts. Key steps:

- Develop goals and strategies for regional meetings
- Select markets for regional meetings
- Conduct initial regional meeting
- Evaluate initial meeting and alter agendas as needed
- Schedule additional meetings
- Hold quarterly meetings

■ **Promote strategic partnerships**

DIR will continue to meet with local government organizations—such as the Texas Association of Government Information Technology Managers, the Conference of Urban Counties, and the Texas Association of Counties—to understand the needs of

SUCCESS STORY — EL PASO DIGITAL INCLUSION INITIATIVE

El Paso has launched an outdoor wireless network designed to increase government efficiency and provide Internet access and application delivery to citizens and local businesses.

The city's wireless mesh network is part of the Digital El Paso Project, a collaborative initiative that includes the city, county, school district, and housing authority.

Project goals include revitalization of the city's downtown area, universal Internet access, and increased services to underserved populations and small businesses. This initiative will enhance digital access, economic development, and educational opportunities across the region. The City of El Paso is evaluating use of the network to enhance municipal and emergency services, infrastructure support, and homeland security.

El Paso has also received a grant from the AT&T Foundation and the League of United Latin American Citizens for a community technology center that will include computer equipment, personnel support, high-speed Internet service, and videoconferencing.

Source: "El Paso, Texas Launches Digital Inclusion Initiative," Government Technology, March 6, 2007 and "Technology Centers Empower Low-Income Hispanic Communities," Government Technology, April 17, 2007.

members and leverage association and professional organizations to reach broad groups of like-minded customers. Additionally, DIR will meet with the chief information officers of Texas's larger cities and counties on a semiannual basis to share government technology issues and problems.

DIR will continue to coordinate its statewide technology initiatives with professional organizations for government technology employees such as the State Agency Coordinating Council (SACC), Mid-size Agency Coordinating Council (MACC), and the Small Agency Task Force. DIR currently hosts the Web site for SACC, and serves on the Small Agency Task Force.

DIR will continue to maintain a very active partnership with the Texas Association of State Systems for Computing and Communications. DIR collaborates with this group on education, networking, and training activities for state government technology profes-

sionals. These efforts have produced a broad array of conference, networking, and educational opportunities for the state's government technology community.

Through the Information Technology Council for Higher Education, DIR coordinates with the state's university systems and independent, post-secondary institutions. DIR will encourage open discussion and sharing of knowledge through communications forums and will leverage information gained into contracts, policies, and services to benefit all governmental groups.

The K-12 public education community continues to expand its use of technology both in the classroom and administratively. Although public schools have specific technology requirements, these requirements are generally not unique to individual school districts. DIR has proposed future meetings with chief information officers of public school districts and regional education service centers. Understanding the technology issues of interest to these customers will provide opportunities for enhanced regional and statewide collaboration. The strong ties already established between DIR and the Texas Education Agency can bring the necessary resources together to craft optimal technology solutions.

ACCOMPLISHMENTS

DIR has long enjoyed relationships with relevant technology associations. As the level of interaction and the commitment for action is prioritized, the value of these relationships will increase. DIR will leverage these relationships to encourage collaboration at all levels of government.

NEXT STEPS

DIR will focus outreach efforts on key education community organizations and local government organizations to establish relationships at the top levels. Key steps:

- Schedule meetings with commissioner of education and executives of key education associations

- Schedule meeting with executives of top local government associations
- Act on the outcomes of these meetings

Increased and enhanced partnerships will focus on issues and initiatives common to local governments, with state agencies included on specific subjects to both increase understanding and resolve outstanding issues. Innovative solutions are anticipated as communication is encouraged on both a regional and statewide basis.

SUCCESS STORY — TEXAS DATA CENTER SERVICES PROCUREMENT WINS 2007 NASCIO AWARD

Texas's Data Center Services procurement won the 2007 National Association of State Chief Information Officers award in the Cross-Boundary Collaboration and Partnerships category. The citation for the Data Center procurement describes Texas's level of collaboration as "remarkable."

The DCS project involved over 400 state employees representing large and small agencies in workgroups and governance advisory committees.

