Georgia Annual State IT Report FY 2021

Georgia Annual State Information Technology Report FY 2021

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From the State Chief Information Officer

A successful technology enterprise must be both strong and flexible, able to stand firm and withstand challenges – such as a cyber-attack or pandemic – and, at the same time, nimbly adjust to accommodate constantly changing needs and circumstances. When that enterprise serves an entire state, the stakes are high. Citizens and the government agencies that serve them must be able to rely on the technology in place to make government more accessible, responsive, accountable, and secure.

Georgia's technology enterprise proved ready and resilient in 2021. Even as the COVID-19 pandemic continued, the state moved forward with initiatives to bolster state networks and strengthen security, while also meeting citizens' needs for information and services.

In July, I was honored to accept Governor Kemp's appointment as State Chief Information Officer and Executive Director of the Georgia Technology Authority (GTA). We are building on the strong foundation that has long made our state a national leader in its use of technology. In support of the IT enterprise, GTA has targeted several areas of emphasis:

- Promoting customer service and citizen engagement, using technology as a tool to help agencies improve operational efficiency.
- Strengthening the state's cybersecurity posture, redoubling efforts to stay ahead of cyber threats and equip agencies with tools and information.
- Aiding agencies in implementing transformational solutions, with an emphasis on migrating systems to the cloud.
- Improving digital solutions required for a modern work environment, with the tools and connectivity to support both at-home and in-office work.

We continue to maintain focus on serving Georgians, protecting state systems and data, and supporting state agencies in their use of technology. You will find more about those efforts, along with the state's technology accomplishments and activities, within these pages.

I hope you find the report informative and useful.

--Shawnzia Thomas

Purpose

When the Georgia Technology Authority (GTA) was created in 2000, the General Assembly charged GTA with compiling information from state agencies about their IT expenditures and presenting a report to state leaders every year. This charge was placed in state law (see O.C.G.A. 50-25-7.10). With comprehensive and accurate information, state leaders can make facts-based decisions about the allocation of limited state resources to support technology.

The Georgia Annual State Information Technology Report conveys the current state of technology in Georgia state government as assessed by the State Chief Information Officer (State CIO).

The report represents information technology for the state's executive branch agencies only, i.e., those reporting to the Governor. It does not address information regarding information technology matters related to the legislative branch, judicial branch, statewide constitutionally elected officeholders, or the University System of Georgia. Data used to create the report comes directly from executive branch agencies and enterprise systems of record. The data is compiled by GTA and reflects the efforts of the State CIO to improve the use of technology in supporting state government operations. The report contains the following major sections:

- From the State Chief Information Officer
- Executive Summary
- Cybersecurity
- Information Technology Vision and Strategy
- Georgia’s Approach to Broadband
- Information Technology Investment Management
- Technology Services
- Digital Services Georgia
- Georgia’s Information Technology Excellence
- Appendix

Executive Summary

Word is out – technology provides answers. Answers for some of the tough challenges state government faces in delivering services to constituents in today's world. Throughout FY 2021 and right up to the present, challenges seemed unrelenting. Fortunately, the state of Georgia was able to keep pace and even expand its capabilities, often helped by information technology services and solutions that enabled new ways of serving Georgians.

Across the full range of Georgia agencies and entities, **cybersecurity** had to be prioritized. Defending state systems and data became even more daunting as remote work grew widespread during the pandemic. That opened new opportunities for attackers who aggressively sought to capitalize. The state responded with enhanced security services and tools, expanded partnerships between the state's Office Of Information Security (OIS) and state entities, and cultivation of information sharing across varied cyber defenders. The Cybersecurity section of this report on page 15 outlines these efforts.

The State Government Systems Cybersecurity Board continued to coordinate with OIS (a component of GTA) to promote security best practices including multi-factor authentication adoption and security awareness training for state employees. These initiatives, as well as the unique resource the state boasts in its Georgia Cyber Center, are also discussed in the Cybersecurity section.

