2018 BIENNIAL PERFORMANCE REPORT

TECHNOLOGY IN TEXAS

Balancing Tradition *with* **Innovation**

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ABOUT THE 2018 BIENNIAL PERFORMANCE REPORT

The Information Resources Management Act requires the Texas Department of Information Resources to prepare and submit to the Governor and to the Legislature a biennial performance report on the use of information resources technologies by state government (Texas Government Code §2054.055).

Note: For the purposes of this report, the term “state agency” is generally used to indicate a state agency or a state institution of higher education; and the term “technology” is used to indicate information and communications technologies.

LETTER FROM THE EXECUTIVE DIRECTOR

TEXAS DEPARTMENT OF INFORMATION RESOURCES

The expectations citizens have of their government are greater than ever before. Each day another Texan gets their driver's license for the first time and will likely try and renew it online. A family goes online to get their fishing licenses before taking a trip to their secret fishing hole. A university library is used by thousands of students to access a multitude of websites and resources. These are but a very few examples of the increasing numbers of ways Texans interact with their government. They do so in ways that are both direct and indirect. When they access these services, they don't see and rarely think about the many thousands of employees statewide working diligently behind the scenes to provide and protect this data. DIR regularly finds itself at the forefront, tackling any challenges that arise with the cooperation of numerous state entities, agencies and institutions of higher education to ensure that the State of Texas remains vigilant and prepared for the many threats its networks face each day.

Continued support by our many partners allows DIR to develop documents such as this 2018 Biennial Performance Report (BPR). In the BPR, the progress the state has made thus far is demonstrated throughout, such as the significant progress made in areas such as security or connectivity while also highlighting areas of improvement such as data analytics. The combined efforts of our participating customers laid the groundwork for legislative recommendations. These recommendations include deploying multi-factor authentication statewide, establishing a legacy modernization fund and others.

The efforts of the 85th Legislative Session recognized the necessity of increased cybersecurity resources and security plans as well as helping make it easier for agencies to publish some of their data on the Texas Open Data Portal.

Texas continues its growth, and as of 2017 is still home to three of the top five fastest growing cities in the U.S. These new Texans require government services and the state must be able to provide them while also continuing to protect against external threats. Our top priority is aiding the missions of our customers and guiding them in their pursuit of technology solutions. We do this and much more every day in order to ensure that the technology solutions we submit are based on best practices, are as agile as possible and serve the State of Texas.

Sincerely,

Nick Villalpando

Interim Executive Director

Texas Department of Information Resources

Introduction

MANAGING INFORMATION TECHNOLOGY WITHIN STATE GOVERNMENT REQUIRES BALANCING INNOVATION WITH TRADITIONAL WAYS OF DELIVERING SERVICES IN A CONSTANTLY CHANGING TECHNOLOGY ENVIRONMENT SET AGAINST SECURITY RISKS AND BUDGET CONSTRAINTS.

The 2018–2022 State Strategic Plan for Information Resources Management aims to help government leaders evaluate and prioritize the technology innovations that enable them to achieve their business and service delivery objectives.

The Biennial Performance Report (BPR) details progress made toward those goals, highlights accomplishments, notes concerns, and makes recommendations to the state legislature for improving the effectiveness and cost efficiency of the state's use of information resources.

The BPR includes reports on State Technology Expenditures, Electronic Information Resources Accessibility, Texas.gov, Consolidated Network Security, Telecommunications Performance, Project Management Practices, and a summary of Internet-Based Training. These reports provide in-depth information on statewide IT activities.

In collaboration with agency customers, DIR has identified recommendations for legislative changes intended to help state agencies realize the full benefits of IT. These recommendations address specific issues that require legislative action to improve the effectiveness of statewide IT.

The BPR also recognizes the recommendations made to the 86th Legislature in the following reports:

- 2018 Cybersecurity Report required by SB 1910, (85R), 2017
- 2018 Digital Storage Study required by HB 8, (85R), 2017

Legislative Recommendations

RECOMMENDATION 1:
With funds appropriated through the General Appropriations Act, authorize DIR to deploy multi-factor authentication for certain agency staff to have when accessing state systems.

RECOMMENDATION 2:
Amend Government Code, Chapter 2054, to authorize a statewide shared pool of Information Security Officers and resources for state agencies.

RECOMMENDATION 3:
Amend Subchapter Q (Legacy Modernization Strategy) of Chapter 2054, Government Code, to establish a Legacy Modernization Fund in the state treasury.

RECOMMENDATION 4:
Amend Section 2157.007, Government Code, to require state agencies to consider cloud services for new IT application development.

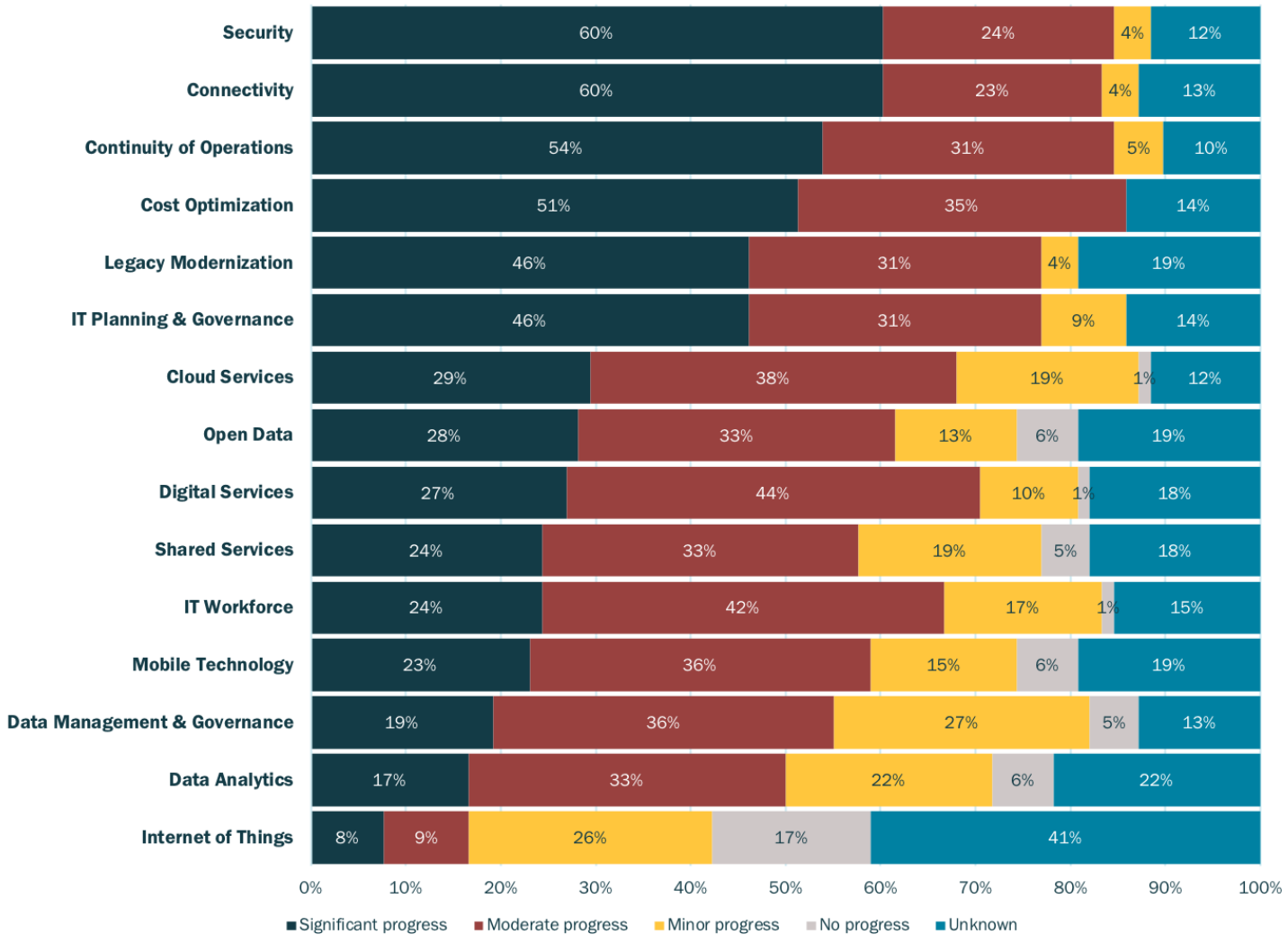
RECOMMENDATION 5:
Designate the Texas Open Data Portal as the official data portal for the state and create a data catalog/repository with interagency shared access.

