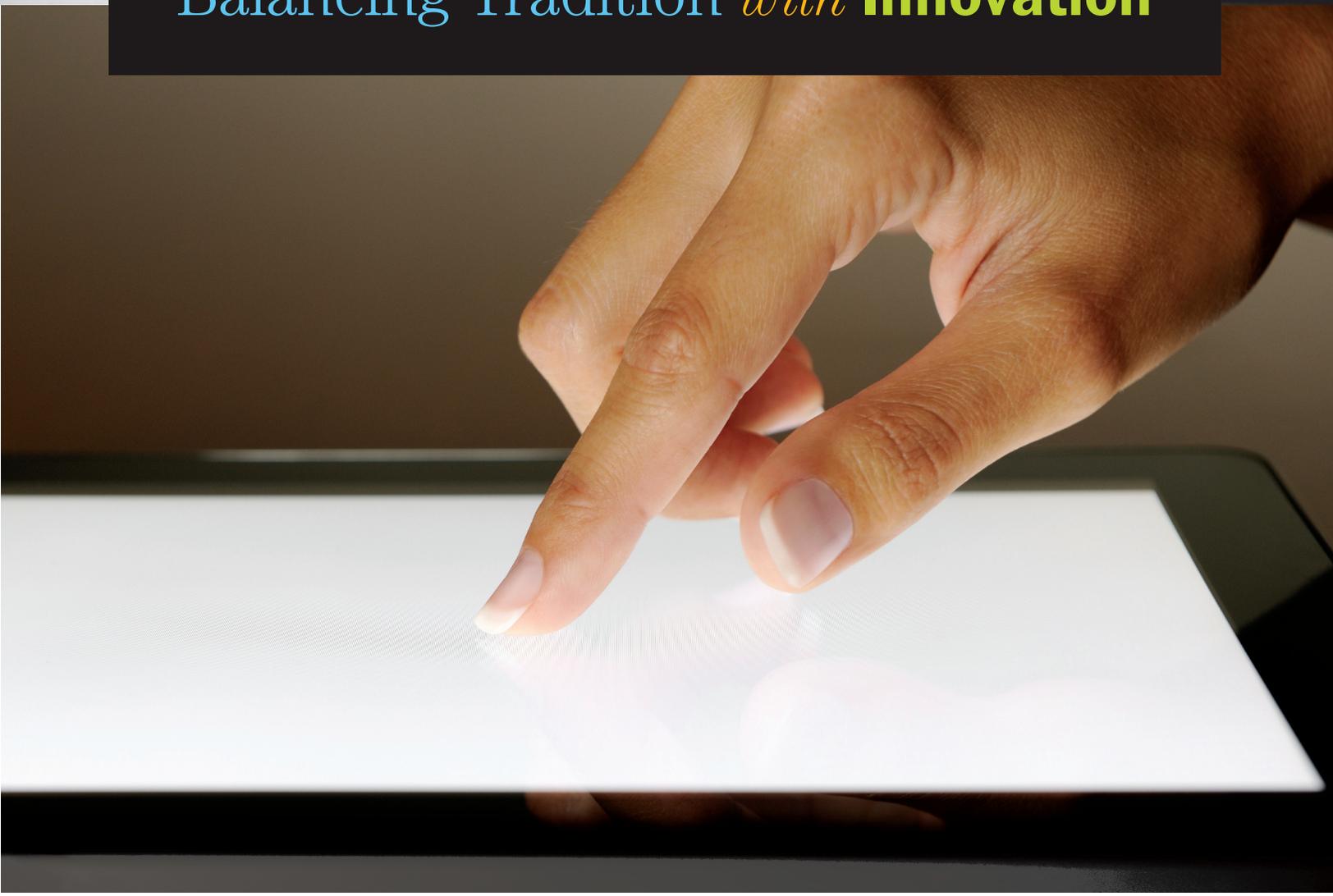




TECHNOLOGY IN TEXAS

Balancing Tradition *with* **Innovation**



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#### ABOUT THIS PLAN

The Information Resources Management Act (Texas Government Code, Sections 2054.091–094) requires the Texas Department of Information Resources to prepare a state strategic plan for information resources management each biennium. The plan identifies technology goals for state government over the next five years and guides state agencies as they develop their agency strategic plans.

Note: For the purposes of this report, the term “state agency” is used to indicate a state agency or a state funded institution of higher education. The 2016–2020 State Strategic Plan is available on the Department’s website at [www.dir.texas.gov](http://www.dir.texas.gov).

## Technology in Texas: Balancing Tradition with Innovation

Public sector organizations have come to view information technology (IT) as the foundation for providing quality services to their constituents. Managing IT within state government requires balancing traditional daily operations, citizen expectations, efficiency measures, and security against budget constraints. IT leaders know the competing priorities all too well — leadership wants lean budgets, executives want quick turnarounds, and citizens want secure access anytime, anywhere. In a constantly changing technology environment, agencies have to be cost efficient, yet innovative; measured, yet responsive; operational, yet visionary.

The 2016–2020 State Strategic Plan for Information Resources Management was developed with this balancing act in mind. Its aim is to help government leaders evaluate and prioritize the technology innovations that enable them to achieve their business and service delivery objectives. Each agency should carefully consider how the strategic goals outlined in this plan align with agency objectives. The plan’s focus areas map to actionable goals that agencies may use in their strategic planning, depending on their IT needs. The plan presents technology trends agency leaders identified as relevant, and describes how these trends will affect the direction for information resources management statewide.

Technology allows agencies to perform more efficiently and fulfill citizen needs. It will continue to provide a vehicle for innovative solutions. Agencies must ensure that their IT initiatives align with organizational priorities, both current and future. Agencies must adapt planning and governance processes to the emerging world of 24/7 access to government to meet the needs of our mobile citizenry. Texas is well poised to meet the goals in this plan. Success is possible.

STRATEGIC GOAL 1:  
Reliable & Secure  
Services



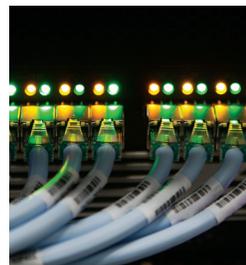
STRATEGIC GOAL 2:  
Mature IT Resources  
Management



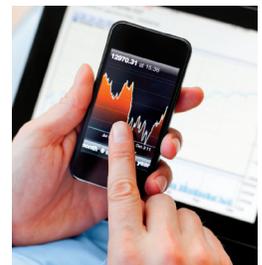
STRATEGIC GOAL 3:  
Cost-Effective &  
Collaborative Solutions



STRATEGIC GOAL 4:  
Data Utility



STRATEGIC GOAL 5:  
Mobile & Digital  
Services



# Reliable & Secure Services

## STRATEGIC GOAL 1

Agencies are obliged to provide secure and reliable information and services to both the citizens they serve and the workforce they support. As the need to provide citizens access to information grows, the public sector continues to be an attractive target for cybersecurity attacks. Planning, testing, and readiness assessments ensure critical government IT services continue in the event of a disaster or a disruption of normal operations. Traditional planning for security and continuity of operations remains the cornerstone no matter how technology advances. Agencies must be ready to meet demands for connectivity in a constantly connected world.



