



Transforming How Texas  
Government Serves Texas

# Digital Transformation

A Guide for Texas Government

Texas Department of Information Resources

March 2021

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## Introduction

Texas government has been moving steadily toward a digital future. Now, spurred by the COVID-19 global pandemic, the pace of that digital transformation has accelerated. Responding to the immediate challenges of the 2020 pandemic was a unique driver for organizations to transition to a remote workforce and leverage digital technologies to ensure mission-critical activities. But what is next?

To continue this momentum, Texas government must not lose sight of the fundamentals and strategic actions that make state agencies well-positioned to tackle a future that ensures a more agile, transformed, and digitally mature government.

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Digital transformation is a strategic approach to the adoption of digital technologies to create new or improve existing processes, services, and customer experiences.

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## Background and Purpose

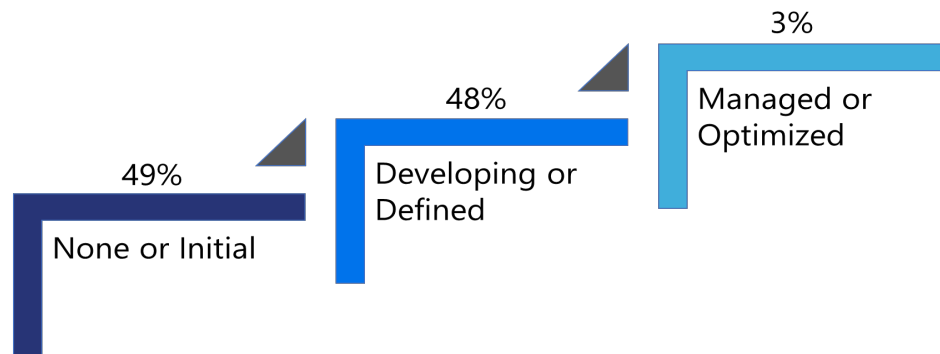
Section 2054.069 of the Government Code requires the Texas Department of Information Resources (DIR) to prepare a digital transformation guide for assisting agencies with modernizing agency operations and services to incorporate electronic data and convert existing agency information into electronic data.

This guide is designed to help Texas government advance digital transformation and improve the customer experience, regardless of where the organization is on its digital journey. It recognizes key considerations for digital transformation, outlines a five-step process for advancing the next generation of digitization in Texas government, and identifies state resources for public sector organizations to facilitate the digital transformation.

## Texas Digital Government Today

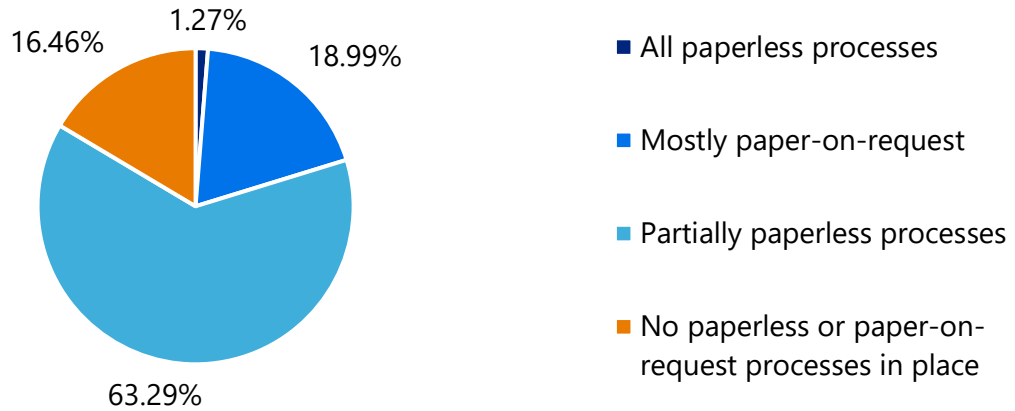
Texas agencies are in varying stages of their digital transformation. In the spring of 2020, 49% of state-agency respondents to the Information Deployment Review (IRDR) reported they have no digital transformation practices or are in the initial stages, while 48% have developing or defined practices. Only three percent of state agencies describe their status as managed or optimized.

**Figure 1: Status of Digital Transformation in Texas Government**



The initial stages of digital transformation may be reactive, IT-centric, and government-focused. Organizations may not recognize these initial steps as part of the digital journey, but they include important initiatives toward government efficiency such as providing paperless or paper-on-request processes. As shown in Figure 2, most Texas agencies are at least partially paperless.

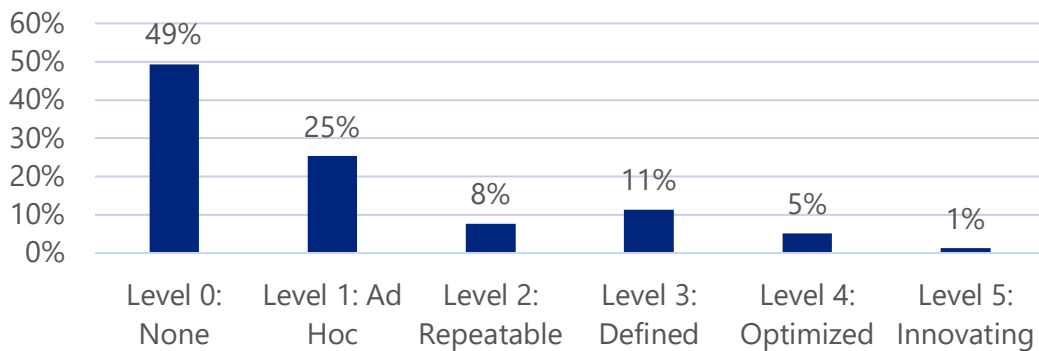
**Figure 2: Percentage of agencies with paperless or paper-on-request processes in place**



Source: 2020 IRDR

As organizations progress toward more developed and defined digital transformations, their efforts become increasingly transparent and customer-centric. As shown in Figure 3, there is still work needed to provide services that meet Texans' expectations. Only 25% of agencies reported that their processes for mobile application development are at repeatable, defined, optimized, or innovating levels.