RECOMMENDATION 6:
Establish a statewide Chief Data Officer and agency-level data management officer positions through amending Section 2054.0286 (Statewide Data Coordinator), Government Code.

RECOMMENDATION 7:
Authorize DIR to establish a Digital Transformation guide to assist agencies with digital initiatives and digitization efforts.

Progress

Government Code, Section 2054.055, requires DIR to assess agency progress in meeting the goals and objectives set forth in the State Strategic Plan for Information Resources Management. The following graph shows agencies' response to progress made toward the 15 technology focus areas through the biennial Information Resources Deployment Review.



Source: 2018 Information Resources Deployment Review

**Some percentages have been rounded*

STRATEGIC GOAL 1:

Reliable & Secure Services

SECURITY, CONTINUITY OF OPERATIONS, CONNECTIVITY

OVERVIEW

To meet the demands of the citizens they serve and users they support, state agencies require a network infrastructure that is secure, reliable, and can sustain emerging technologies with minimal risk. The increasing amount of sensitive information that is generated and provided to Texas citizens means that state agencies are more vulnerable to cybersecurity attacks. As a result, effective cybersecurity efforts to safeguard sensitive and confidential data remain a top priority in combating and responding to security breaches and threats. In the event of an emergency or disaster, citizens expect that there will be no disruption in state agencies' ability to provide information or services. Comprehensive continuity of operations planning is critical in ensuring the availability of mobile and digital applications, services, and information during times of disaster. Additionally, agencies depend on secure, continuous connectivity of voice and data networks to conduct daily functions and to access, collect, and share vast amounts of information.

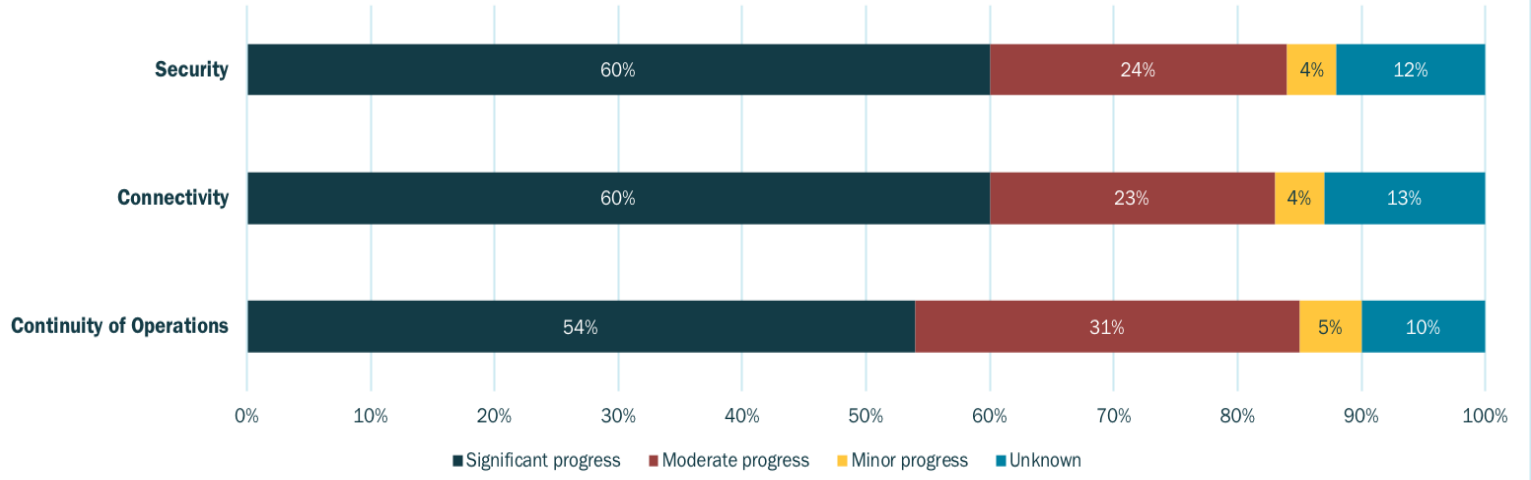
ASSESSMENT

- The Texas Legislature prioritized cybersecurity in the 85th legislative session, passing House Bill 1861, relating to the confidentiality of certain information related to a computer security incident, House Bill 8, relating to cybersecurity for state agency information resources, and Senate Bill 1910, relating to state agency information security plans, information technology employees, and online and mobile applications.
- State agencies continue to focus on security as a priority with 56% of agencies making security training and awareness a top initiative for the biennium.
- In FY 2016-17, agencies were appropriated $17.7 million for new cybersecurity projects.
- As of March 2018, 72% of agencies have reported to have revised or updated their Continuity of Operations Plan or Business Continuity Plan within the last 12 months.
- 83% of agencies state that they incorporate work-from-home or alternative workplace arrangements in their continuity of operations or business continuity plans.
- 35% of agencies surveyed anticipate between a 25% and 50% increase in network bandwidth in FY 2018-2019.

CONCERNS

- The increasing sophistication of security threats, insufficient funding, and the inadequate availability of knowledgeable security professionals to address those threats continue to challenge Texas agencies.
- Tertiary disaster recovery options such as cloud-based solutions can enhance comprehensive

PROGRESS



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continuity of operations planning but can be costly.

- Regular testing and updating of agency continuity of operations plans is necessary to ensure that agencies are adequately prepared to address emergencies or disasters when they arise.
- Emerging technologies that consume large amounts of data such as the Internet of Things, are placing greater strains on network bandwidth.
- Unsupported software can create vulnerabilities, making an easy target for network infiltration.

ACCOMPLISHMENTS

The Office of the Chief Information Security Officer - Texas Cybersecurity Strategic Plan

The Office of the Chief Information Security Officer worked with the Statewide Information Security Advisory Committee to create a statewide five-year strategic plan that focuses on cybersecurity initiatives. The Texas Cybersecurity Strategic Plan (2018-2023), published in January 2018, is comprised of five goals: Engagement, Tooling, Staffing, Response, and Outreach. Each goal contains an overview, challenges, actions, and outcomes, modeled after the State Strategic Plan for Information Resources. Public sector entities are encouraged to use the strategic plan to formulate organizational cybersecurity initiatives and strategies.