## SECURITY

Securing and protecting government and citizen information

State government is responsible for protecting citizen and government information from security threats, including loss of confidentiality, integrity, or availability, through either malicious or accidental activity.

### Challenge

The state must maintain the confidentiality of citizen records that contain personal information. While agency and state leadership agree on the importance of maintaining a technology infrastructure that protects citizen information, IT security funding limitations and a nationwide scarcity of qualified IT security professionals pose significant challenges to advancing security objectives.

### Actionable Goals

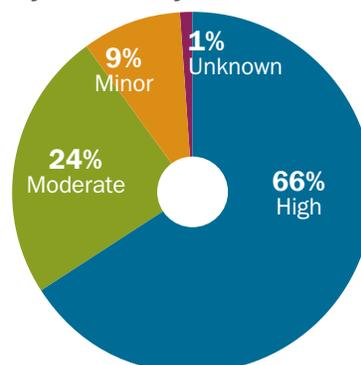
- ➔ **Implement** policies and standards aligned with the Texas Cybersecurity Framework, which provides cybersecurity policies, training, and standards to assist agencies in mitigating risks and improving the resiliency of state information systems against cyberattacks.
- ➔ **Develop** and adhere to a software currency policy that reduces the use of unsupported software and decreases security vulnerabilities in state agency IT systems.
- ➔ **Increase** employee cybersecurity training and awareness to expand the pool of qualified security professionals and reduce human error that results in security vulnerabilities.

### Impact

**Short-term:** Increased agency security maturity resulting in reduced risk to the agency, its data, and citizen information.

**Long-term:** A culture of security awareness, capability, and responsibility among all agency employees that improves defenses and responses to cyberattacks.

### Importance of Cybersecurity



### Projected global shortfall in security professionals



## CONTINUITY OF OPERATIONS

Preparing for continued government operations during and after an emergency

Texas must be prepared to restore critical government operations in the face of a disaster or the disruption of services. Business continuity planning is crucial to the recovery of technology assets and resuming mission-critical functions.

### Challenge

State law requires agencies, except institutions of higher education, to prepare continuity of operations plans, but these plans are developed by each agency independent of interagency relationships regarding IT infrastructure. In 2013, a multi-agency workgroup developed the Continuity Planning Crosswalk as a standard for minimum content in agency continuity plans. As of December 2014, 85 percent of agencies aligned with the Continuity Planning Crosswalk; however, the State Office of Risk Management expects agencies will need additional assistance developing continuity plans that exceed minimum standards and build long-term preparedness.

### Actionable Goals

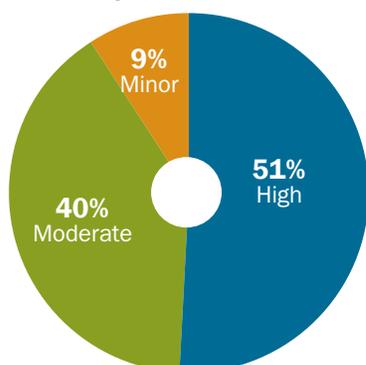
- ➔ **Test** and improve business continuity plans routinely to optimize effectiveness, including an annual exercise of agency continuity plans.
- ➔ **Consider** cloud infrastructure to improve business continuity and facilitate recovery from diverse locations.
- ➔ **Implement** teleworking to improve continuity of operations, ensuring employees have the appropriate training to work from alternative locations.

### Impact

**Short-term:** Identification and prioritization of the personnel, facilities, and resources required to continue delivery of necessary functions after an emergency.

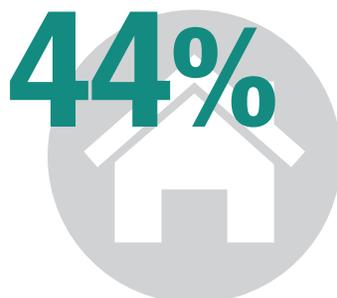
**Long-term:** A unified approach to incident management that includes collaboration and standard command and control management structures.

### Importance of Continuity of Operations



SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

### Percent of agencies that support alternative workplace options (non-higher education only)



SOURCE: 2013 INFORMATION RESOURCES DEPLOYMENT REVIEW

## CONNECTIVITY

Ability to interconnect platforms and systems

Agencies continue to rely on voice and data networks to access information, communicate, and deliver services to other government agencies, business partners, and citizens. Network technologies provide the foundation for voice and data services to navigate within and across agencies, and to reach constituents throughout the state.

### Challenge

Employees and citizens are increasingly expecting continuous connectivity to conduct work and business at higher quality, greater capacity, and faster speeds. However, upgrading aging network infrastructure is often costly. Meanwhile, pressure is being placed on networks as vast amounts of data are being transferred over the state's IT infrastructure to deliver essential services.

### Actionable Goals

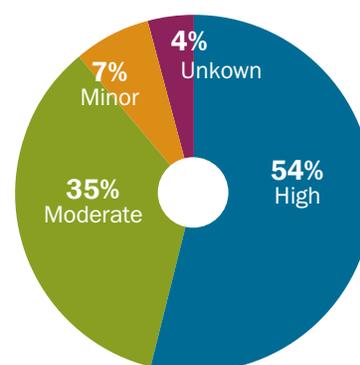
- ➔ **Evaluate** and forecast agency bandwidth consumption to mitigate future network congestion.
- ➔ **Implement** a capacity management plan to ensure network performance of critical IT services, and manage bandwidth growth and costs in alignment with agency resources.
- ➔ **Upgrade** data networks to ensure that capacity is able to support emerging technologies for the secure transmission of data, voice, and video.

### Impact

**Short-term:** A reliable network infrastructure, resulting in faster access to applications and increased employee productivity.

**Long-term:** Increased adoption of newer technologies, including unified communications (integrated, real-time communication including voice, chat, and video), cloud, and mobile solutions, for more efficient government services delivery.