**Figure 3: Status of mobile application development in state agencies**



Source: 2020 IRDR (Numbers may not equal 100% due to rounding.)

Because of the rapid pace of change brought on by COVID-19, it is likely that digital transformation has matured since this snapshot was taken in the spring of 2020. In October 2020, the National Association of State Chief Information Officers (NASCIO) reported that, "... 2020 is proving to be the year that pushes Artificial Intelligence (AI) into the mainstream of government operations."<sup>1</sup> Yet, a recent survey<sup>2</sup> of state CIOs suggests more growth is needed to reduce risk as states rely on emerging technologies to do more with less in times of revenue shortfalls.

Now is the time for agencies to begin planning, assessing risk, and developing digital strategies to formulate their transformation efforts and design their digital roadmap.

## Guidance for Digital Transformation

Texas government has moved to a workforce that relies on collaborative tools, digital documents, expanded bandwidth, and cybersecurity protections as employees work from home. Technology has transformed the way state agencies work, but this is only the beginning.

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Agency IT leaders can prepare their organization for digital transformation by understanding key considerations and the next steps for advancing digital government.

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## Key Considerations for Digital Transformation

Texas government leaders must understand the current environment and identify what is needed to successfully plan and implement digital transformation. Public sector organizations must consider the factors for transitioning from the initial and developing stages to defined, managed, and fully optimized digital government.

**Figure 4: Key Considerations for Digital Government**



<sup>1</sup> [Digital Government Rising: How AI is providing new opportunities to deliver value.](#) NASCIO, The Center for Digital Government and IBM, October 15, 2020.

<sup>2</sup> How will the power of emerging technology help reframe your future? NASCIO and EY, October 15, 2020.

## People and Organization

A digital transformation strategy must consider the impact change has on customers, employees, partners, and other stakeholders. By understanding customer needs and expectations at the beginning of the transformation journey, state agencies can improve the customer experience and reduce costs. Likewise, agencies must understand their staff's concerns about how change will impact their roles. Managed properly, digital transformation can be viewed as an enhancement to employees' contributions, and not a replacement. It is important to have a change management plan that includes the employees' perspective and provides messaging for the transition in a positive way.

Agency leadership can better understand organizational readiness by using maturity model tools. As shown in Figure 5, key areas for evaluating maturity include information security and continuity planning. Fewer agencies evaluate maturity for cloud, identity and access management, governance, mobility, and quality management. All are key for comprehensive digital transformation.

**Figure 5: Number of Agencies Evaluating Maturity for Areas Key to Digital Transformation**



Source: 2020 IRDR

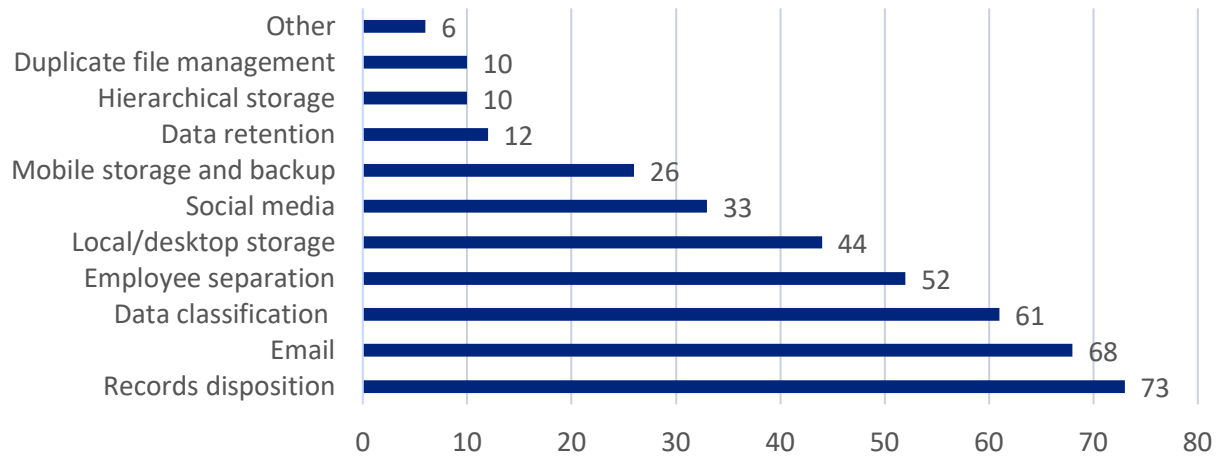
## Policies and Governance

Agency leaders should understand the laws that define the parameters for digital government and based on such understanding, identify policies and governance that need to be strengthened. As shown in Figure 6, state agencies have basic policies for digital data and records. Agency leaders may need to rethink their policy and governance in areas affected by emerging technology. For example, identity management in most government organizations is built on an in-person identity verification system. The virtual world, however, requires



incorporating seamless authentication to ensure the public can securely conduct their government business using mobile applications. Similarly, telework is changing how agencies provide employee access to multiple systems from multiple devices. Policies and governance in these areas must be addressed for successful digital transformation.