Cross-agency teams participated in the request for offer development and evaluation, enabling participating agencies to enter into an IT infrastructure services contract.

Source: NASCIO, "2007 Awards: Cross-Boundary Collaboration and Partnerships." <http://www.nascio.org/awards/2007awards/collaboration.cfm>.

Core Missions



Objective 5. Deploy Value-added Technology Solutions to Meet Agency Core Missions and Serve Texas Citizens

Agencies can achieve their core missions by aligning appropriate technology solutions with their business functions. As the most important layer of the Texas

FUTURE OPPORTUNITIES

- Streamline application portfolios through regular review and assessment
- Evaluate innovative service delivery methods; for example, through portals, integrated interaction centers, wireless/mobility, and kiosks

Model for the Enterprise, the Agency Layer encompasses the unique business needs of each agency.

Each of the strategies related to objectives one through four provide the foundation needed for agencies to develop innovative solutions that will meet their business needs. At the Statewide Infrastructure level, government agencies are supported through statewide operations such as the shared data center system, communications technology services, and managed IT supply chain services provided by cooperative contracts. Agencies are also being empowered through intergovernmental collaboration initiatives.

The Texas Model for the Enterprise's Statewide Infrastructure and Collaboration layers will provide the support to free government agencies to explore new and innovative technology solutions to meet their business needs. Creative solutions and strategies can then be shared across government boundaries so that the Texas government enterprise can consistently provide world-class services and information.

As statewide collaboration and consolidation relieve some of the administrative and daily operations burden on individual agencies, technology personnel will have increased opportunities to assume a more strategic role in improving key government services; for example, by asking the following questions:

- How can this agency develop services that are faster and easier to understand?
- What new services can this agency deploy to improve the daily lives of citizens, clients, and customers?

With this strategic plan, Texas is making the commitment to organize our approach to government technology in a manner that transforms its vision into reality.

BEYOND MAINTENANCE AND OPERATIONS

Each government agency is expected to create new programs and deliver enhanced services to fulfill its core mission. Relief from maintenance chores related to keeping government technology up and running can free agencies to focus directly on improving service delivery.

“ The average IT organization is being squeezed in the vice-like grip of maintenance and support of ongoing operations. As much as 80 percent of the IT budget is being consumed by these activities, leaving only 20 percent for strategic initiatives and innovation.”

Source: Forrester, “Financing IT Improvements,” 29-Aug-2007.

AGENCY INNOVATION CENTERS

Strategy 5-1.

Plan and deploy innovative technologies that deliver world-class services to Texans

In preparing this plan, DIR conducted a series of interviews with agency and other state and local government representatives, as well as the private sector, which focused on identifying innovative methods for improving government services. While many factors impact how agencies design and deploy technology in ways that are innovative, three approaches to developing creative solutions surfaced repeatedly throughout the course of these interviews. These approaches represent a cross-section of the unique agency actions that are being used to plan and deploy innovative technology solutions:

■ Design from the customer’s perspective

Agency interviews highlighted the importance of designing from the customer’s perspective. Govern-

THE RIGHT DOOR

“We should be able to advise citizens to go through one door, and that one door is always the right door.”

— Stephen Paxman,
General Land Office

ment portals are more accessible and usable when designed from the end user’s viewpoint. Accessibility, usability, searchability, scalability, and navigability are all key considerations in the design process. Each

of these concepts is most effectively implemented when it is incorporated early in the development process. For example, Web designers have better design information when they interact with users from the beginning of a new project. Focus groups, regional meetings, routine usability testing, and other interaction methods are examples of effective strategies that were identified to ensure that state and local governments have a customer-centered Web presence.

■ Expand communication channels

As technology expands the options available to

CHANGING FOCUS

“With the emphasis on reporting, it used to be that a report request would come from the highest level—the state legislature, the Texas Education Agency, or a superintendent. Now it comes from the stakeholders at the end point—the principal, a teacher, a parent, or a student. As data-based decision-making becomes more ingrained and increases in frequency, our IT staff can’t handle data analysis as an *ad hoc* engagement, which changes our perception of how we do business and our expectations about success in our jobs.”