### Importance of Connectivity



SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

### DIR's shared bandwidth for agencies increased from 3 gigabit to



SOURCE: DIR

# Mature IT Resources Management

## STRATEGIC GOAL 2

The challenge to do more with less has become a business principle for government, and the implications for IT funding, governance, and the workforce are apparent. Traditional funding models challenge agencies' ability to implement innovative strategies. Agencies must follow rules and guidelines for IT projects, as they are accountable to the public and leadership for the results. Decisions must ensure IT sustains and extends the organization's strategies and objectives and that staff have the necessary knowledge, skills, and abilities to perform IT functions effectively.



## IT FUNDING

Allocating resources to support information technology, improve services, and foster innovation

State IT budgets are complex. Continuing budget demands and constraints heighten the need to clearly identify state technology expenditures. In Texas, technology may be built in house or purchased in the market; costs may be detailed in various agency budget categories, or identified as exceptional items in Legislative Appropriations Requests. Lastly, initiatives may be paid for from a variety of state or federal funds.

### Challenge

Agency IT expenditure data is maintained in a variety of disparate systems and lacks sufficient detail to accurately describe IT spending throughout the state. A clearer understanding of IT project spending and need would assist budget decision makers as they prioritize and allocate funding.

### Actionable Goals

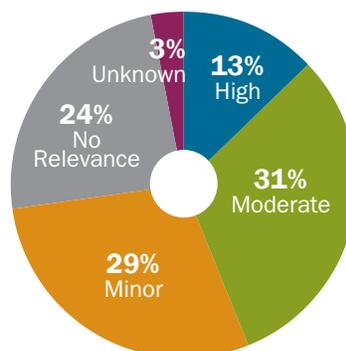
- ➔ **Bring** chief financial officers and IT directors together to determine the best way to fund the agency's technology projects, and ensure investments reflect program needs and agency strategic goals.
- ➔ **Budget** and account for all IT project costs to identify total costs of ownership and real value and benefit of the project.

### Impact

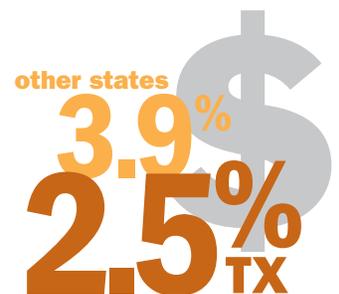
**Short-term:** Detailed accounting of the cost and spending on IT projects, allowing the state to better forecast and evaluate future technology needs.

**Long-term:** More accurate information for budget decision makers to prioritize future project funding, including better data about current status and anticipated growth.

### Importance of IT Funding



### IT expenditures as a percent of total state spend



## IT PLANNING & GOVERNANCE

Collaborating to ensure IT operations support business goals and align with organizational priorities

Good planning and governance is about accountability and a formalized process for making, communicating, and implementing decisions. It requires leadership and repeatable processes to ensure sustained organizational strategies and objectives. Today, many business initiatives have one or more IT components, warranting executive support and proper agency governance throughout the process.

### Challenge

IT project failures are often connected to gaps in planning and decision making. In some cases, planning for IT resources falls behind operational priorities or legislatively directed tasks and budgets. Agencies struggle to balance the traditional approach of delivering IT services—maintaining critical operations and day-to-day functions—with a more agile approach that emphasizes improvements through speed and innovation.

### Actionable Goals

- ➔ **Establish** roles for agency Information Resources Managers (IRMs) in developing agency strategic plans to assist in aligning IT and business across the organization.
- ➔ **Include** critical stakeholders in decision-making processes and accountability for IT plans and projects.
- ➔ **Assign** business ownership of policy and change management decisions for IT projects.

### Impact

**Short-term:** Prioritized decision making that includes the right people and perspectives from business and IT.

**Long-term:** Reduced risk, sound project management practices, and proper governance for future IT investments.

## IT WORKFORCE

Recruiting and retaining a fully trained and qualified technology workforce

Agency IT departments are changing, and one of leadership's greatest challenges is recruiting and retaining a qualified IT workforce. More state employees are retiring, taking valuable skills that can be difficult to replace from the current marketplace. Agencies are filling the gaps with contractors, which, while often effective in the short-term, can be costly. Additionally, state agencies are rethinking their recruiting and retention strategies for a younger generation entering the IT workforce. Workforce replenishment and planning strategies are necessary to ensure that agency IT departments can continue to excel.

### Challenge

Agencies do not have the budget to compete with the private sector for well-qualified technology professionals. Impending retirements will create knowledge and skill gaps between employees and agency IT systems.

### Actionable Goals

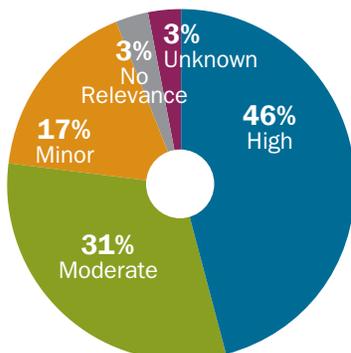
- ➔ **Coordinate** with key agency leaders to develop a workforce plan.
- ➔ **Create** knowledge transfer procedures to reduce loss of institutional knowledge and skills.
- ➔ **Engage** in active recruiting strategies, training, internships, and temp-to-hire programs, or consider outsourcing to fill gaps.

### Impact

**Short-term:** IT departments that are well-positioned to meet current and anticipated pressures to perform.

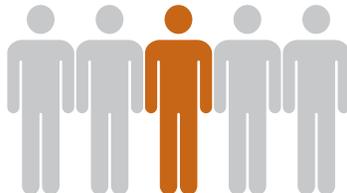
**Long-term:** Increased ability of IT departments to support business objectives and strategies, and fulfill the agency's mission.

### Importance of IT Governance



SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

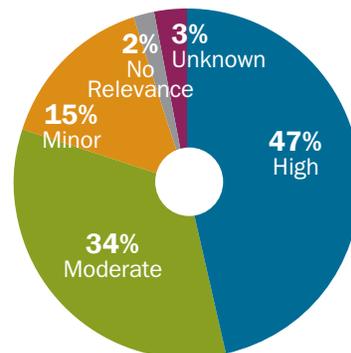
**1/5** of IRMs are not involved in developing agency strategy outside IT



SOURCE: 2013 INFORMATION RESOURCES DEPLOYMENT REVIEW

### Importance of IT Workforce

PERCENTAGES MAY NOT TOTAL 100 DUE TO ROUNDING.



SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

### Average age of the state IT worker



SOURCE: STATE AUDITOR'S OFFICE, 2015

## STRATEGIC GOAL 3

Agencies are facing the next step in modernizing legacy hardware and software, replacing numerous aging systems to move toward a more collaborative and interoperable state government. As agencies transition from traditional practices to innovative solutions, they will need to evaluate current and ongoing investments in legacy systems, and consider the scalable services of cloud and the efficiencies of shared services. Legacy modernization, cloud, and shared services will continue to increase in impact. Determining which services to use, with whom to share services, and how to get there may not be easy, but is essential to the future success of state agency IT.



## LEGACY MODERNIZATION

Addressing outdated technology, computer systems, or applications

A legacy system operates with old, obsolete, insecure, or inefficient hardware or software. Legacy systems are more difficult and costly to maintain, less resilient, and carry a higher degree of security risk. Yet they cannot be easily replaced because many core, mission-related functions rely on them and budgets cannot keep up with changes in technology.

### Challenge

Legacy modernization remains a challenge for agencies due to decreasing vendor support for end-of-life systems and limited funding and staff to maintain them and plan for their replacement. A statewide effort is now underway to help agencies identify and upgrade unreliable systems, but it will take planning, time, and ample resources before the state can resolve this technical debt. In the meantime, systems and data are at risk.

### Actionable Goals

- ➔ **Implement** application portfolio management within each agency by compiling information to a format that supports sharing of common needs among agencies. This allows agencies to easily collaborate to increase shared services and homogenize the state's technology infrastructure.
- ➔ **Evaluate** cloud services and commercial off-the-shelf solutions before building custom applications.
- ➔ **Conduct** regular security audits of unsupported systems and legacy systems to identify high-risk systems, and establish a roadmap for prioritizing issues and upgrading unsupported software.

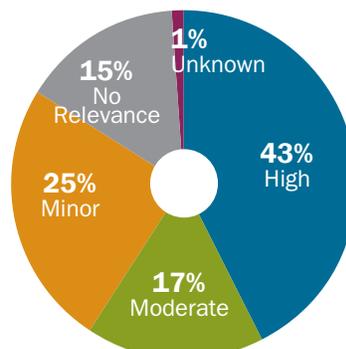
### Impact

**Short-term:** Improved repeatable, adaptable methodologies to standardize and prioritize legacy system modernization.

**Long-term:** IT becomes a service with an elastic structure that easily grows with business needs, rather than a depreciable asset.

### Importance of Legacy Modernization

PERCENTAGES MAY NOT TOTAL 100 DUE TO ROUNDING.



### Percent of state agency applications considered legacy

(non-higher education only)

# 58%

## CLOUD SERVICES

Storing, managing, and accessing data over a public or private network

Cloud technology provides an alternative to traditional IT delivery models. Cloud computing—a model that enables on-demand network access to resources—has changed the way the state does business. This convenient, as-needed delivery of information has eased the burden on agency infrastructures and helped agencies obtain flexible, lower-cost, and quick-to-implement IT capabilities.

### Challenge

Concerns regarding security, legacy systems, procurement, and lack of industry standardization keep agencies from advancing cloud implementation beyond basic applications to a more holistic, streamlined, and interoperable IT infrastructure.

### Actionable Goals

- ➔ **Develop** a comprehensive strategy that will guide cloud deployments, then pilot applications in the cloud with a goal of easing the burden on aging infrastructure and replacing legacy systems.
- ➔ **Increase** use of DIR cloud contracts and statement of work templates to determine where to start and to implement solutions.
- ➔ **Participate** in secure, cost-effective cloud products and services offered through the state Data Center Services (DCS) program.

### Impact

**Short-term:** Benefit from the consolidated buying power of the state, and increase data storage and data processing ability.

**Long-term:** More robust IT infrastructures and speedier IT deployments and replacement of unsupported legacy systems.

## SHARED SERVICES

Expanding an IT service within and among organizations according to similar need

Shared services provide central access points for defined, IT-supported business functions across multiple business units within the state. This approach improves operational efficiency, optimizes service delivery, lowers costs, and can harmonize operations and culture. Rather than simply consolidating duplicate capabilities, it changes the relationship between business and IT for better government outcomes.

### Challenge

Those born after 1980 grew up with technology, and as a result, they expect a digital world. These expectations reinforce the shift to a digital government, which is made possible through an inter-related business-technology agenda. Shared services make the shift possible and affordable. However, this model requires courageous partners willing to place some or most of their IT operations under another organization's control.

### Actionable Goals

- ➔ **Participate** in pilot offerings that exemplify the business value of shared services.
- ➔ **Choose** a shared service model based on business value, creating greater economies of scale and a more consistent IT landscape in Texas government.
- ➔ **Secure** executive support and the customer governance needed to successfully develop and deploy a shared service solution.

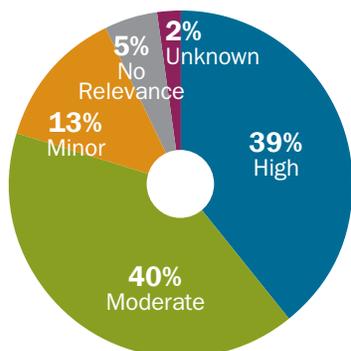
### Impact

**Short-term:** New enterprise capabilities, such as advanced analytics services, that eliminate functional silos and allow decision makers to gain insight into citizen needs.

**Long-term:** Consideration of IT as a service, not an asset, allowing agencies to focus people, time, and resources on primary missions.

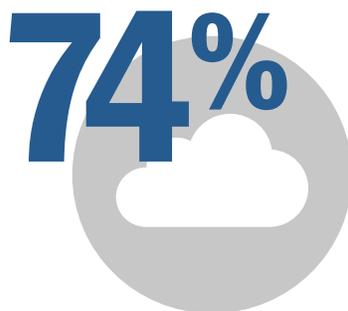
### Importance of Cloud Services

PERCENTAGES MAY NOT TOTAL 100 DUE TO ROUNDING.