Texas Commission on Environmental Quality (TCEQ) – Information Security Controls

TCEQ has implemented foundational information security controls to protect assets and data from unauthorized dissemination or use, including development of security policies and standards appropriate for the agency's mission, based on Texas Cybersecurity Framework. TCEQ scored higher than the state agency average in 35 objectives in its FY17 risk assessment. TCEQ promotes ongoing cybersecurity training and awareness with participation at 100% for new hires and 99.7% in FY17 for ongoing annual training.

Texas A&M Division of IT - Keep Tradition Secure Game

Due to the highly sensitive student data and intellectual property they possess, universities have been prime targets for cyberattacks. To educate the Texas A&M campus community on the importance of cybersecurity, each October, the Division of Information Technology creates a new web game. In the "Keep Tradition Secure" game, players track a hacker across campus by answering cybersecurity questions and riddles regarding Texas A&M traditions. The online game was innovative in its use of geolocation for an interactive experience, while using the opportunity to explain the dangers of enabling location services for all apps and websites.

Legislative Recommendations

With funds appropriated through the General Appropriations Act, authorize DIR to deploy multi-factor authentication for certain agency staff to have when accessing state systems.

Multi-factor authentication is a security enhancement that requires two or more types of authentication when logging in to a system. Multi-factor authentication creates an additional layer of security to prevent unauthorized users from accessing an organization's data or resources. By utilizing multi-factor authentication, state agencies can decrease the probability of a data breach or cyber security event to occur.

Amend Government Code, Chapter 2054, to authorize a statewide shared pool of Information Security Officers and resources for state agencies.

Ensuring that cybersecurity issues and initiatives are adequately addressed requires knowledgeable and dedicated resources. Smaller state agencies may not have the necessary security professionals readily available to devote their full time to overseeing the cybersecurity needs of the agency. Implementing a program that allows agencies to access a shared pool of Information Security Officers and resources will help smaller agencies better address the overall security of their organizations.

State Operations Center – Disaster Preparedness

In advance of Tropical Depression Harvey, which would later be upgraded to Hurricane Harvey and hit the Texas Coast in August 2017, Governor Abbott ordered the State Operations Center (SOC) to elevate its readiness level and directed state agencies to make available any and all state resources to assist in preparation, rescue, and recovery. Multiple state resources, including DIR, were engaged in the emergency response effort. An estimated 1.4 million Texans evacuated their homes, 35,000 rescues were conducted, and over 42,399 Texans were serviced by 258 established shelters and experienced 251,666 Disaster Recovery Center visits.

STRATEGIC GOAL 2:

Mature IT Resources Management

COST OPTIMIZATION, IT PLANNING & GOVERNANCE, IT WORKFORCE

OVERVIEW

IT plays a fundamental role in advancing the mission of each state agency and the way an agency manages IT resources can affect the organization's ability to realize mission critical outcomes. Cost optimization drives strategic approaches to fund technology initiatives with long-term value within the limitations of traditional state government funding models.

Formalized IT planning and governance processes foster effective executive stakeholder decision-making and ensure that IT investments are prioritized, add value, and align with agency strategic goals and objectives. Thorough project planning and governance can reduce the risk of project failure and may lead to more cost-effective implementations of technology investments. The ever-changing technology landscape requires agencies to recruit, develop, and retain an engaged IT workforce that is both diverse and technology-enabled. Additionally, maintaining a strategic IT workforce plan is a key component in addressing the skills gap that agencies can experience when staff with valuable technical skills and knowledge retire.

ASSESSMENT

- When surveyed, almost half (45%) of state agencies say lack of resources is the largest challenge faced in achieving project success, while 38% state that changing requirements and specifications is their largest challenge.
- 47% of state agencies state they plan to take advantage of the Cooperative Contracts Bulk Purchase Program when purchasing desktop and laptop computers.
- The DIR Cooperative Contracts program has allowed for state agencies, K-12 education, higher education, and local governments to purchase over 1.8 billion in technology purchases, saving approximately $208 million for taxpayers in fiscal year 2018.
- According to the Quality Assurance Team, which includes members from the Legislative Budget Board, Texas Department of Information Resources, the Texas Comptroller of Public Accounts, and the State Auditor's Office, major information resources projects that have a shorter development schedule (less than 28 months) are meeting their initial cost and duration estimates at a higher rate relative to projects with longer durations.

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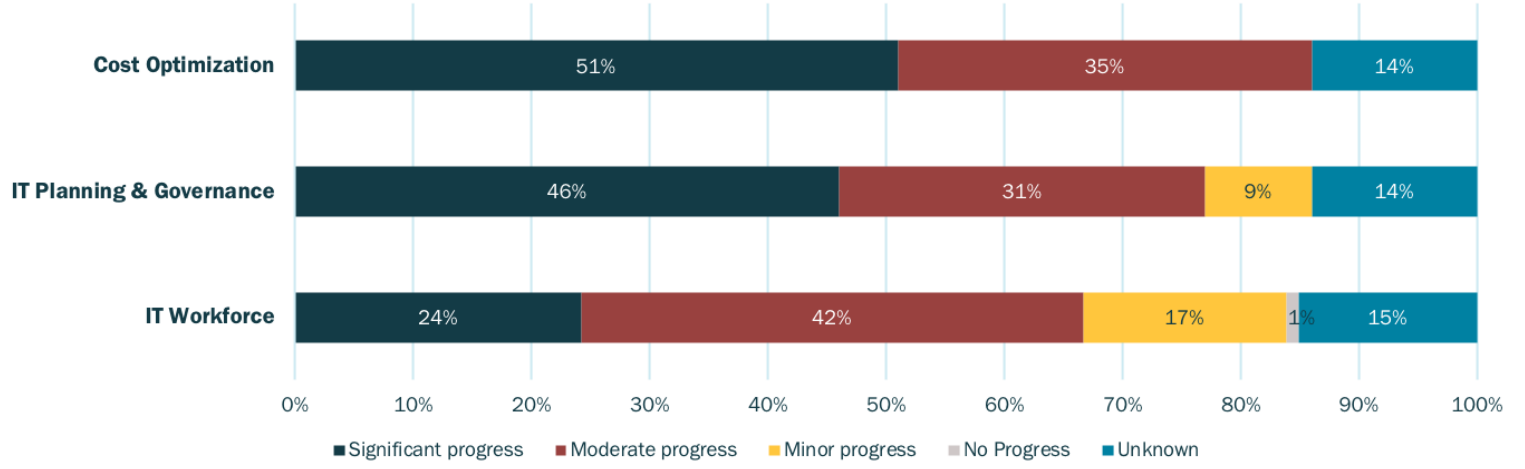

Source: 2018 Information Resources Deployment Review

**Some percentages have been rounded*

CONCERNS

- Measuring maturity levels can directly impact spending and successful project delivery. Only 35% of agencies surveyed report that they evaluate project management maturity levels, while 31% report they evaluate governance maturity levels.
- Recruiting a skilled IT workforce is challenging when competing with the private sector due to constrained agency budgets. This results in extended recruit-to-hire timeframes and a need to fill vacancies with contractors, which is an effective approach to meet staffing and operational needs but, can be a costly alternative.
- There is an increasing number of state employees who are retiring or will be eligible for retirement, resulting in loss of valuable intellectual capital. According to the State Auditor's Office, the average age of an IT employee was 49 in 2016 and 2017.
- In the last two years, unemployment continues to decline which has a direct impact on recruiting and retaining qualified IT talent. Statewide turnover rates for Classified Regular Full-time and Part-time IT Employees was 9.8% in 2017.