— Randy Sumrall, CIO
Education Service Center, Region 10, Richardson

communicate with each other, government services can be truly transformed. As noted previously in this plan, technology is evolving to include an increasing number of channels through which citizens may interact with companies in the private sector. Examination of award-winning government portals in other states suggests that multi-channel access is a key factor in these awards. Texas must keep pace with the technological sophistication of its citizens, clients, and customers. Future Texas government services, including the state portal, should examine opportunities to offer multiple access channels.

■ Unleash information

The vast amount of data and information collected and held by state agencies represents a valuable asset. However, much of this value is often lost because data held in separate information stores are not available to all users. Agencies can unleash this information by seeking new ways to make data available within and across government organizations. Increasing the availability of public information enhances agency knowledge bases and improves internal decision-making. Connecting citizens with varying levels of technology expertise to information in a more transparent way can, in effect, democratize access to government. Staff time within agencies can also be freed by empowering external users; for example, by creating customer self-service models.

HIGHLIGHT — BEST OF TEXAS AWARD FOR MOST INNOVATIVE USE OF TECHNOLOGY

The City of Austin won a 2007 Best of Texas award in the Most Innovative Use of Technology category for its Kiosk Environment for Community Care Clinics solution. Austin's community care clinics needed a switch user interface into a new medical management and medical records application. Doctors, nurses and support staff needed to be able to quickly move between examination rooms at the city's community care clinics.

The solution, which was managed by the city's Communications and Technology Management Office, was to use Linux kiosks in each examination room to connect to a Citrix farm that hosts the relevant applications. Austin medical providers now have ready access to electronic medical information, which provides a huge benefit to patients. The city is utilizing 280 kiosks to serve approximately 500 concurrent users.

Source: City of Austin, Office of the CIO. Application for 2007 "Best of Texas" award.

This objective can be met collectively by agencies acting to fulfill their core missions, which, in turn, will help to build a better Texas. In preparing their agency strategic plans, state agencies will have the opportunity to both support and integrate this state strategic plan with their agency-specific goals, objectives, and strategies. Statewide integration of all three layers of the Texas Model for the Enterprise will, in turn, assist agencies in more effectively meeting their core missions.

Championing Success

This plan lays out an ambitious roadmap for how Texas will harness the power of information and communications technology to continue to transform state government to best serve the state's citizens, clients, and customers. This plan aims to establish and meet an exemplary standard of innovation, collaboration, accountability, customer service, and cost effectiveness in every facet of the state's technology operations.

Texas's continuing technology transformation will be guided by its technology vision and guiding principles, as outlined in this plan. This plan also provides Texas government agencies with the state's technology goals, objectives, and accompanying strategies for the next five years. Together, these goals, objectives, and strategies demonstrate how DIR will provide the shared infrastructure, managed services, and partnership opportunities that will, in turn, free up agency time and resources to focus on the development and implementation of innovative strategies to meet their core missions.

DIR will work with state and local governments and the public schools to empower and champion government technology successes in meeting the needs of every Texan across the state. Strategic planning in the coming year will provide the opportunity for each agency in Texas state government to map out their own goals, objectives, and strategies to fulfill their core missions in a manner that takes advantage of the opportunities in this plan for increased statewide collaboration and support.

The ultimate benchmarks for the success of this plan will be a statewide network of technology innovation that spans Texas's public and private sectors, and an empowered citizenry who are able to use government services and information to effect meaningful transformations in their own lives.



APPENDIX A

Transformational Opportunities



Reprocurement of TEX-AN

TEX-AN, the state's centralized telecommunications system, has been upgraded to a statewide, high-speed network. This enhanced network provides an Internet protocol (IP) platform deployed in each regional local access and transport area of the state. This new shared communications infrastructure is built to provide a more robust, resilient, and secure foundation than the legacy networks, and can deliver voice, video, and data statewide through a single converged system. This infrastructure increases capacity and has expansion capability to meet the future needs of the state.

TEX-AN provides voice and data services to state agencies as well as other governmental entities such as cities, municipalities, counties, regional education service centers, school districts, and higher education institutions. The state also offers a variety of cooperative contracts for telecommunications services.