**Figure 6: Agency Policies for Digital Data and Records**



Agencies should also consider the policies needed to enable broader access to digital services, streamlined processes, and digitization by expanding the use of digital signatures. While the tools are available, agencies may not yet have policies and governance in place for using them. For example, 85% of state agencies responding to the 2020 IRDR reported using online forms or applications. Yet of those agencies that accept online forms, 33% report they require customers to mail a copy of the application or form with a signature.<sup>3</sup> Organizations must have policies and governance in place to facilitate the changes that come with digital transformation.

### Processes and Services

It is important to understand which processes and services are ready for transformation. Some processes that work well with transformative technology solutions include:

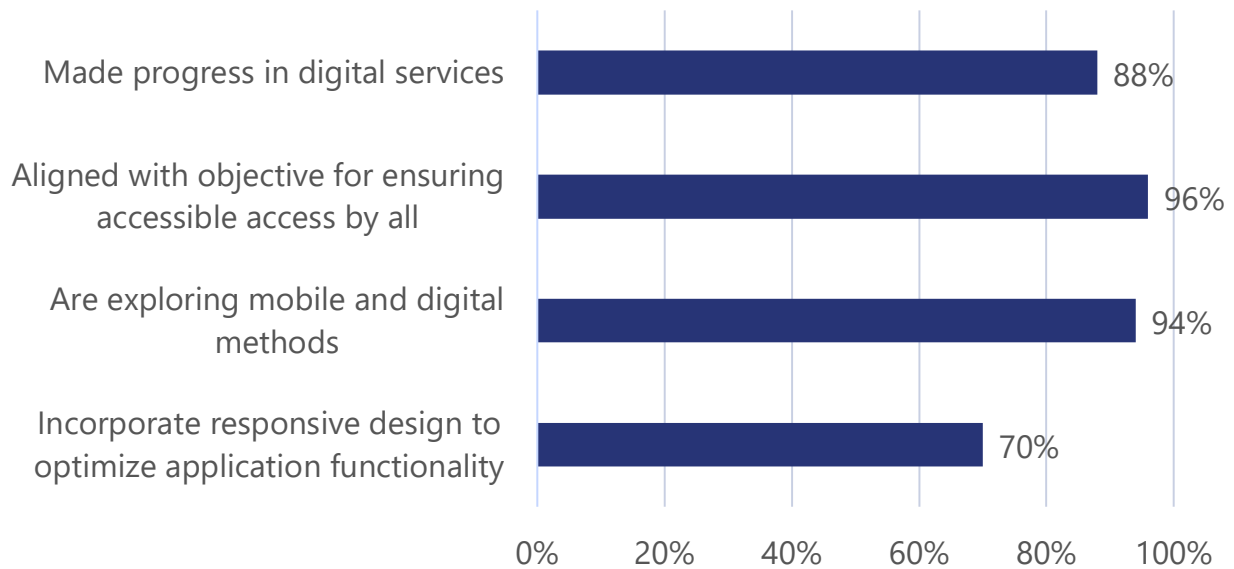
- fine-tuned, well-documented processes that have current instructions or standard operating procedures;
- processes with decisions based on standardized, predictive rules with little reliance on human intuition;
- high-volume, manual, and repetitive processes with many transactions that are run frequently (daily, weekly, or monthly) and involve manual work that is prone to human error;
- low-exception-rate processes with a limited number of variations that require different handling procedures;

<sup>3</sup>At times, a mailed copy of a form with signature is necessary to comply with statutory requirements such as election integrity laws (Texas Election Code, Section 13.002) or to assure positive identification of customers.

- standard, readable, electronic inputs to processes from tools like Excel, Word, email, and formats like XML, PPT, and readable PDFs; and
- high-cost processes with strong return-on-investment (ROI) potential that will provide a labor cost savings, allowing workers to focus on mission-critical activities.

In addition to transforming internal processes, agencies must continue to identify the services where improved technology can help better meet customer expectations. As shown in Figure 7, Texas agencies are digitally transforming services, with 88% reporting progress in digital services in the 2020 IRDR and 94% reporting exploration of mobile and digital methods.

**Figure 7: Agency Progress for Digital, Mobile, and Accessible Services**



### Technology Solutions

Careful planning can help agencies select timely, cost efficient tools. Agency leaders should consider the automation requirements for carrying out their agency’s mission and look for solutions that leverage shared services and ready-to-use applications. They should also consider solutions that include emerging technology such as AI and robotic process automation (RPA) and services for maintaining and operating existing automations.

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Instead of building their own applications for conducting state business, state agencies can use **Texas by Texas (TxT)** to provide a single user account with stored payment information for Texas government transactions.

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Before selecting specific products or solutions, agencies need to consider: costs, storage, and long-term preservation of records; compliance with security, accessibility, and other standards; management of data assets; and the emerging technologies that are the core of digital transformation.



## Steps for Digital Transformation

All journeys have a starting point, but it is sometimes difficult to know where to begin. These five steps can help guide the transition.

### 1. Assess the current environment.

Understanding the baseline is fundamental for transforming the way government operates and delivers services. It can be helpful to identify tools that help the organization assess maturity or that provide a framework for managing and communicating the status of the organizational culture, business capabilities, and current technology.