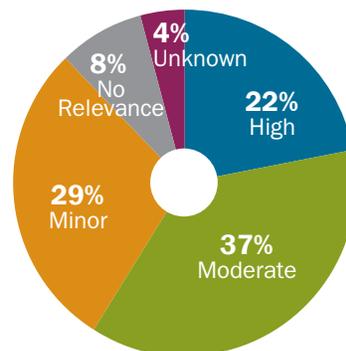
SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

### Percent of state agencies that use cloud services



SOURCE: 2013 INFORMATION RESOURCES DEPLOYMENT REVIEW, EXCLUDES THE STATE DATA CENTER AS A CLOUD PROVIDER

### Importance of Shared Services



SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

### Customer savings on Office 365 through the State Data Center program

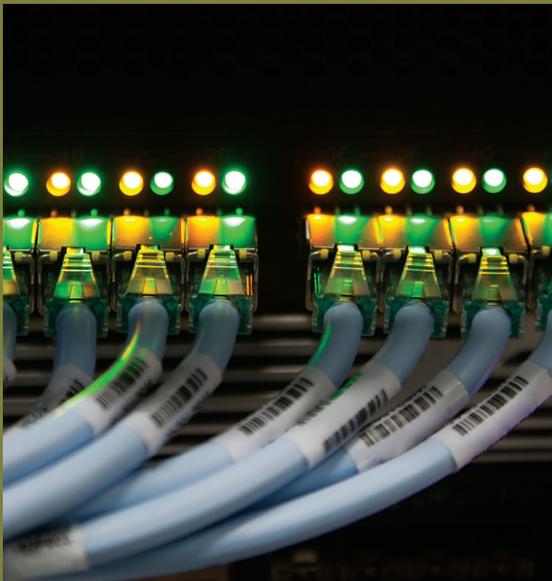


SOURCE: DIR

# Data Utility

## STRATEGIC GOAL 4

Data has become a critical strategic asset, informing agency business processes and decisions. Implementing strategies to obtain greater benefit from data will provide cost savings and improved service delivery. While most agencies are mature in the traditional organization, administration, governance, and management of their data, there are opportunities for innovation that come from open data and data analytics.



## DATA MANAGEMENT & GOVERNANCE

Strategies that put organizations in control of their business data

The state possesses an untapped asset in the data it collects and stores. To make it useful, the state must improve its approach to data management, which requires agencies to develop and execute data management and governance structures, practices, and procedures that properly manage the full data lifecycle. A coordinated, enterprise approach to data management promotes the availability of consistent, secure, accurate, timely, and accessible information.

### Challenge

With growing data volumes and increased data complexity, the job of data management is more challenging than ever. Texas government must improve data management and governance practices to fully realize the benefits that data can provide. Issues concerning security, accuracy, integrity, ownership, and volume of data create challenges for practitioners in extracting useful information.

### Actionable Goals

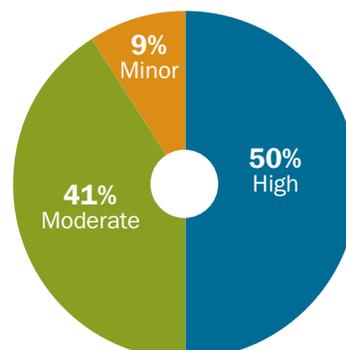
- ➔ **Implement** uncomplicated internal data governance structures involving executive and technical stakeholders to guide agency-wide data decisions.
- ➔ **Develop** data management policies and procedures to improve the integrity and usefulness of agency data.
- ➔ **Promote** standardization and interoperability of systems through a master data management plan.

### Impact

**Short-term:** Clearer understanding of data, identification of areas for improvement, and a reduction of duplicative data collection efforts.

**Long-term:** Reduced storage and operating costs, improved business processes and decision making, and improved data protection.

### Importance of Data Management



### Percent of agencies that have technology initiatives relating to data management



## OPEN DATA

Providing public access to data

The Texas Legislature recognizes the importance of open data and, through statute, requires state agencies to post high-value datasets in a standard format that allows the public to search, extract, organize, and analyze the information. The Texas open data portal, [data.texas.gov](http://data.texas.gov), promotes government transparency, encourages citizen participation, and enables the efficient use of public resources.

### Challenge

While agencies comply with laws requiring they publish data online, the state continues to maintain and publish data in formats that are difficult to use. Data that is easy to use is more valuable to the public. A culture dedicated to transparency and public engagement is needed to fully realize the benefits of open data.

### Actionable Goals

- ➔ **Catalog** and categorize data to identify the datasets that could be useful to the public or are often subject to open records requests.
- ➔ **Format** datasets to be machine readable, making data quicker and easier to use and export, while protecting personally identifiable information.
- ➔ **Publish** high-value datasets to agency websites, provide a description and link to those datasets to [Texas.gov](http://Texas.gov), and publish high-value and open data on [data.texas.gov](http://data.texas.gov).

### Impact

**Short-term:** Reduced frequency of open records requests and staff time spent responding to requests.

**Long-term:** Increased cooperation and performance through transparency, data quality and sharing, accountability, and public engagement.

## DATA ANALYTICS

Using data to inform planning and decision-making

Data analytics is the science of examining raw data with the purpose of obtaining information and drawing conclusions from the data. As the amount of data available to the state continues to grow, so does the opportunity for agencies to use data analytics to guide important decisions. As analytical tools mature and become commonplace, agencies will benefit from timely data mining strategies that inform decision making.

### Challenge

Traditionally, agencies look for answers in static, rather than dynamic, data. If managed and mined properly, data can inform the agency on areas needing improvement, such as work processes and customer satisfaction. Knowledge gathered from data analytics can enhance both immediate responses and long-term strategic planning. However, expertise in the emerging data analytics field is not readily available.

### Actionable Goals

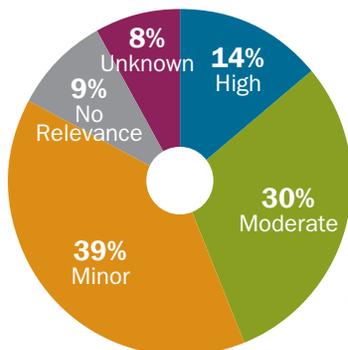
- ➔ **Obtain** executive and program-area buy-in to cultivate good, agencywide data practices that improve data quality.
- ➔ **Develop** and seek expertise and tools to successfully begin a data analytics program.
- ➔ **Evaluate** and refine analytics strategies and decision-making processes.