Current TEX-AN services include access circuits, data transport services, ATM, frame-relay, emulation services, and point-to-point services. The TEX-AN IP network supports video services, internet service provider services, and network security operations services.

TECHNOLOGY THAT MATTERS — TEX-AN

- Total public sector customers: 573
- Total circuits: 6,447, approximately 75 percent of which are broadband (T-1 or higher)
- Number of broadband circuits delivered statewide: 4,500 broadband circuits across 600 Texas cities, with service to nearly every Texas county
- Customer base: 25 percent state agencies, 30 percent education customers, and 45 percent local customers
- Percent of customer base using TEX-AN by choice due to its competitive pricing: 75 percent*

*State agencies are required to use TEX-AN.

The state's current TEX-AN contract will expire in August 2009, and the reprocurement process will begin in fiscal 2008. The reprocurement will address legacy as well as emerging technologies in the rapidly evolving telecommunications sector in order to provide customers with the next generation of communications technologies. Multiple opportunities for input and involvement in this reprocurement effort will be provided to DIR customers.

Concurrent with the development of the state's requirements for the next generation of TEX-AN, DIR will focus on developing comprehensive business solutions for customers. Through managed communications services and a suite of service options currently under development, the service portfolio will include telephony, data, video, collaboration, wireless, security, interoperability, local- and wide-area network management, interactive voice response (IVR), and call center services, among others.

This new managed communications services business model will require new customer-focused roles and responsibilities. Goals of the new business model and service delivery approach, detailed below, are to simplify service acquisition, establishment, and support, enhance value from sharing, and increase performance through improved reporting of service levels.

Simplify service acquisition

Obtaining specialized services, such as interactive voice response or wireless, can be a time-consuming and process-intensive effort. A customer must either identify each of the necessary components available through

the TEX-AN contract and then assemble and build a solution, or develop detailed technical requirements and issue a request for offer for a vendor-provided solution. In the future, customers can concentrate on defining their business requirements and performance expectations, and not spend time on the procurement process.

Simplify service establishment

Contracting for complex communications solutions requires a significant commitment of agency resources in addition to specialized expertise in order to establish the desired functionality. In the future, by employing a systems integrator, agencies can receive the communication solutions that accommodate their business needs without the need to serve as a general contractor.

Simplify service support

Customers must assess the nature of a problem and determine the right entity to contact to report the issue for service resolution. One goal of future managed services will be to provide customers a single point of contact and coordination for all of their service needs.

ONLINE RESOURCES AND MORE INFORMATION

Details on current communications technology services and TEX-AN are available online at <http://www.dir.state.tx.us/tex-an/index.htm>. Information on this reprourement will be posted on the DIR Web site as it becomes available.

Enhance value from sharing

In traditional acquisition models, customers purchase individual assets, individual technologies, and the resources needed for development and operation. In a shared services model, the state has the ability to leverage common resources to reduce per-unit costs and the model provides the opportunity to reuse previously developed work products, ultimately maximizing investments and minimizing new costs.

Enhance vendor performance through improved reporting of service levels

Precise service level agreements offer the primary means to hold service providers accountable for their performance. Making key service-level performance measures more visible to agencies will provide an incentive for competing service providers to maintain quality levels of performance.

Reprocurement of TexasOnline.com

Since its 2000 launch, TexasOnline.com has served as the primary vehicle for making Texas government accessible to citizens, customers and other users 24 hours a day, 7 days a week. TexasOnline.com was recognized in 2006 by Brown University as the number one government portal in the nation.

The state's challenge, with the December 31, 2009, expiration of its current TexasOnline.com contract, is to ensure that the state portal will continue to serve as a national and international model of cost-effective, accessible, and comprehensive online government services. The state has the following goals for the next generation of TexasOnline.com.

Simplify citizen access to government services and information

Texas is seeking new electronic tools and strategies to meet customer needs. Whether a visitor to TexasOnline.com is renewing a driver's license, filing a court document, or looking for an agency Web page, the next generation of the state portal will need to address the requirement for simplified but secure access to government services. Significant new developments in online search, content life cycle management, and tagging/browsing that represent promising opportunities for improvements have emerged since the start of the TexasOnline.com project.