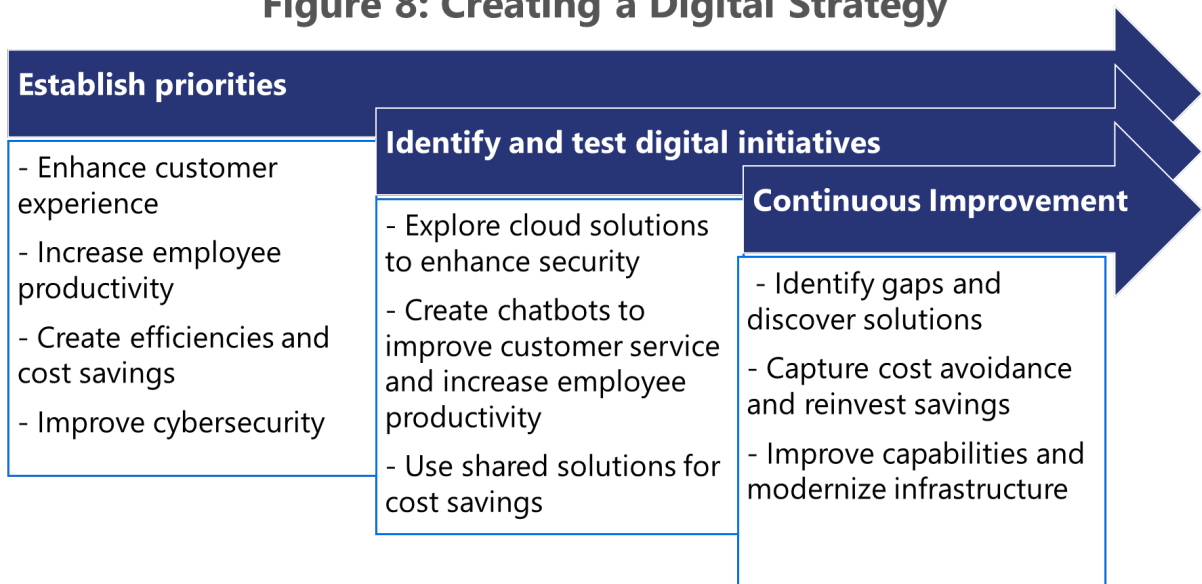
Utilizing a tool like a digital maturity model is an effective way for agency leaders to evaluate the current state of an organization’s digital capabilities, define and prioritize goals or areas to focus on, and develop a clear path for the digital transformation journey.

### 2. Develop a digital strategy.

Having a plan in place can help agencies make the most of a digital transformation effort.

Developing a digital strategy entails understanding the trends, drivers, and needs affecting an organization’s customers, employees, and partners. Once these are determined, agency leaders can begin to improve on the gaps between current digital capabilities and the future desired state.

**Figure 8: Creating a Digital Strategy**



### 3. Identify risks, barriers, resources, and solutions.

It is critical to identify challenges early in the digital transformation process. Common factors that can impede digital transformation include resistance to change, lack of expertise or skills, limited funding, and various other considerations. Agencies can reduce many such challenges by identifying the risk and deciding whether to avoid, accept, or mitigate that risk.

Engaging the right resources to address risks is a key factor in overcoming digital transformation barriers. Careful planning, executive buy-in, and informed decision making can keep a digital transformation on the right path.

**4. Implement digital strategy, manage activities, and measure progress.**

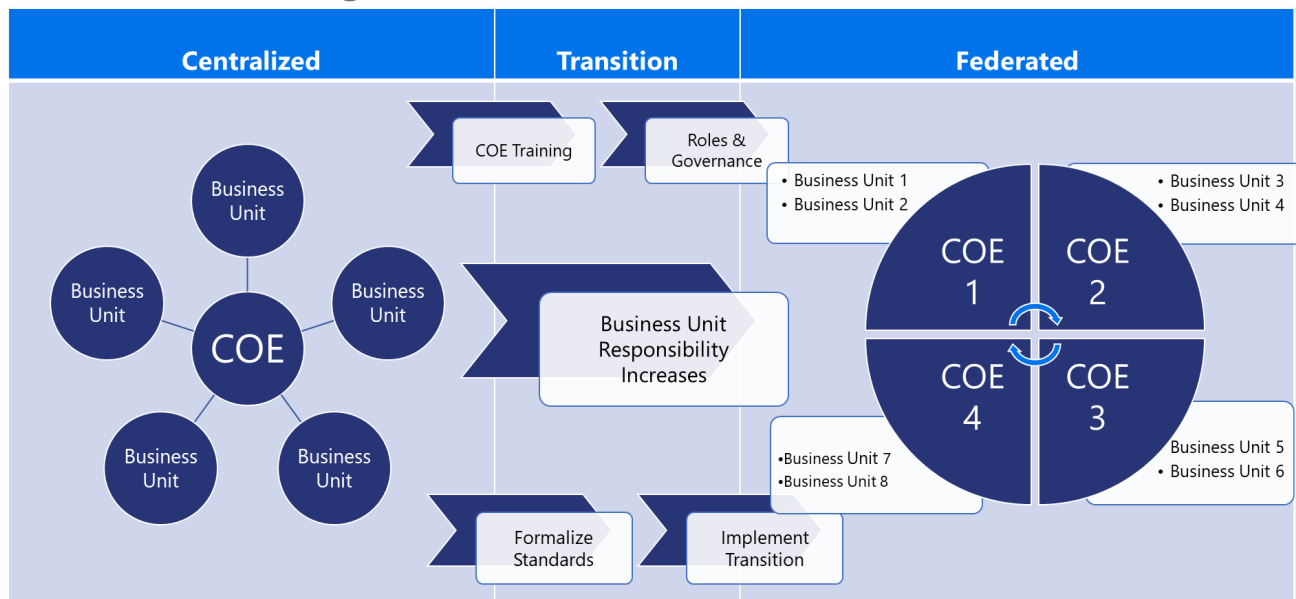
Managing digital strategy initiatives requires good communication, strong project management, and the ability to quickly respond and adjust to changing priorities. Identifying key metrics to continuously measure progress of initiatives will help drive the success of a digital transformation.