ACCOMPLISHMENTS

Health and Human Services Commission – IT Governance

The Health and Human Services system uses an IT governance structure to partner with business units, ensuring alignment of business needs and IT services. The IT governance structure groups functions into several business portfolios, and each portfolio has an oversight committee composed of representatives from business units and IT. These committees meet regularly to review three to five-year roadmaps for each portfolio and to evaluate and prioritize new requests for IT services within the context of that portfolio roadmap. This process builds transparency into decision-making processes and increases the accountability for the best use of IT funds.

Texas Department of Information Resources– Statewide Project Automated Reporting System

DIR successfully implemented a new Statewide Project Automated Reporting (SPAR) System per House Bill 3275 (85R), which requires DIR to monitor and report on performance indicators for the entire life cycle of each major information resources project. The bill requires DIR to create and maintain a user-friendly data visualization tool that provides an analysis and visual representation of the performance indicators for each project on the DIR website.

Legislative Recommendations

Amend Subchapter Q (Legacy Modernization Strategy) of Chapter 2054, Government Code, to establish a Legacy Modernization Fund in the state treasury.

The biennial budget process allows agencies to request additional funds for specific programs and projects. Agencies will tend to prioritize improvements to core service areas, possibly to the neglect of upgrading dated technology, especially if that technology performs without disrupting agency business. Legacy modernization, as one of the State Strategic Goals, requires significant and consistent investment to succeed. Establishing a fund dedicated to solely to legacy modernization distinguishes this strategic goal from other IT projects, allowing greater transparency and accountability, and encourages sustained investment in modernization by restricting the use of the fund for this one purpose.

University of Texas at San Antonio Office of Information Technology – Academic Support Solutions Fund

The Office of Information Technology (OIT) Academic Support Solutions Fund was created to provide UTSA colleges and departments with support for the implementation of student-centered projects that align with the university's strategic planning themes and initiatives. In 2017, OIT awarded approximately $150k in grants to seven UTSA colleges via the OIT Academic Support Solutions Fund. This fund aims to provide support for student-focused initiatives as part of OIT's mission to foster student, faculty, and staff success and advances in research, through collaboration and innovation.

Texas Workforce Commission (TWC)- Texas Labor Analysis

TWC developed TexasLaborAnalysis.com, online suite of labor analysis tools, to provide real-time analysis of the labor market showing the current labor supply and demand by region. The system utilizes data provided by the Texas Higher Education Coordinating Board, online job postings, and TWC. A key feature is the ability to display the overage or shortage of available workers for a particular occupation in a given area. The result is comprehensive data that can provide valuable analysis to a broad array of users.

STRATEGIC GOAL 3:

Cost Efficient & Collaborative Solutions

LEGACY MODERNIZATION, CLOUD SERVICES, SHARED SERVICES

OVERVIEW

For state agencies, cloud services and shared services provide options for reducing cost and updating outdated infrastructure, which further support the strategic goal of legacy systems modernization.

When agencies transition from outdated hardware and software to more current and innovative solutions, they evaluate options for reducing cost. Legacy systems present unique operational and security risks, but given budget limitations, agencies must prioritize modernization efforts with the potential to reduce the most risk. Cloud services provide an alternative to traditional IT delivery models and aid agencies in replacing obsolete infrastructure while putting less strain on budget and personnel capacity. Similarly, shared services allow an alternative to traditional models through the consolidation of business operations used by multiple parts of the same organization, eliminating unnecessary duplication and streamlining agency processes.

ASSESSMENT

- Cloud adoption across agency business functions depends on the size of the agency: the largest 25% of agencies reported using cloud for an average of three times the number of business areas as the smallest 25% of agencies.
- 80% of servers in the Data Center Services Program are in the private or public cloud.
- 87% of agencies say that have made progress in cloud adoption.
- Agencies continue to leverage cloud services in a variety of areas, including email (77%), storage (42%), collaboration (38%), disaster recovery (38%), and office productivity (38%).
- The average age of agency desktops and laptops is unchanged from 2016, with 28% of agencies reporting the average age of these items as four years or older. The average age of servers increased, with 50% of agencies reporting an average age of four years or older, compared to 38% in 2016.
- 27% of agencies said they plan to deliver or obtain IT services over the next three years by expanding existing IT shared service models; 9% said they plan to introduce an IT shared services model.

CONCERNS

- Security considerations were the most commonly reported barrier to cloud adoption, with 54% of agencies indicating that response. Agencies consider

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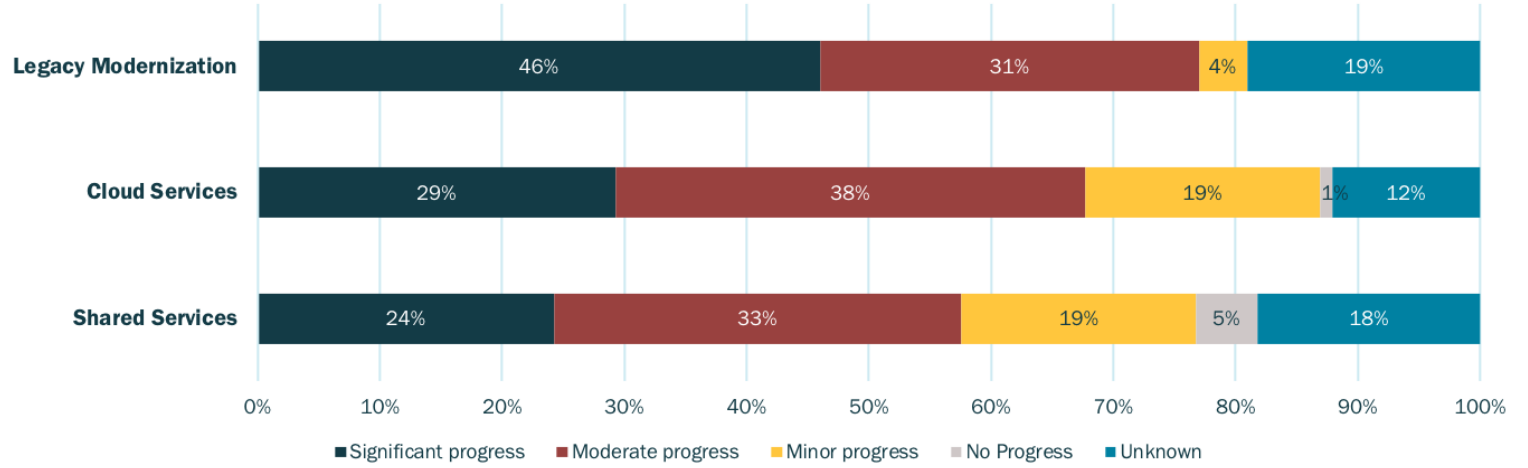

Source: 2018 Information Resources Deployment Review

**Some percentages have been rounded*

the security risks inherent in shifting some ownership of agency data, software, and hardware resources to an external provider.

- Transitioning from traditional IT systems to a cloud or other shared services model can be difficult without proper data management and governance practices that may prevent disruption of day-to-day business functions.
- Cloud and other shared services require special expertise, and agencies may not have anyone readily available to manage such a significant organizational change.
- For 51% of agencies, budget considerations were a significant barrier to cloud adoption.
- Even with scheduled large-scale refresh cycles for desktop and laptop computers, some amount of legacy software and hardware systems remain in place, with costs increasing over time.