TECHNOLOGY THAT MATTERS — TEXASONLINE.COM

- Number of visitors since 2000 launch..... 80+ million
- Average number of monthly visits..... 2.5 million
- Number of online services in production... 829
- Number of government agencies participating in TexasOnline.com..... 100+
- Average number of monthly financial transactions..... 1.3 million
- Amount of state fees processed since 2000 launch..... \$5+ billion
- Money added to State of Texas treasury since 2000 launch..... \$22.9 million

Close gaps related to distance, economics, and physical disability

E-government in Texas has already improved the convenience of citizen and business access to government services and reduced the barriers that distance, economic disadvantage, and physical disability often create. More work remains to be done to close these respective "divides," and the next generation of TexasOnline.com must meet those needs. Texas remains committed to developing accessible Web services and looks to expand its ability to meet that need in the future.

Support the demand for multi-channel access

When TexasOnline.com was initially conceived, it was sufficient for a state to meet its e-government needs with a well-designed Web site. Today's users, along with the emerging cohort of tech-savvy *millennials*, demand not just Web sites, but the ability to search, e-mail, chat, instant message, text, podcast, blog, video blog, and interact in virtual worlds. Multi-channel access has gained interest in federal, state, and local government. While it is has not yet been determined how and whether Texas government can apply these technologies to deliver services to its citizens, clients, and customers, consideration for multi-channel access may influence both the technology and the service delivery operations of the next generation of TexasOnline.com.

Support new businesses and statewide job creation

TexasOnline.com's Texas Business Portal has already launched many new services that have helped entrepreneurs and firms seeking to open locations in Texas. DIR hopes to expand those services in the next generation of TexasOnline.com and to firmly establish Texas as a national and international leader in this area.

Fuel economic development in Texas

Texas intends to seek out the best and brightest ideas from other states and government partners around the world. While solutions that work in one area are not always applicable in another, DIR intends to adopt and adapt great ideas that will benefit TexasOnline.com's

customers. For example, the province of New Brunswick, Canada, has had remarkable success in presenting a single face of government to online visitors. Hong Kong and Singapore have achieved noteworthy success in electronic learning and online education. Uganda and other nations have pioneered methods of delivering health and human services information via mobile phones. South Korea and the State of Virginia have made major strides in streamlining government purchasing. These are but a few of the examples that have already attracted Texas's interest.

Drive e-government transformation

True e-government transformation reduces government cost. To achieve real savings, however, an integrated strategy that incorporates business process redesign must be developed. TexasOnline.com services such as e-filing for court documents, online requests for vital records, and the state's automated system for vehicle inspection have achieved this transformation. It remains a key guiding principle going forward.

Set a high standard for online security and privacy

Computer hackers are no longer just bored teenagers or mischievous college students. The hackers, spammers, and identity thieves of today include career criminals and multi-national criminal syndicates, as well as nation states engaged in reconnaissance and offensive operations. Furthermore, they have sophisticated resources at their disposal and are unrestricted by legal, regulatory, or geographical boundaries. Managing and maintaining a secure and resilient information technology infrastructure and protecting citizen privacy are top priorities.

Deliver solid operational performance

Delivering citizen, client, and customer access to government services and information 24/7 is a requirement of any level of e-government. In the next generation of TexasOnline.com, DIR will seek out ways to improve application availability and site monitoring systems that report on system performance.

Deliver superior financial performance

DIR has studied self-funded portals around the nation, and this research indicates that the public-private partnership that Texas currently enjoys is the best combination of revenue sharing, financial stability, and asset ownership of any state. DIR's goal is to continue to deliver superior financial performance to the State of Texas.

ONLINE RESOURCES AND MORE INFORMATION

More information on TexasOnline.com is presented at the TexasOnline Procurement Portal, which can be viewed online at <http://www1.dir.state.tx.us/tol/index.htm>.

Summary of Related Technology Legislation

79th Texas Legislature

House Bill 1516

In 2005, the Texas Legislature enacted technology legislation that supported the implementation of a statewide shared technology infrastructure. Among these bills, HB-1516 was of great significance to statewide information technology management. It required DIR to establish a statewide technology center for data or disaster recovery services, and enabled DIR to propose additional technology centers to promote efficiency and effectiveness and provide the best value to Texas.