Key performance indicators (KPIs) are a good tool for measuring digital transformation progress. To demonstrate the value of digital transformation initiatives, KPIs should be clearly defined and quantifiable. These metrics may include measuring: increases in the adoption of emerging technologies; improvements in customer satisfaction; reductions in duplicate processes and errors; and increases in employee proficiencies.

**5. Optimize and innovate to keep the momentum going.**

Digital transformation is an ongoing process. Establishing a Center of Excellence (CoE) with a focus on knowledge sharing, optimization, and innovation can help digital transformation maintain momentum. The role of a CoE is to provide leadership, support, and strategic guidance. A CoE can facilitate buy-in for future digital transformation initiatives and champion further innovation. DIR has established CoEs for cloud and AI as described in the resource section of this guide.

**Figure 9: Center of Excellence (CoE)**



## State Resources and Tools for Digital Transformation

To advance digital transformation and improve the customer experience, state agencies must capitalize on opportunities to prevent unnecessary duplication and reduce taxpayer costs. Agencies should focus on sharing technology services, protecting information and technology assets, and simplifying access to government services. DIR can help. Learn more about DIR's services and solutions by visiting [www.dir.texas.gov](http://www.dir.texas.gov).

## Texas Department of Information Resources (DIR)

The mission of DIR is to serve Texas government by leading the state's technology strategy, protecting state technology infrastructure, and offering innovative and cost-effective solutions for all levels of government.

### Why DIR?



#### Trusted Guidance

DIR delivers the strategic thinking, purchasing power, and policy insights necessary to ensure government organizations can find, procure, and securely implement innovative technology.



#### Efficiency

DIR provides technology solutions for government entities with a flexible, trusted process delivering a positive return on investment.



#### Peace of Mind

DIR is transforming the state's security posture, focusing on protecting customers' information resources within a reliable and secure computing environment.

### DIR Services and Solutions

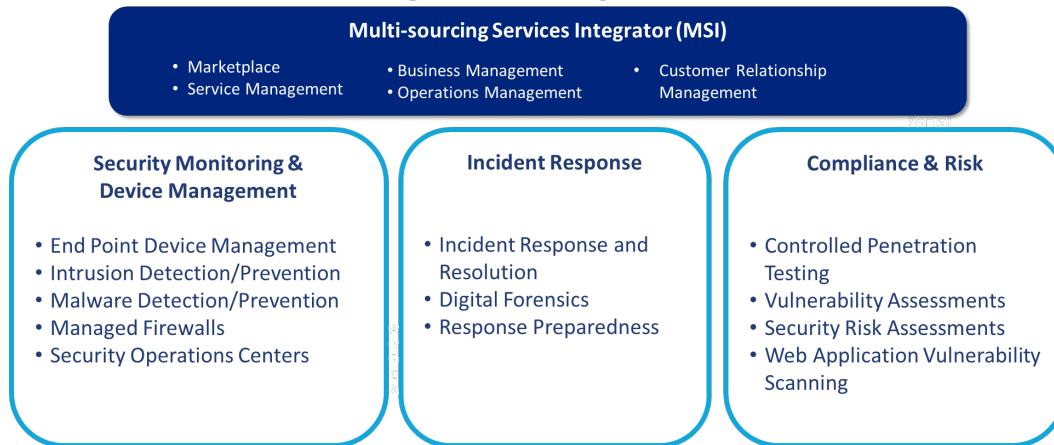


### Information Security

Cybersecurity continues to be a critical priority for state and local governments and is a building block for successful digital transformation. DIR helps public sector organizations stay ahead by providing cybersecurity standards and policy, incident response resources, outreach, and education. The Office of the Chief Information Security Officer (OCISO) provides information security program guidance to the Texas public sector in the form of information security policies and standards, guidance on best practices, and information on incident response preparedness. OCISO also monitors and analyzes incidents, coordinates security services, and promotes information sharing throughout the public-sector cybersecurity community.

Managed Security Services (MSS) provides security monitoring, device management, incident response, and risk and compliance management.