### Impact

**Short-term:** Reduced risk associated with decision making, and identified areas for cost savings and improvement.

**Long-term:** Improved business processes, planning ability, customer service, and decision making.

### Importance of Open Data



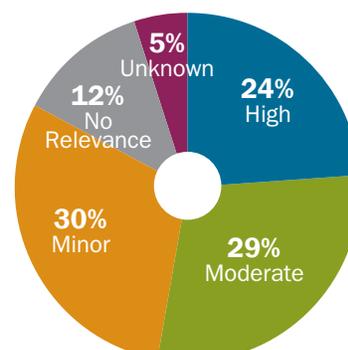
### Number of high-value datasets identified by agencies



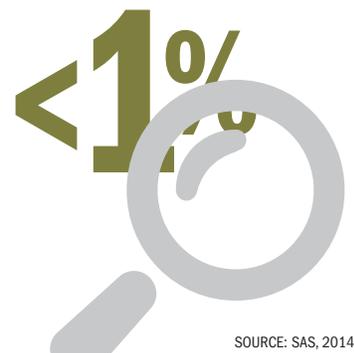
SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

SOURCE: 2013 INFORMATION RESOURCES DEPLOYMENT REVIEW

### Importance of Big Data



### Less than 1% of all existing data is analyzed



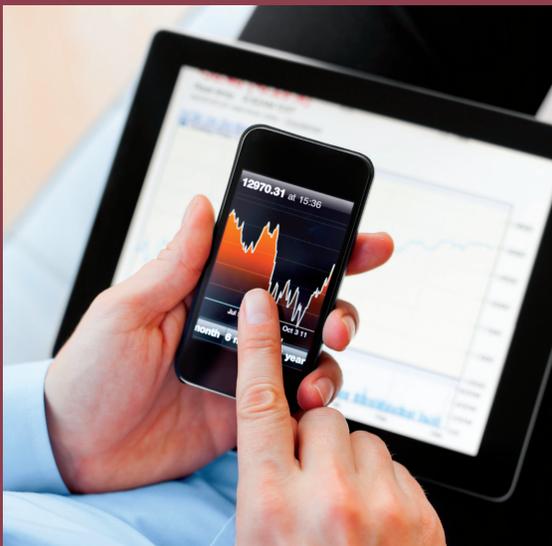
SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

SOURCE: SAS, 2014

# Mobile & Digital Services

## STRATEGIC GOAL 5

As citizens, businesses, and employees demand 24/7 access to the things they need to conduct government business, agencies must put in place innovative, technology-driven initiatives that provide anytime, anywhere access, time- and cost-saving workflows, and improved citizen services. Agencies can look to mobile applications, digital services, and incorporating the Internet of Things to extend government services beyond traditional operations.



## MOBILE APPLICATIONS

Mobile technology to meet customer needs anywhere

Mobile applications are designed to run on a handheld device from any location, providing users with access to services previously available from only personal computers. They create opportunities for agencies to provide flexible services to citizens on the go. Mobile applications also provide constituents the option of receiving agency information directly on their devices, allowing for more immediate and responsive interaction with their government.

### Challenge

Mobile devices will continue to drive government services and customer interaction as citizens expect more self-service applications. While business areas may be eager to create mobile apps, the IT organization may not be ready to design and maintain mobile apps with purpose and usefulness. Apps that are not built around function and value for citizens will not attract frequent use, and apps that are not regularly maintained and updated can cause security issues.

### Actionable Goals

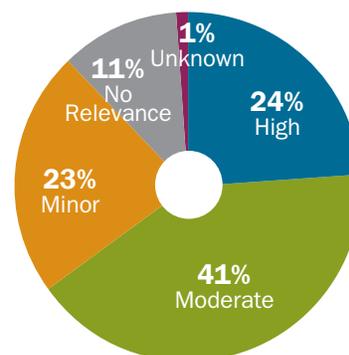
- ➔ **Collect** and analyze data to learn how citizens use government services.
- ➔ **Evaluate** agency needs for mobile applications (which are developed specifically for use on small, wireless computing devices) versus responsive website design (which enables traditional websites to adapt well to smaller device screen sizes and functions), and carefully consider which is most appropriate.

### Impact

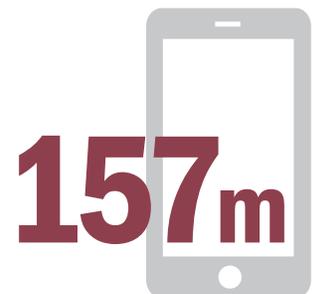
**Short-term:** Online sites and applications that reach more citizens, provide increased service, and deliver a positive, lasting impression.

**Long-term:** A more engaging and approachable government that meets citizen expectations.

### Importance of Mobile Applications



### Number of American adults who owned a smartphone in 2014



## DIGITAL SERVICES

Moving from traditional, paper-based processes to electronic or online formats to improve services

Online digital services necessitate change from traditional or manual processes to electronic formats. Digital services are rapidly growing in number and demand as citizens increasingly expect speed and convenience when doing business with government. Automating internal processes creates opportunities for agencies to provide digital services, including e-commerce functions, online forms, and access to archives.

### Challenge

Agencies face many challenges to providing digital services online or automating their systems to accommodate citizen needs. Digitizing traditional forms and records can be resource intensive, as can implementing processes and security mechanisms to accommodate digital services across various interacting organizations. Agencies are particularly challenged given limited resources, traditional processes and procedures, and infrastructure issues.

### Actionable Goals

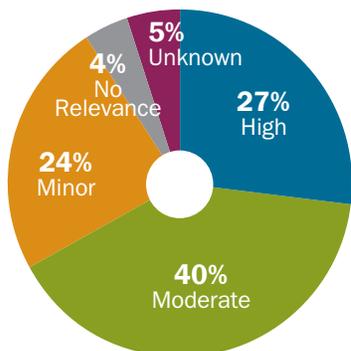
- ➔ **Gauge** actual and potential digital traffic based on customer satisfaction, website analytics, missed after-hour phone calls, staff and citizen time devoted to mail-in or in-person processes, and similar data.
- ➔ **Improve** and automate internal processes first, then develop or procure online services to be available anytime.

### Impact

**Short-term:** Faster service delivery; anytime, anywhere access; time- and cost-saving workflows; and streamlined citizen services.

**Long-term:** Increased customer satisfaction, improved business relationships, and internal operational efficiencies.

### Importance of Digital Services



SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

**33%** of citizens conduct more than half their business with government digitally and **72%** say digital services would increase their willingness to engage with government

SOURCE: ACCENTURE DIGITAL SURVEY 2015 (US)

## INTERNET OF THINGS

Network-connected objects that can send and receive data

The Internet of Things (IoT) is the collection of electronic devices connected to the Internet from which meaningful data can be extracted. As the connected network of devices and sensors expands, the opportunity for government to leverage the data grows. When appropriately implemented, these technologies have the ability to make governments smarter, more agile, more responsive, and increasingly citizen-centric. Agencies can improve current capabilities in services such as transportation, safety, health, and education with the data and analytics provided by IoT.

### Challenge

Connected devices, whether used by citizens or state agencies, have the potential to transform the way government delivers services by providing a wide range of behavior-related or sensor-gathered, actionable data. Yet real and perceived privacy and security risks can undermine the consumer confidence necessary for these technologies to meet their full potential.

### Actionable Goals

- ➔ **Identify** current organizational pain points and evaluate whether real-time data collection can provide innovative solutions.
- ➔ **Address** data privacy and security, retention, and storage to prepare for the influx of data from numerous connected devices.