HB-1516 also broadened the scope of commodities for which DIR is able to negotiate favorable pricing, including hardware, software, and technology services. Additionally, the legislation mandated state agencies' participation in procuring these commodity items through DIR. HB-1516 also directed DIR to develop, in consultation with the Legislative Budget Board and State Auditor's Office, the Texas Project Delivery Framework (Framework) guidelines and forms. State agencies must prepare Framework documents for major information resources projects. Each agency's executive director, project manager, and employee in charge of information security must approve these documents.

80th Texas Legislature

House Bill 66

The 80th Texas Legislature enacted several critical pieces of new technology legislation. HB-66 requires state agencies to use power management software to reduce the amount of energy used to operate networks and networked personal computers. DIR must research and award contracts for the software if its use is considered to be technically feasible. If DIR determines that there would be a cost savings to the state in the fiscal

2008–09 biennium, agencies must use the software. Institutions of higher education must use the software only if DIR, in consultation with the Information Technology Council for Higher Education, determines there would be a savings to the state.

House Bill 1788

The 80th Texas Legislature passed several key bills that further strengthen the state's shared services and technology infrastructure. HB-1788 consolidated agency planning and reporting to require that agency information resources strategic plans be included in agency strategic plans. This legislation also requires agencies to submit a biennial review of their deployment of information resources. DIR is further mandated by this bill to prepare a biennial report for state leadership on streamlining technology data collection.

House Bill 1789

HB-1789 redefines internal agency quality assurance procedures to apply to project management practices. DIR is required to establish, by rule, guidelines for project management practices, taking into consideration agencies' existing practices and to assist agencies in the development of their project management practices.

House Bill 2714

HB-2714 requires manufacturers of personal computer equipment to implement computer recycling programs that are certified by the Texas Commission on Environmental Quality. DIR is required to give special preference to manufacturers with a program to recycle equipment from other manufacturers. An agency that purchases or leases computer equipment must require each bidder to certify the bidder's compliance with this law or the bidder is ineligible to participate in the procurement.

House Bill 2918

HB-2918 eliminates the Catalog Information System Vendor registration program and transfers to DIR the technology aspect of the Texas Multiple Award Schedule Program. This bill further requires agencies to use the Texas Project Delivery Framework for any business process outsourcing over one million dollars and allows assistance organizations, as defined in statute, access to DIR cooperative contracts. Additionally, the bill requires training for agency contract managers on advanced sourcing strategies, techniques, and tools.

House Bill 3106

HB-3106 transfers from DIR to the CPA explicit authority for enterprise resource planning, including the uniform statewide accounting system. State agencies are required to use the ERP systems adopted by the CPA. The bill establishes an ERP advisory council, which includes DIR, to develop a plan for implementation of ERP standards.

Senate Bill 687

SB-687 allows agencies to use TexasOnline.com for their payment tracking systems and defines point-of-sale transactions on TexasOnline.com. DIR is required, by rule, to adopt standards for agency Web sites that ensure consistency and compatibility with TexasOnline.com, and requires agencies to comply with these standards.

Senate Bill 757

SB-757 requires increased coordination between DIR and the Telecommunications Planning and Oversight Council. The bill authorizes DIR to collect and manage information about existing and planned state telecommunications networks and provide this information to the council. The bill also transfers several state planning and reporting requirements from the council to DIR, with continuing support from the council.