## Managed Security Services



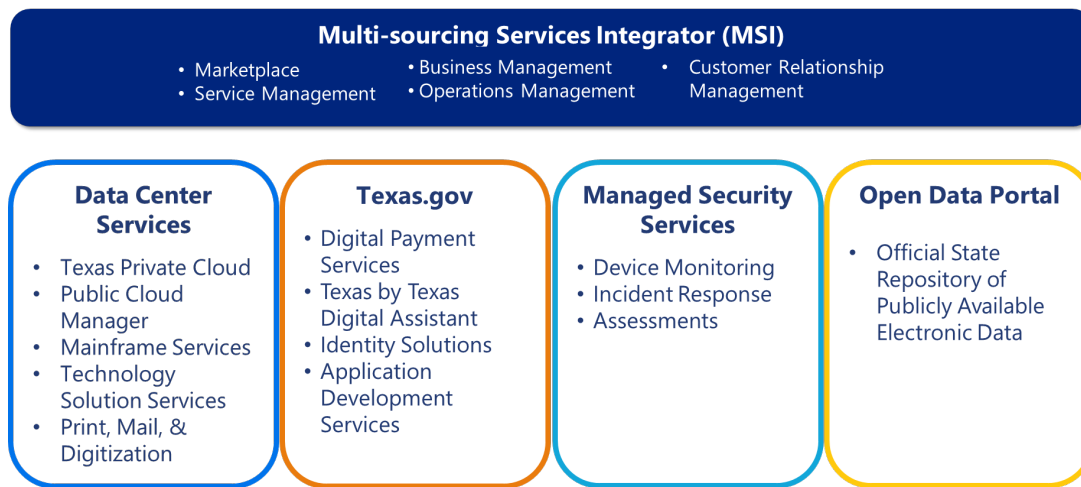
## Cooperative Contracts

Through DIR’s Cooperative Contracts Program, state agencies can accelerate digital transformation by leveraging the volume purchasing power of the State of Texas. Public sector organizations save money with access to deliverables-based IT services, IT staffing, hardware and software, telecommunications, information security, and more. Most public sector organizations, including state agencies and local government entities, are eligible to buy technology through DIR master agreements.

## Shared Technology Services

The Shared Technology Services (STS) program offers multiple contracts with private sector partners to provide shared services, including data center services with public and private cloud services, Texas.gov services, managed security services, and the Texas Open Data Portal.

## DIR Shared Technology Services Model

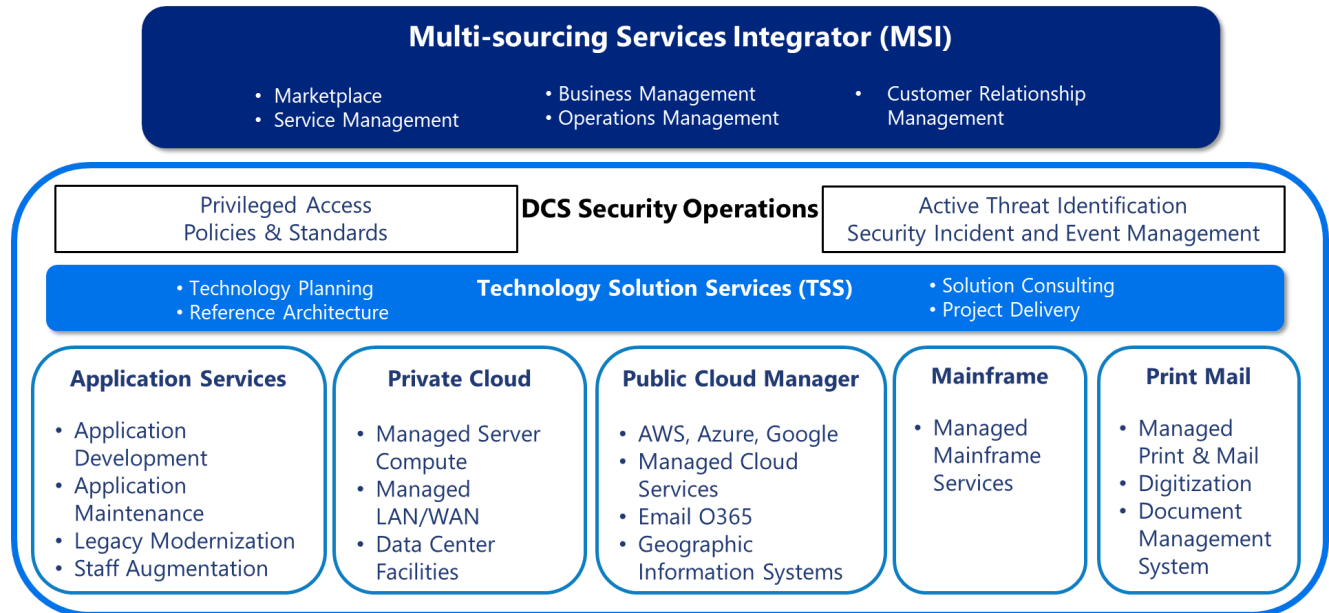




## Data Center Services

DIR's Data Center Services (DCS) program enables Texas state agencies to share costly data center infrastructure providing mainframe, server, network, data center, and print/mail services.