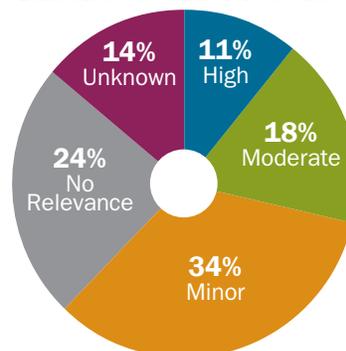
### Impact

**Short-term:** Faster and more informed decision making based on real-time and automated data.

**Long-term:** An interconnected infrastructure that makes government services more agile and efficient.

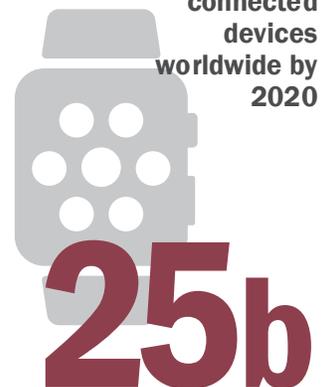
### Importance of Internet of Things

PERCENTAGES MAY NOT TOTAL 100 DUE TO ROUNDING.



SOURCE: DIR SURVEY OF STATE IT AND BUSINESS LEADERS

Number of connected devices worldwide by 2020



SOURCE: GARTNER

## Reliable and Secure Services

### State Office of Risk Management (SORM)

*Continuity Crosswalk*

The Texas Continuity Planning Crosswalk serves as a guide to business continuity plan requirements for state agencies. It is also the standard by which SORM evaluates agency business continuity plans. The crosswalk incorporates both state law and federal guidance, including standards found within the Federal Emergency Management Agency's Continuity Assistance Tool and Key Elements of Departmental Pandemic Influenza Operational Plans. Additionally, SORM provides continuity templates, training, and resources on its website: [www.sorm.state.tx.us/coop](http://www.sorm.state.tx.us/coop).

## Mature State IT Resources Management

### Texas Department of Public Safety (TxDPS)

*Technology Staff Augmentation Plan*

TxDPS creates an annual technology staff augmentation plan that aligns with current and planned projects. The plan enables agency and project leaders to proactively identify supplemental skills, knowledge, and resources needed to implement technology solutions. Combining abilities from outside resources with those of

internal IT staff provides TxDPS the agility to meet demands of new or specialized technologies while supporting more mature tools already in use.

## Cost-Effective and Collaborative Solutions

### Texas Comptroller of Public Accounts (CPA)

*TxSmartBuy 2.0*

CPA used a cloud-based commerce platform to replace legacy application architecture with TxSmartBuy2.0 (TSB2). This next-generation procurement portal launched in June 2014 to enhance functionality and performance, increasing the transparency of government spending on statewide contracts. On average, TSB2 provides search results in less than one second. It also gives users an easy-to-use shopping cart experience. Since the implementation of TSB2, CPA has slashed its maintenance costs to less than \$3.3 million annually, a 72 percent annual savings. The portal is available at [www.txsmartbuy.com](http://www.txsmartbuy.com).

### The University of Texas at Austin (UT Austin)

*Shared Services Steering Committee*

UT Austin established a Shared Services Steering Committee to evaluate opportunities for sharing services among finance and procurement, human resources, and information technology functions. The committee used

an inclusive process to collect preferences and feedback from across the campus. Although campus programs are decentralized, shared services had already existed in a number of units. However, there was strong campus preference to build on these existing capabilities and pilot additional shared services for UT Austin functions. The committee made seven recommendations and the program is moving forward.

### Teacher Retirement System of Texas (TRS)

*TRS Enterprise Application Modernization Program*

The TRS Enterprise Application Modernization (TEAM) Program is a cohesive collection of components designed to meet TRS business and technology objectives over the next 10–20 years. The TEAM Program focuses on addressing changing expectations of a growing membership, supporting the collection and maintenance of accurate and reliable data, expanding the number of automated processes, and incorporating modern technologies. The program will reengineer business processes, reduce manual processes, revise policies, and provide new ways of working together. The TEAM Program will also deliver tools and techniques that will position TRS to have flexibility in updating its systems in response to growing member demands and future technological and regulatory changes.

## Data Utility

### Texas Commission on Fire Protection (TCFP)

#### *Data Management System Rebuild*

TCFP migrated its data to a modern, enterprise-level database system. The work involved converting the Microsoft Access-based client-server data management tool to web applications. The Firefighters Information and Departments Online (FIDO) system consolidates three applications that serve individual firefighters, department management, and the departmental electronic payment system. The FIDO Administrative Records Management system is for agency staff to work with the data and process work. Phase one, a hybrid system using the existing databases, was completed in 2012 and the agency has embarked on phase two, which will be a complete modernization, transformation, and normalization of the databases and applications.

### Texas v. Indiana Civic Hackathon

#### *Public Service Mobile App Challenge*

In 2015, agencies from Indiana and Texas, including the Texas Department of Family and Protective Services and the Texas Department of Transportation, participated in a competition to determine which team of civic developers could create the best public service application using agency datasets. Using data compiled from the agencies, teams created interactive, mobile-ready map applications for citizens to access informa-

tion on various subjects, including daycare licensing status, road closures, and construction—all made possible through transparent government. The winning project was an emergency assistance application that guides users through a checklist of potential services customized to user needs.

### Texas Alcoholic Beverage Commission (TABC)

#### *Predictive Analytics Program*

TABC recently added a risk management feature to a data analytics program that runs algorithms to predict illegal behavior. Using certain organizational behavior, such as delinquent excise tax payment, the agency can predict the likelihood of an establishment violating the alcoholic beverage code. The algorithm takes into account prior alcoholic beverage code violations, public safety issues (for example, number of times the police were called to the location), and the length of time since the last inspection or investigation. This allows the agency to prioritize inspections statewide so agents and auditors can focus their efforts on high-value activities, rather than just meeting their inspection quotas.

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## Mobile and Digital Services

### Health and Human Services Commission (HHSC)

#### *Your Texas Benefits Mobile App*

In 2014, HHSC released the Your Texas Benefits app, which allows citizens to apply for

food benefits, Medicaid, the Children's Health Insurance Program or financial assistance. HHSC found the most common reasons citizens were visiting their offices was to drop off documents. The mobile application makes this process easier. Users take photos of necessary documents and submit the information to the state to verify they meet requirements for state programs. HHSC plans for the mobile application include adding additional features and upgrades.