Acronyms

CPA	Comptroller of Public Accounts
DCS	Data Center Services
DIR	Texas Department of Information Resources
ERP	Enterprise Resource Planning
GIS	Geographic Information System
HB	House Bill
HHS	Health and Human Services
HHSC	Health and Human Services Commission
HUB	Historically Underutilized Business
ICT	information and communications technology
ICTCC	Information and Communications Technology Cooperative Contracts
IP	Internet Protocol
IT	information technology
IVR	Interactive Voice Response
LBB	Legislative Budget Board
LEARN	Lonestar Education and Research Network
NASCIO	National Association of State Chief Information Officers
NIEM	National Information Exchange Model
NSOC	Network and Security Operations Center
OAG	Office of the Attorney General
QAT	Quality Assurance Team
RFI	Request for information
RFO	Request for offer
SB	Senate Bill
SCIP	State Communications Interoperability Plan
SDLC	System Development Life Cycle
StratMap	Strategic Mapping Program

TBPC Texas Building and Procurement Commission

TJIEM Texas Justice Information Exchange Model

Definitions

best practices – A term used to describe generally agreed upon processes, derived from experienced industry experts, which should be undertaken when deploying projects in order to decrease operational and financial risk.

blog – Short for Web log, a Web page that serves as a publicly accessible personal journal for an individual.

carbon footprint – A measure of the impact human activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide.

cybersecurity – The branch of security that protects data and information against unauthorized disclosure, transfer, modification, or destruction, whether accidental or intentional.

data center – A centrally managed computing facility that houses servers or mainframes and storage devices to serve as a centralized processing center. Typically, such a facility is constructed or modified with separate climate controls and electrical connections that are adequate to support the computing environment.

digital base map – A reference dataset of geographic information representing the best available map data for an area that has been developed and documented to an adopted cartographic standard. A base map provides the foundation layer upon which other geographic data can be placed using a geographic information system.

disaster recovery services – Services usually provided by a third party that include developing advance arrangements and procedures to enable an organization to either maintain or quickly resume mission-critical func-

tions within a specified time frame, minimizing loss to the organization.

electronic discovery – A phase in the litigation process through which a party to a lawsuit seeks to obtain information in electronic format that is relevant to its case.

geographic information system (GIS) – A system of computer hardware, software, and procedures used to store and manipulate electronic maps and related data to solve complex planning and management problems.

interactive voice response (IVR) – A computerized system that allows a person, typically a telephone caller, to select an option from a voice menu and interact with a computer system. Generally, the system plays pre-recorded voice prompts to which the person presses a number on a telephone keypad to select an option or speaks simple answers such as “yes,” “no,” or a number.

intrusion detection system (IDS) – Software and/or hardware that detect and log inappropriate, incorrect, or anomalous activity on a network and that identify suspicious patterns that may indicate an attack from someone attempting to break into or compromise a system.

Lonestar Education and Research Network (LEARN) – A nonprofit collaboration of 33 higher education institutions that supports the research, education, health care, and public service missions of those institutions.

market intelligence – Information relevant to a company’s markets, gathered and analyzed specifically for the purpose of accurate and confident decision-making in determining market opportunity, market penetration strategy, and new market development metrics.

metadata – Descriptive information about a collection of data that aids in searching for the data.

seat management services – A method of standardizing installation, operation, and maintenance of hardware and software at each desktop across an enterprise.

service-oriented architecture (SOA) – A collection of self-contained services that communicate with each

other by passing data or coordinating activity among two or more services.

System Development Life Cycle (SDLC) – The process used to develop an information system, including requirements, validation, training, and user ownership through investigation, analysis, design, implementation, and maintenance.

spyware – A broad category of malicious software intended to intercept or take partial control of a computer’s operation without the user’s informed consent for the benefit of a third party.

TEX-AN (TEXas Agency Network) – The centralized telecommunications system for the state of Texas.

Texas Model for the Enterprise – A vision of a flexible and innovative shared services and technology infrastructure that serves as a framework for organizing strategic activities across Texas government.

Texas Project Delivery Framework – The Texas Project Delivery Framework (Framework) establishes a consistent, statewide method for project selection, control, and evaluation based on alignment with business goals and objectives. The Framework consists of five review gates with guidance and tools for each of the gates.

verification and validation – A process employing a variety of software engineering methods, techniques, and tools for evaluating the correctness and quality of a software product throughout its life cycle.

video blog – A blog that includes or consists of video clips.

voice over internet protocol (VoIP) – Technology used to transmit voice over a data network using the Internet.

Acknowledgments

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The 2007 State Strategic Plan for Information Resources Management was approved by DIR's governing board on October 16, 2007.

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