ACCOMPLISHMENTS

Texas Department of Transportation (TXDOT) – Legacy Modernization

For several decades, TxDOT has used a Pavement Management System to make informed decisions about the design, construction, maintenance, and rehabilitation of roads and bridges. In 2014, the system was determined to lack the functionality needed to incorporate new risk- and performance-based asset management requirements. TxDOT began developing a new application to address these requirements and completed the project by June 2017. The new system, called Pavement Analyst improves reporting scope and accuracy and brings the state into compliance with federal regulations. Pavement Analyst allows TxDOT to report on pavement quality every 1/10th of a mile, generate photos and color-coded maps of road quality, and produce four-year plans based on different prediction models.

Texas Department of Information Resources – Hybrid Cloud Services

In March 2017, Hybrid Cloud Services were introduced to the Data Center Services program to provide customers expanded cloud and self-management options, while meeting the business, security, and regulatory requirements of Texas state government. Building upon the existing DCS private cloud, the DCS hybrid cloud enables applications and data residing in state's consolidated data centers to connect directly with applications and data residing in multiple public government and commercial clouds.

Legislative Recommendations

Amend Section 2157.007, Government Code, to require state agencies to consider cloud services for new IT application development.

Agencies should minimize in-house development of custom IT applications and leverage cloud solutions. Cloud-enabled application development incorporates best practices from modern development methodologies, including agile. It refers to the development of applications tailored to run effectively in the cloud, rather than on local servers. Requiring consideration of cloud services ensures that State investments in application development will align with the strategic goal of increasing the adoption of cloud services.

Texas Department of Information Resources – Shared Services

DIR's Data Center Services division began providing Managed Application Services (MAS) in 2017, and Managed Security Services (MSS) in 2018. These new shared services offerings allow agencies to access assistance in building and maintaining applications, and to ensure their systems meet the highest standards of security. MSS provides uniform and consistent management of state data security services including security monitoring and device management, incident response, and risk & compliance. Through a shared services model, DIR now offers agencies the opportunity to tailor their purchase of application and security services to the size and scope of their particular needs, reducing the cost of acquiring these services, especially for smaller agencies.

Texas Comptroller of Public Accounts – Legacy Modernization

The new Unclaimed Property System (UP2) modernized a 20+ year old legacy solution for returning property to the rightful owner. To support mobility, the property can be searched from any device. Digital features were added which doubled the number of automatically approved claims. For claims that need to be handled by staff, UP2 provides a simple user interface that is accessed via a web browser. In addition, UP2 has improved security and fraud detection features.

STRATEGIC GOAL 4:

Data Utility

DATA MANAGEMENT AND GOVERNANCE, OPEN DATA, DATA ANALYTICS

OVERVIEW

Data continues to serve a critical role in private and public institutions, and the unique relationship between the state and the public presents special challenges to the effective use of data. Data can be likened to a commodity or currency, illustrating both its operational importance and its societal value. As the size and scope of data managed by the state grows, so too will the prominence of those challenges for all stakeholders. In addition to key concerns of privacy and security, the state also has an obligation to maximize the value of its data to benefit the public. Increasingly sophisticated tools for data analysis and deployment allow decision-makers the opportunity to drive organizational efficiencies, improve service delivery, engage the public, and promote government accountability. The usefulness of data depends upon effective data management and governance, from collection through disposition.

ASSESSMENT

- 83% of agencies reported sharing data with another governmental entity to improve services.
- 38% of agencies state that they have some business intelligence/analytics capabilities, with 10% claiming to be highly invested with substantial capabilities in this area.
- 32% of agencies reported having a master data management plan, which governs the collection, classification, use, and disposal of agency data.
- There are 449 parent datasets on the Open Data Portal (data.texas.gov), a 25% increase since 2016.

CONCERNS

- Due to the sensitive nature of much of the data managed by the state, as well as the special relationship between government and the public, privacy and security are the chief concerns for all state government stakeholders. Maintaining privacy and security becomes increasingly difficult as the size and scope of data expands.
- The size of Texas state government also provides an opportunity for agencies to harness the power of an enormous amount of data. Two major concerns arise as a result: agencies must follow best practices for data collection, management, and governance; and they must also develop an understanding of data analytics and its limitations.
- Only 13 of the 78 agencies participating in the 2018 survey reported having an employee whose primary duty was the management of the agency's data, the same number reported in 2016. As data becomes essential infrastructure for daily operations, creating such a position should become a priority for every agency.

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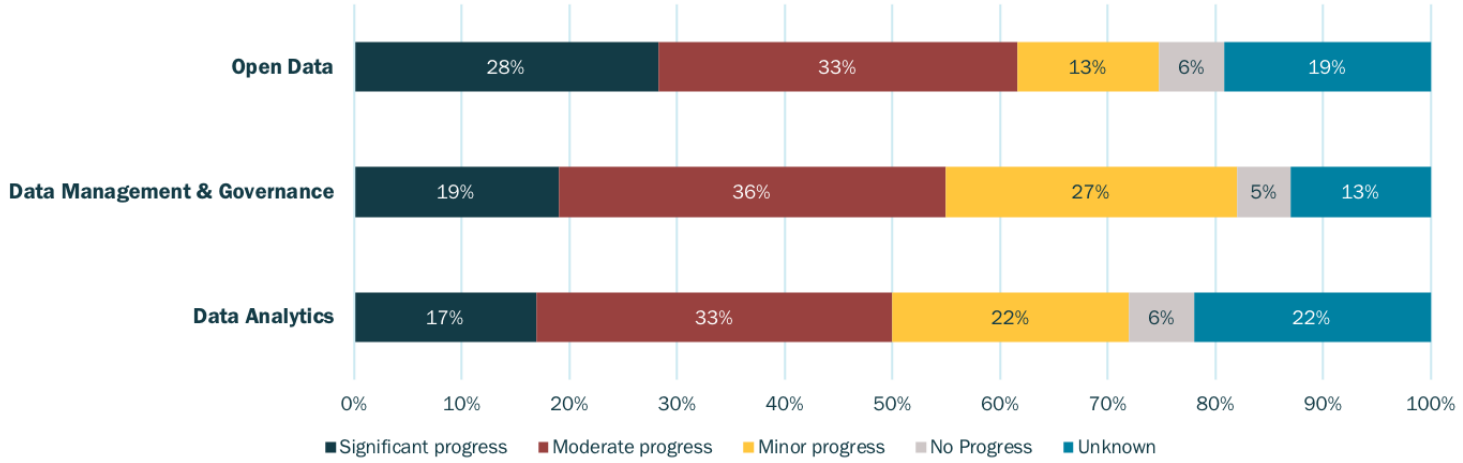

Source: 2018 Information Resources Deployment Review

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ACCOMPLISHMENTS

Health and Human Services Commission – WIC Program Analytics

The Texas Women, Infants, and Children (WIC) Program, which provides nutritional health services and food benefits to mothers and children up to five years of age, experienced a steady decline in enrollment of 2.9% from 2009-2016. In January 2017, WIC partnered with HHSC's Center for Analytics and Decision Support (CADS) to conduct a forensic analysis of program data. CADS helped WIC to begin weekly predictive trend analyses, which are now used to generate a list of eligible participants not enrolled in the program. This list is now shared with local agencies to ensure effective outreach.