### Bob Bullock Texas State History Museum

#### *TheStoryofTexas.com*

TheStoryofTexas.com is a new, responsive website created by the Bob Bullock Texas State History Museum. The website provides museum visitors multiple opportunities to connect their personal stories with the past, present, and future of Texas. Website metrics show a direct correlation between launch and increased visitation to the museum, as well as increased statewide engagement and awareness about the museum's dynamic exhibitions, artifacts, events, films, programming, and educational opportunities. Educator engagement with the website, and overall traffic to the site, reflects a 283% increase in visitation to educational resources pages, and a significant uptick in repeat visitation and engagement. The site is online at [www.thestoryoftexas.com](http://www.thestoryoftexas.com).

Agencies can look to the Texas Department of Information Resources for support and assistance in meeting the goals outlined in this state strategic plan. In many ways DIR is the shared services organization for Texas government, with both voluntary and statutorily required customers. This section highlights just a few of the enterprise services critical to the efficient functioning of state government. They are available through DIR directly or available for purchase from one of the pre-negotiated IT commodities and services contracts.

For more information, search for these topics on [www.dir.texas.gov](http://www.dir.texas.gov) or call 1-855-ASK-DIR1.

### **IT Commodities and Services**

*Hardware, Software, Seat Management, and Staffing Services*

Through its Cooperative Contracts program, DIR provides state agencies access to a wide range of products, services, and vendors. DIR negotiates pricing for IT services and commodity items such as hardware, software, personal computers, and printers. Technology services include seat management, staffing augmentation, training, maintenance, and subscription services. DIR contracts are used as a benchmark across the country for their aggressive discounts and thorough service levels. Over 750 IT commodity contracts are in place for products and services, providing a competitive and robust marketplace for customers.

### **Cloud Services**

*Infrastructure, Platform, Broker, and Assessment Services*

For agencies considering cloud, DIR offers introductory resources to help guide decision makers in evaluating available options and moving forward with an implementation strategy. Once state agencies have developed a cloud strategy and are ready to move forward, DIR has several offerings available. These services include cloud infrastructure, platform, broker and assessment services. Cloud services are available to state agencies through DIR Cooperative Contracts and the community cloud of the statewide Data Center Services (DCS) program.

### **Data Center Services**

*Community Cloud, Shared Services, Mainframe, Bulk Print/Mail*

DIR manages the IT infrastructure for a number of state agency customers through the statewide DCS program. DCS customers will soon see expanded service offerings, including a managed applica-

tion services initiative and managed security services. The DCS program continues to evolve technology to meet customers' growing needs. The two state data centers offer storage, disaster recovery, and redundancy in fully managed, 24x7x365 facilities that include redundant power, networking, business continuity, and enhanced physical security.

### **Security Services**

*Assessments, Penetration Testing, Cybersecurity Framework, Governance, Risk, Compliance (GRC) Portal, InfoSec Academy*

DIR offers a wealth of security products, services, information, and training to equip state agencies to protect state agency networks and private citizen information; DIR has negotiated favorable contracts for security services and tools meeting the new standardized statewide Cybersecurity Framework standards. The Office of the Chief Information Security Officer provides guidance and leadership to improve agency security posture. It also uses incident reporting to allow up-to-the-minute, on-site cyber threats to help agencies

guard against potential network breaches. Agencies can manage governance, risk, and compliance on the dedicated GRC portal, and use the Cybersecurity Framework to document security status. The Texas Infosec Academy includes policy and assurance courses, soft skill classes, and certification preparation courses, and is available to agency information security officers.

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### **Personal Computers**

*Desktops, laptops, tablets*

DIR coordinates computer bulk purchases to leverage state-wide purchasing power. As a result of a combined purchase, agencies saved a total of \$4.5 million in FY 14–15 by agreeing to a standard configuration.

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### **Productivity Tools**

*Email, Microsoft Office Suite, SharePoint*

Available to all customers, this secure and reliable suite of services is offered through an enterprise contract in which customers can purchase licenses at a substantial discount.

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### **Network Commodities and Services**

*VoIP, Internet, Data Plans, Wireless Devices*

Texas agencies have access to a portfolio of data, voice, and video services through DIR enterprise contracts. Voice over IP telephone services, data circuits, Internet, and mobility solutions are also available through DIR. The DIR-managed Texas Agency Network program provides network connectivity for the state's private network. DIR recently increased shared Internet bandwidth to 8-gigabit (two

4-gigabit) ethernet connections (from three 1-gigabit ethernet connections), with the ability to increase to 10-gigabit ethernet. Also, to ensure customer agency data is secure, the DIR Network Security Operations Center provides multilayer security protection for Internet traffic, securing, processing, monitoring, and analyzing 19 terabytes of traffic per day.

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### **Texas Open Data Portal**

*data.texas.gov*

The Texas open data portal, [data.texas.gov](http://data.texas.gov), hosted on the state's official website, [Texas.gov](http://Texas.gov), promotes government transparency, encourages citizen participation, and enables the efficient use of public resources. The website makes government data centrally available for everyone to use, explore, and share. The portal has nearly 130 datasets and gets an average of 1,500 page views each day. The Texas.gov program estimates the state saved approximately \$1 million the first year as a result of reducing the need for open records requests at no agency cost.

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### **IT Education and Guidance**

*Project Management, IT Accessibility, IRM Continuing Education, Policy and Rules*

It can be difficult to navigate the state laws and rules covering technology. DIR provides education, guidance, training, and technical assistance to help agencies stay in compliance when implementing technology initiatives.

### **Geographic Information System (GIS) Services**

*A Managed Service Pilot through the Data Center Services Program*

In partnership with Texas Natural Resources Information System, the state clearinghouse for geographic data, DIR established a GIS managed service through the state's DCS program that allows any state agency or local government to access statewide, high-resolution aerial imagery hosted from the Google Cloud Platform. Providing this service through DCS could save customers an estimated \$15 million over the life of the contract.

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### **Online Payment Services**

*Licenses and Registrations, Permits, and Records*

Texas.gov provides payment processing for state agencies and eligible local governmental organizations to conduct online business with constituents. The Texas.gov payment solution is a secure, Payment Card Industry-compliant product that allows Texas.gov customers to process online and over-the-counter payments for services such as licenses and registrations, property taxes and records, permits, and vital records.

# Acknowledgments

**DIR appreciates the valuable input provided by agency Information Resources Managers, practitioners, and executives in the development of this plan. DIR also thanks its program staff for their support and expertise.**

## ADVISORY COMMITTEE

The 2015 State Strategic Plan Advisory Committee was approved by DIR's governing board on February 18, 2015. Thank you to the committee for their leadership, time, and commitment to this project.

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