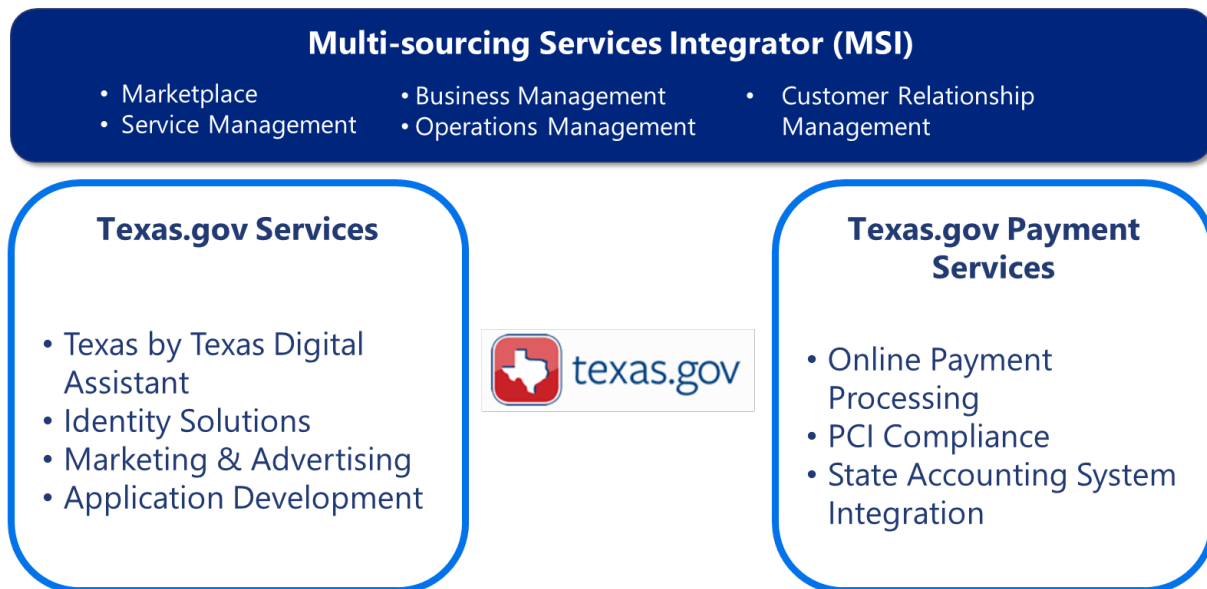
### Data Center Services



## Texas.gov and Texas by Texas (TxT)

Texas.gov, the state's official website, is a trusted resource for Texans to access government information and take care of government business in easy, secure, and user-friendly ways. The Texas.gov program gives state agencies, local government, and institutions of higher education the opportunity to access world-class technology solutions that deliver simple, accessible, and secure digital government services.

### Texas.gov



Texas by Texas (TxT) is the newest addition to the Texas.gov program. This mobile-first digital assistant is designed and optimized specifically for users with mobile devices, allowing Texans to access government services easily and securely without having to visit an agency office. By integrating constituent-facing services with the TxT digital assistant, state agencies can better serve their customers. For agencies utilizing the digital assistant, Texans can create a single user account and profile, access a personalized dashboard with stored payment information and transaction history, establish notification preferences for alerts and reminders, and ultimately complete government transactions in just a few clicks anytime, anywhere, and from any device.

### Statewide Data Program

The Statewide Data Program, coordinated by the Office of the Chief Data Officer, provides leadership, services, and resources to develop individual agency data management programs. The primary goals of the program are to reduce duplicative information collection, improve data management and analytics, identify future cost saving opportunities, and increase data sharing between agencies. The program encourages open data sharing through the Texas Open Data Portal (data.texas.gov), the state’s official repository for open data. It promotes government transparency, self-service data participation, and the efficient use of public resources.

## Open Data Portal

**Multi-sourcing Services Integrator (MSI)**

- Marketplace
- Business Management
- Customer Relationship Management
- Service Management
- Operations Management

**Open Data Portal**

- Official State Repository of Publicly Available Electronic Data
- Self-Service Data Consumption
- Automated Data Updates

<p><b>Permits &amp; Licensing</b> Data on Permitting and Licensing in Texas</p>	<p><b>Recreation</b> Find information on recreation in Texas</p>	<p><b>Business &amp; Economy</b> Economic and business data in Texas</p>	<p><b>Government &amp; Taxes</b> Explore the information on the government and how taxes are spent</p>
<p><b>Social Services</b> Social service data for Texas citizens</p>	<p><b>Transportation</b> Transportation data for Texas</p>	<p><b>Agriculture</b> Agriculture, food and nutrition data for Texas</p>	<p><b>Veteran</b> Veteran data for Texas Veterans</p>
<p><b>Education</b> Education data for Texas</p>	<p><b>Public Safety</b> Public safety data for Texas</p>	<p><b>Energy and Environment</b> Energy and environmental data in Texas</p>	<p><b>Public Reports and Maps</b> Explore copies of previously published Texas reports and/or maps</p>

### Technology Planning and Guidance

DIR publishes Texas’ State Strategic Plan for Information Resources Management to establish statewide IT goals, as well as the Biennial Performance Report on the Use of Information Resources Technologies to report progress and recommend improvements. DIR collaborates with state agencies to modernize technology and implement emerging technologies. Through CoEs for cloud and AI, DIR promotes cloud adoption, robotic process automation, machine learning, natural language processing, computer vision, and contact center technologies. DIR helps state agencies ensure that state websites, information, and services are accessible to people with disabilities. Also, DIR provides guidance and tools to ensure compliance with



statewide requirements for project management. Finally, DIR offers each state agency's Information Resource Manager the resources they need to collaborate with and report to DIR.

### **Communication Technology Services (CTS)**

DIR provides voice, data, wireless, video, and internet services to meet the needs of public-sector organizations. CTS provides voice services within the Texas Capitol Complex and voice services, data circuits, internet, and video services statewide through TEX-AN.

### **Texas State Library and Archive Commission (TSLAC)**

The mission of TSLAC is to ensure people have access to the information they need to lead informed, productive, and fulfilled lives. TSLAC supports the work of government by developing strategies at both the state and local level to guide in the maintenance, organization, and use of records and information needed to conduct operations and educational and economic activities. TSLAC oversees the preservation of archival state records in both print and electronic form, aids the operation of libraries statewide, procures electronic resources for Texans, and oversees statewide records management functions, including establishing legal retention periods for records.