Health and Human Services Commission – Data Governance Project

The 85th Texas Legislature allocated funds in fiscal years 2018 and 2019 for the development and implementation of an Enterprise Data Governance project within the Health and Human Services Commission (HHSC). HHSC has established a detailed plan to improve data governance in the agency, with milestones established through calendar year 2022. The project plan contains five focus areas: data and information management; data quality and standards; metadata and reference data management; data architecture; and data and information controls. Ultimately the project will produce a Master Data Management (MDM) system capable of acquiring, standardizing, integrating, and publishing data used by HHSC. An Enterprise Data Governance Council (EDGC) oversees the project, with the HHSC Chief Data and Analytics Officer (CADO) serving as chair.

Texas Department of Information Resources – Texas Open Data Portal

The Texas Open Data portal hosts 449 publicly accessible data sets. Users can use the site to create maps, visualizations, and other views on a variety of data hosted on the site. The Texas Parks and Wildlife Department (TPWD) leverages the Texas Open Data Portal (data.texas.gov) by publishing for this requested data by approximately 92% in an average month.

Texas Military Department - Texas State Guard – Readiness Management System

The Readiness Management System (RMS) provides a platform for data, inputs and outputs that assist the Texas State Guard command in knowing force readiness. The RMS provides the mechanism for tracking new state guard personnel and their training. The RMS also includes real-time displays of guard member data overlaid against a geographical map-view of Texas and was used during Hurricane Harvey to assist with response planning and deployment, movement, replacement and demobilization.

Legislative Recommendations

Designate the Texas Open Data Portal as the official data portal for the state and create a data catalog/repository with interagency shared access.

The Texas Open Data Portal currently houses several hundred databases from state agencies and local governments in Texas. It was designed as a voluntary project housed inside DIR. Designating it as the official open data portal for the State provides additional impetus for agencies to prioritize actively collaborating on open data issues and with the Office of the Statewide Data Coordinator directly. Conferring official status on the Portal also conveys the State's interest in promoting transparency and access through a centralized repository for other public and private partners and for the public.

Establish a statewide Chief Data Officer and agency-level data management officer positions through amending Section 2054.0286 (Statewide Data Coordinator), Government Code.

The Legislature established the Office of the Statewide Data Coordinator in 2015 to address the growing volume and importance of data in state government. The Statewide Data Coordinator improves security and control of state data and promotes data sharing, deduplication, and cost reduction. The legislation authorizing this Office expires 2021. Designating a statewide Chief Data Officer would convert the current initiative into a permanent state program. The recent emergence of the Chief Data Officer position in public and private institutions reflects the growing relevance of data in executive decision-making. Today, fifteen other states have created and filled the position of statewide Chief Data Officer and establishing a Chief Data Officer position would be in keeping with best practice in the industry. The position should have the authority to study and recommend agency data sharing that would benefit state taxpayers and constituents.

STRATEGIC GOAL 5:

Mobile & Digital Services

MOBILE TECHNOLOGY, DIGITAL SERVICES, INTERNET OF THINGS

OVERVIEW

Moving ahead into the digital age has given state agencies opportunities to adapt to citizen expectations and to fulfill their missions with increased productivity. Mobile technology, digital services, and the Internet of Things are key initiatives state agencies are focusing on to effectively execute a more seamless end-to-end citizen experience. Now more than ever, mobile devices are becoming the standard tool in conducting every day transactions. Mobile technology enables citizens to access information quickly and easily anytime, anywhere, and from any mobile device. Citizens have become accustomed to using a variety of digital services in the private sector and expect the state agencies that serve them to offer the convenience of digital services just the same. The Internet of Things (IoT) is still considered a relatively new concept at the state agency level. However, embracing the emerging technology can lead to many potential beneficial applications and impacts of connected technology on the public sector that are wide ranging.

ASSESSMENT

- 65% of agencies say they incorporate responsive design into public-facing application development to optimize application functionality on mobile devices.
- 79% of agencies surveyed report that they currently allow constituents to submit applications or forms via the Internet.
- When surveyed, 43% of state chief information officers nationwide said IoT is the emerging trend that will be the most impactful in the next three to five years. 26% of Texas agencies surveyed indicate that they are making minor progress toward aligning technology initiatives with the IoT.

CONCERNS

- Insufficient resources and funding can make it challenging for state agencies to keep up with increasing citizen demand to provide more mobile access to public information and services.
- Security risks continue to be an ongoing concern with the development of mobile and digital applications, especially with the increase in the sophistication of security threats.
- Each state agency is responsible for having staff with the required accessibility knowledge and skills to ensure mobile and digital applications are compliant with state accessibility requirements.
- When considering the possibilities of the IoT, agencies should be mindful of the potential effect on network bandwidth utilization and cost.

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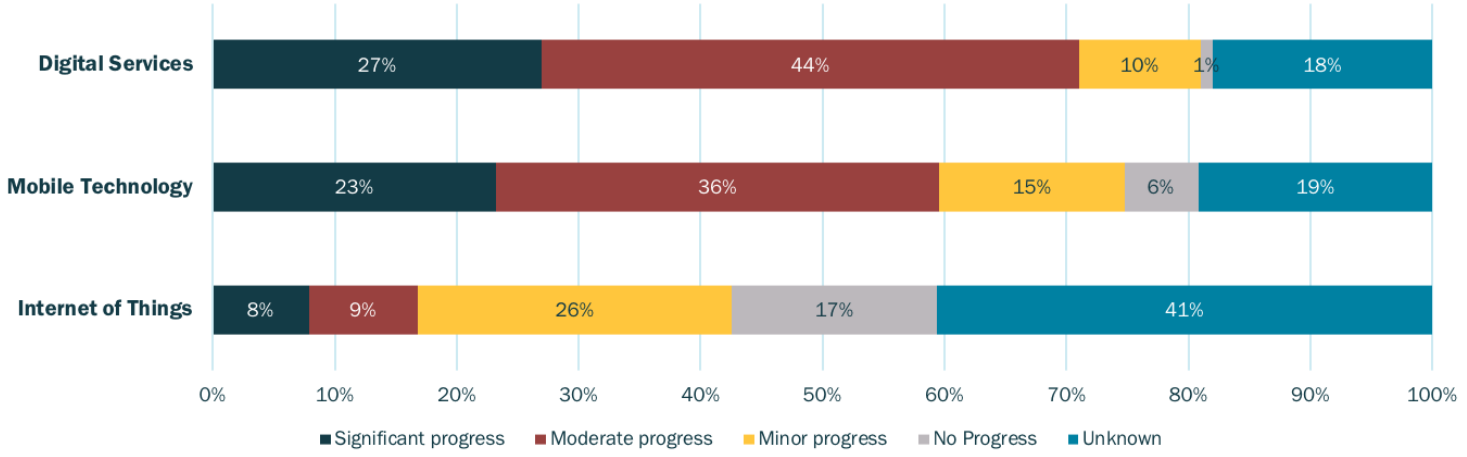

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ACCOMPLISHMENTS

Texas Lottery Commission – Texas Lottery Mobile App

The Texas Lottery Mobile App was developed to encourage sales and revenue, and to provide the public with an engaging new digital service on a platform for which there was a clear demand. It is a visually appealing, entertaining, innovative, brand consistent app that benefits both lottery players and retailers. Since its launch, the app has been downloaded more than 1.6 million times and has been used to generate more than $3.6 million in sales from players using the QR code builder feature.

Texas General Land Office (GLO) – State Operations Response Mapper (STORM Viewer)

The STORM Viewer is a custom-built mobile application that provides agency staff with a critical tool to aid in the response to and recovery from natural disasters. With 367 miles of Gulf of Mexico shoreline, and more than 3,300 miles of bays and estuaries, Texas has one of the longest coastlines in the country. The GLO is charged with managing the state's shorelines, as well as 13.5 million acres of Permanent School Fund (PSF) lands, in Texas.

Statewide Data Coordinator/Office of the Attorney General – RedFlag App

Working alongside the Office of the Attorney General, DIR and the office of the Statewide Data Coordinator, have created the RedFlag app at the recent ATX Hack4Change event. RedFlag originated from a project submission generated by OAG to address Human Trafficking identification and notification. RedFlag allows concerned citizens a platform to combat human trafficking by anonymously contacting 911 via the app in order to inform authorities about possible human trafficking activities, victims, and perpetrators.

Harris County Metropolitan Transit Authority (METRO) – Hurricane Harvey Mobile App for Response and Recovery

During Hurricane Harvey response and recovery, Harris County Central Technology Services used a collaboration app internally that provided multi-agency interoperability and information sharing through group messaging, file sharing, and advanced collaboration features. Law Enforcement used it to coordinate high-water rescues, and after the storm, Community Services used it to coordinate logistics for supplies, clean-up, and inspections of roughly 30,000 flooded private properties. With more than 200 volunteers assisting in the clean-up effort, and with flooded courthouses and inmate transfer systems, the collaboration app with group messaging and picture sharing enabled the necessary coordination and scheduling. This collaboration helped save lives, expedite the restoration of the community, and kept the judicial system in operation.

Texas Department of Motor Vehicles – eLICENSING System

The Texas Department of Motor Vehicles (TxDMV) eLICENSING System, launched in March 2017, eliminates the use of paper applications, manual payment processing, and move the entire licensure process online. TxDMV consolidated two standalone licensure systems into a single system, removed information silos, and provided users with an intuitive interface that provides step-by-step guidance through the motor vehicle license application process. Additionally, eLICENSING automatically retrieves criminal history information that reduces licensure processing time. TxDMV was able to drastically reduce the time required to issue licensure determinations by up to 75%.

Legislative Recommendations

Authorize DIR to establish a Digital Transformation guide to assist agencies with digital initiatives and digitization efforts.

Rapidly changing technological and consumer evolution is pushing agencies to move towards providing a more digital experience, which can be challenging. Establishing a Digital Transformation Services Program would allow DIR to help agencies modernize operational processes and services. Service offerings by DIR could potentially include assistance with mobile application development, inventory of paper forms and creating targets for paperless or paper-on-request business processes.

Report on State Technology Expenditures

2018 BIENNIAL PERFORMANCE REPORT

Texas Department of Information Resources

This report addresses Government Code, Sec. 2054.055(b)(4), which requires DIR to provide a summary of total state information technology expenditures. Although DIR uses best-available data, it is difficult in some cases to distinguish between IT and non-IT expenditures with precision. All figures in this report are estimates.

SUMMARY

DIR estimates that Texas state government, including state agencies and institutions of higher education, spent approximately $3.1 billion from all funding sources on IT in FY 2017 and $3.0 billion in FY 2018. IT expenditures funded through legislative appropriations represented 2.3% of the state's total net appropriations expenditures in FY 2017 and 2.0% of the state's total net expenditures in FY 18. These percentages are lower than the average of 2.4% from the previous five fiscal years, 2012-2016.

State agencies and institutions of higher education are addressed separately in this report because their IT expenditure estimates were derived from different data sources. A combined estimate of the state's total technology expenditures, using only state data sources, is included in the final section of the report.

STATE AGENCIES

DATA SOURCES

Technology expenditures fall into two broad categories: staff compensation and goods and services. For state agencies, the data for staff compensation come from the Comptroller's Uniform Statewide Payroll/ Personnel System (USPS) and the Standardized Payroll/ Personnel Reporting System (SPRS). Texas has 1034 job classifications, of which 78 are categorized as IT. Because some state technology workers have non-technology job classifications, the figures from the payroll systems may understate the actual agency information technology staff expenditures.

The data for state agency expenditures on technology-related goods and services come from the Comptroller's Uniform Statewide Accounting System (USAS). Technology expenditure estimates based on USAS are also approximate because some of the categories do not precisely differentiate between IT and non-IT expenditures.

STATE AGENCY TECHNOLOGY EXPENDITURES

Table 1 shows state agency expenditures for total IT staff compensation and goods and services, by category for the last seven fiscal years. While both categories have fluctuated over time, generally overall IT spending has increased. Currently, state employee staff compensation makes up approximately 17 percent of agency technology expenditures, while about 83 percent of funds are spent on goods and services.

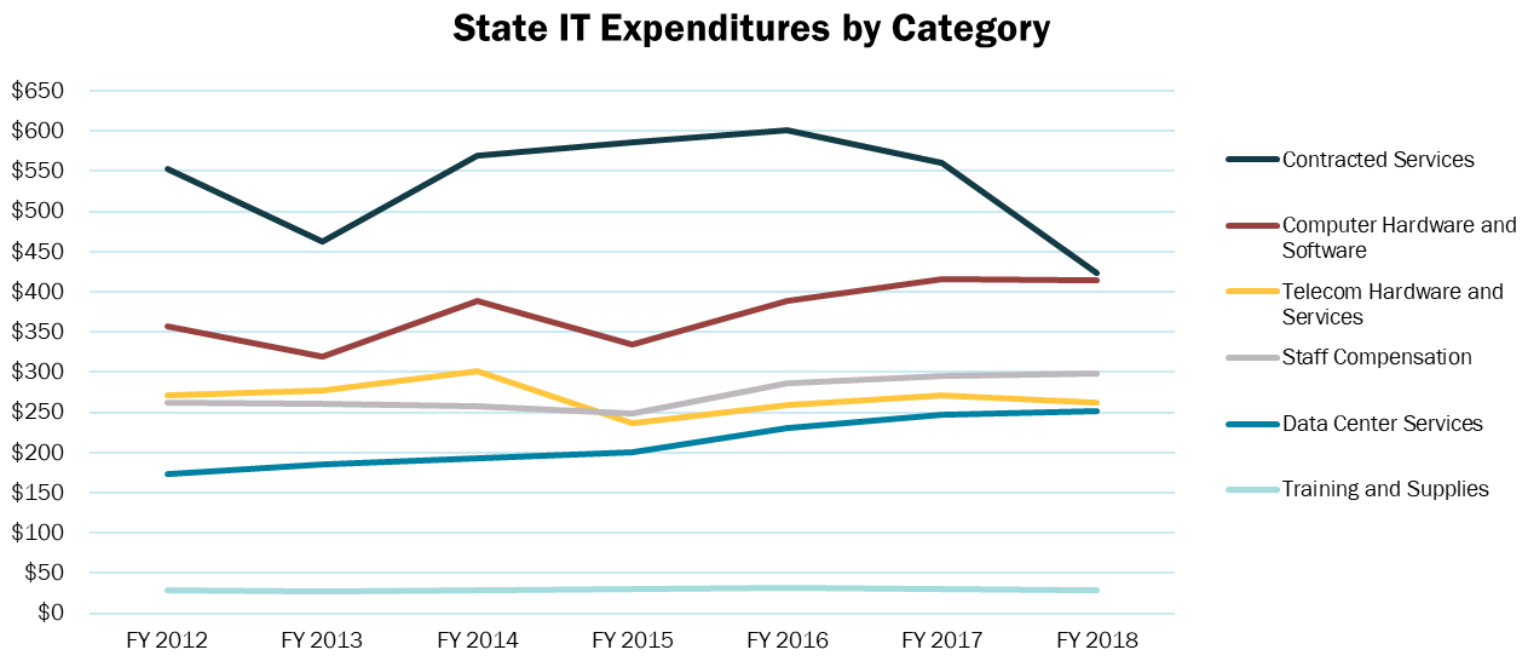
Table 1. Estimated State Agency Technology Expenditures