TSLAC's State and Local Records Management division assists state and local officials with [training](#), resources, guidelines, and consultation to ensure that government information is stored, retained, and made accessible to the public. The agency is home to the [State Records Center](#) and provides many services include [digital imaging services](#) that can help agencies create digital records.

TSLAC's bulletins outline the laws, rules, standards, and best practices for local governments and state agencies in Texas. This includes state agency [requirements](#) for retention schedules and electronic records standards and procedures. TSLAC publishes The Texas Record [www.tsl.texas.gov/slrn/blog](http://www.tsl.texas.gov/slrn/blog).

### **Records Management Interagency Coordinating Council (RMICC)**

RMICC plays a significant role in the management of state government records. The council studies issues and identifies improvements for state records management. RMICC delivers a biennial report to the legislature with recommendations that include better support for information governance and electronic records management partnerships. See the RMICC website at <https://rmicc.state.tx.us> for more information.

## **Summary**

Texas digital government is improving the way agencies provide services to Texans. It allows employees to collaborate and be productive, whether working in an office or from home. It is creating efficiencies and facilitating a transition to digital services that will modernize Texas government in a post-pandemic world. During this next biennium, agency leaders should continue to strengthen policies and governance that improve this effort while prioritizing processes and services for transition to a more digital environment.

Leaders can build on the momentum created by the COVID-19 pandemic to accelerate the pace of cloud adoption, increase interest in AI, and further leverage utilization of emerging technologies. At a time when budgets are tight, technology projects must reduce costs and improve business decisions. This is also an opportunity for the public sector to focus on the policies needed to position state government for a robust digital ecosystem with greater connectivity, more seamless integration, and an improved customer experience for tomorrow.

## Glossary of Terms

**Agile.** A method of project management used especially for software development. Agile methodology is characterized by the division of tasks into short phases of work and frequent reassessment and adaptation of plans.

**Artificial Intelligence (AI).** The ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.

**Center of Excellence (CoE).** A team of skilled knowledge workers whose mission is to provide the organization they work for with best practices around a particular area of interest. The concept of creating special-interest groups for thought leadership originated in lean manufacturing.

**Cloud.** On-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user.

**Computer Vision.** An interdisciplinary scientific field that deals with how computers can gain high-level understanding from digital images or videos. From the perspective of engineering, it seeks to understand and automate tasks that the human visual system can do.

**Contact Center.** A contact center supports customer interactions across a range of channels, including phone calls, email, web chat, web collaboration, and the emerging adoption of social media interactions. It is distinct from telephony-only call centers.

**Continuity of Operations Plan (COOP).** Plans, procedures, training, and exercises that ensure a government organization can continue to perform its essential functions during the disruption of normal operations.

**Disaster Recovery as a Service (DRaaS).** A cloud computing and backup services model that provides a total system backup to protect applications and data in the event of a system failure.

**Digital Ecosystem.** A distributed, adaptive, open socio-technical system with properties of self-organization, scalability, and sustainability inspired from natural ecosystems. Digital ecosystem models are informed by knowledge of natural ecosystems, especially for aspects related to competition and collaboration among diverse entities.

**Digital Maturity Model.** A framework used to understand how digitally mature an organization is today, and to help build a roadmap for the future.

**Digital Transformation.** A strategic approach to the adoption of digital technologies to create new or improve existing processes, services, and customer experiences.

**Electronic and Information Resources (EIR) Accessibility.** Providing electronic information and services through multiple ways so that communication is not contingent on a single sense or ability.

**Information Resources Deployment Review.** State agencies are required by Texas Government Code, Section 2054.0965 to conduct an Information Resources Deployment Review (IRDR) every two years.

**Identity and Access Management (IAM).** A broad administrative area that establishes a unique identity for individuals and associates their established identity with user rights and privileges. It is an enterprise business strategy that governs the definition, storage, use, and management of identities.

**Incident Response.** The mitigation of violations of security policies and recommended practices.

**Machine Learning (ML).** Machine learning is the study of computer algorithms that improve automatically through experience. It is seen as a subset of artificial intelligence.

**Natural Language Processing.** A subfield of linguistics, computer science, and artificial intelligence concerned with the interactions between computers and human language focused on how to program computers to process and analyze large amounts of natural language data.

**Open Data Portal (ODP).** In Texas, the official central repository of publicly accessible electronic data that can be freely used, re-used, and redistributed by anyone.

**Project Management.** A system of procedures, practices, and technologies that provides the planning, organizing, staffing, directing, and controlling necessary to successfully manage a project.

**Project Management Practices.** Documented and repeatable activities through which a state agency applies knowledge, skills, tools, and techniques to satisfy project activity requirements. It includes practices such as project management methodologies, system development life cycle, program and portfolio management, and the use of automated tools to support the practices.

**Remote Work.** An alternative workplace arrangement in which employees do not commute or travel to a centralized place of work, such as an office building, warehouse, or store.

**Robotic Process Automation (RPA).** A digital enablement technology that predominantly leverages a combination of user interface and surface-level features to create scripts that automate routine, predictable data transcription work. In other words, it is a rules-based technology that uses software to automate repetitive tasks normally performed by humans to improve processes and gain efficiencies.

**Shared Technology Services.** Technology provided through a shared, collaborative governance model. Statewide shared services available through DIR's Shared Technology Services include data center, managed security, managed applications, and Texas.gov, the state's official website.