(Dollars rounded in millions)

STATE AGENCIES	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18
Contract Services	$553	$462	$569	$586	$601	$561	$424
Computer Hardware and Software	$357	$320	$388	$335	$389	$416	$415
Staff Compensation	$262	$260	$258	$249	$286	$295	$299
Telecom Hardware and Services	$271	$278	$301	$236	$259	$271	$262
Data Center Services	$174	$185	$193	$201	$230	$247	$252
Training and Supplies	$29	$28	$29	$30	$32	$30	$29
STATE AGENCY TOTAL	**$1,646**	**$1,533**	**$1,738**	**$1,637**	**$1,798**	**$1,820**	**$1,681**

Figure 1. Estimated State Agency Expenditures by Technology Category

(Dollars rounded in millions)



INSTITUTIONS OF HIGHER EDUCATION

DATA SOURCES

Higher education technology expenditure data for both staff compensation and goods and services come from the annual Core Data Service (CDS) survey conducted by EDUCAUSE, Inc., a national nonprofit. This survey reflects a more accurate picture of institutional spending because it includes funding sources other than state appropriations. Although not all institutions participate in the survey, expenditures for non-participating institutions are estimated by extrapolation based on institution size. This methodology introduces some uncertainty in the higher education technology expenditure estimates.

HIGHER EDUCATION TECHNOLOGY EXPENDITURES

Table 2 estimates higher education technology expenditures for staff compensation and goods and services.

Table 2. Estimated Higher Education Technology Expenditures

(Dollars rounded in millions)

HIGHER EDUCATION	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18
Staff Compensation	$581	$568	$534	$551	$618	$609	$617
Goods and Services	$563	$638	$744	$955	$984	$639	$701
GRAND TOTAL	**$1,143**	**$1,206**	**$1,278**	**$1,506**	**$1,602**	**$1,248**	**$1,318**

COMBINED TECHNOLOGY EXPENDITURES

The percent of total state appropriations spent on information technology serves as a key measure of the current IT landscape. The Comptroller's Texas Annual Cash Report identifies total state appropriations expenditures by fiscal year. Note that this total does not include the portion of spending among institutions of higher education derived from non-state funding sources. Table 3 and Figure 2 show technology expenditures as a percentage of total state expenditures for 2012-2018, with Figure 2 comparing Texas to state and local governments across the country, as surveyed by Gartner.

Table 3. Estimated State Technology Expenditures as a Percentage of Total State Expenditures

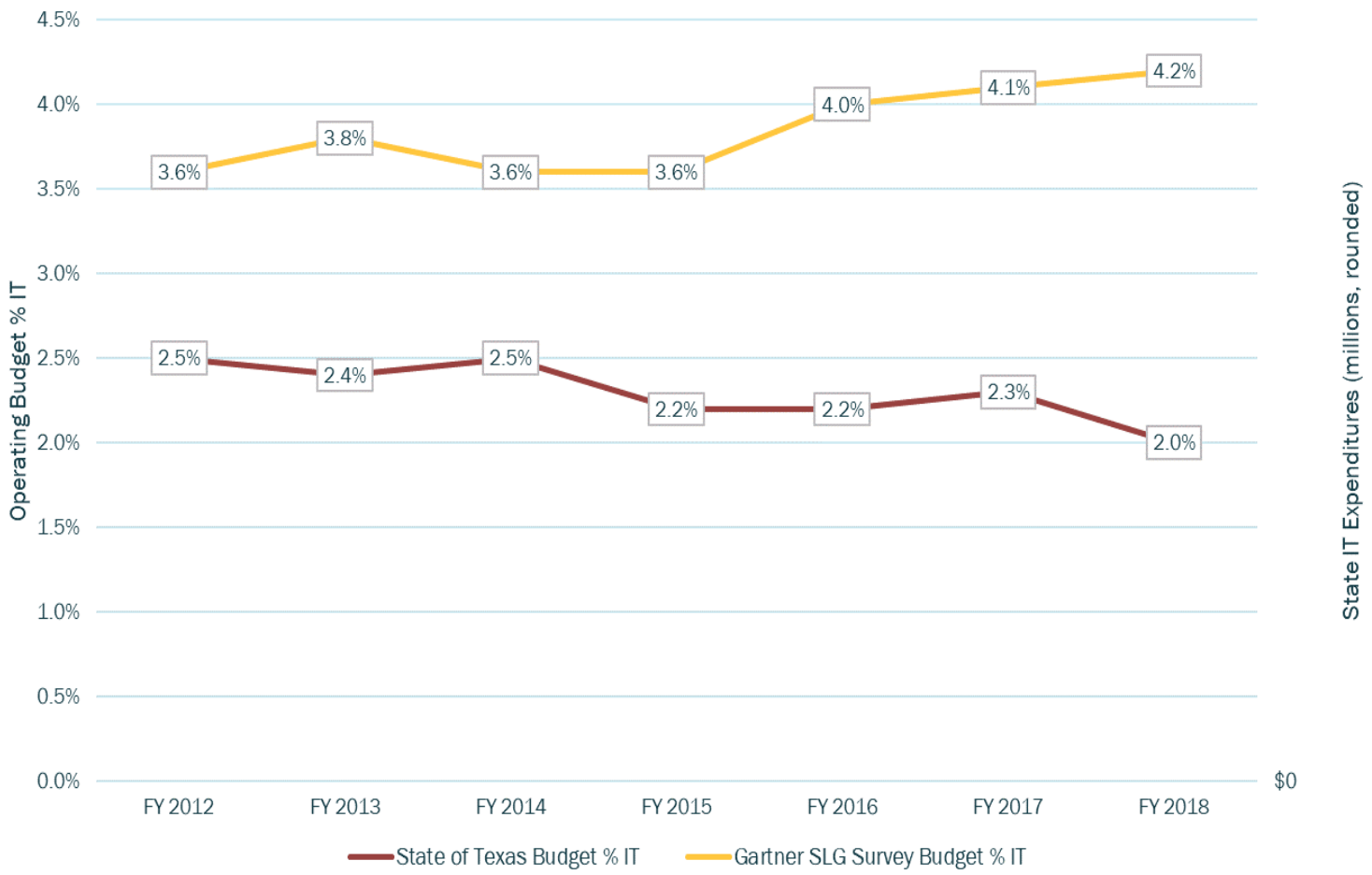
(Dollars rounded in millions)

STATE EXPENDITURES	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18*
IT Expenditures	$2,394	$2,227	$2,527	$2,305	$2,546	$2,588	$2,461
All Expenditures	$94,257	$93,567	$99,655	$106,365	$114,570	$112,625	$121.011
IT Percentage	**2.5%**	**2.4%**	**2.5%**	**2.2%**	**2.2%**	**2.3%**	**2.0%**

**Projection based on preliminary data from the Comptroller's Office*

Figure 2. Estimated State Technology Expenditures as a Percentage of Total State Expenditures.

(Dollars rounded in millions)



Source: State of Texas Annual Cash Reports and Gartner, Inc.

Only preliminary data were available for FY 2018.

Texas Department of Information Resources

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