GTA coordinated with the Georgia National Guard and the Cyber Center to conduct another live-action cybersecurity exercise. This third annual Cyber Dawg exercise drew security professionals from Georgia agencies to the Cyber Center in Augusta to sharpen their skills in a simulated ransomware attack. The exercise is referenced on page 16.

GTA continues to advance **information technology governance and strategic planning** for the state. GTA updated processes to help ensure investments in IT generate business value while mitigating risks associated with IT implementations. Details are given in the Information Technology Vision and Strategy section on page 19. Strategic planning efforts included GTA's annual Technology/Strategy Summit held virtually in 2021 due to COVID-19. Summit details can be found on page 21.

The pressing need to expand **broadband** service to unserved locations in Georgia grew even more pronounced with developments in 2021 (the pandemic key among them). GTA continued to work closely with the Georgia Department of Community Affairs and other agencies and service providers toward this expansion. All parties are encouraged by the commitment of significant new federal funds toward broadband projects in the near future. That money can seed additional investment in the type of public-private partnerships expected to eventually erase "unserved" from sections of the Georgia Broadband Map. Debuted in 2020 and updated in 2021, the map continues to help guide broadband expansion efforts with its address-level broadband service availability information. The section starting on page 25 of this report describes the state's efforts to ensure more Georgians have access to broadband – now a key element not just in our daily lives, but in Georgia's economic future.

Tracking IT expenditures is one of GTA's statutory responsibilities. In FY 2021, agencies reported spending $686 million on IT infrastructure services, network services, application development and support, and related activities. The IT Investment Management section on page

29 explores these expenditures and how the state manages its technology investments. Spending details also appear in the Appendix on page 49.

GTA offers **high-quality technology services** from leading IT providers to state agencies through a public-private partnership. Capitalizing on this approach for more than a decade now, GTA provides a full range of managed network services and IT infrastructure services to 14 executive branch agencies, as well as a la carte services to many other agencies. The partnership continues to meet its original goals of consolidating IT infrastructure; securing state data and systems; and ensuring a modern, reliable, and recoverable operating environment. The Technology Services section on page 37 describes recent developments within the state's shared IT services program. It also references the **GTA Direct** program, which offers Georgia agencies, local governments, colleges and universities, and boards of education quick access to a range of IT services from leading service providers pre-qualified by GTA.

As it has since its debut in 2009, the state's shared IT services program (called **Georgia Enterprise Technology Services or GETS)** continued to evolve in 2021 to bring services that best meet agencies changing IT needs. Here as elsewhere, increased reliance on remote work and pandemic-related developments threw up challenges. Security considerations precipitated an accelerated implementation of multi-factor authentication as a requirement for accessing Office 365 applications including email. The refresh process for computers used by agency staff was enhanced to include a self-service option allowing remote workers to refresh (i.e., replace with new once every three years) their computer without needing to come to an agency office.

Evolution of computing best practices has more and more agencies considering cloud server services to replace on-premises computing at the state's data center. GTA looks to help guide agencies in that work and will develop a cloud computing migration strategy to promote successful transformations. GTA also anticipates further shrinking of the state's mainframe computing volumes as agencies modernize applications and potentially move them to other computing platforms.

The GTA Direct program added new customers and new services in FY 2021. Key among those service additions were expanded network services from a larger circle of leading network service providers like AT&T, Lumen (CenturyLink), Comcast Business, Kinetic by Windstream Enterprise, and Verizon. Updated hosted contact center services are also in the works. See details on page 40.

The **Office of Digital Services Georgia (DSGa)** runs GovHub, the state's digital platform which is home to dozens of state agency websites. As the state's official web-publishing platform, GovHub allows a consistent online experience for citizens seeking state government services and information. And it aligns with the state's digital compliance policy for ensuring accessibility and serving as a single source of consistent and accurate information across all of the state's various communication channels. Using GovHub capabilities, DSGa has continued to help state agencies make essential information (COVID-19 details, importantly, in FY 2021) available and accessible to Georgians. More broadly, DSGa manages digital strategy for agencies and elected officials to cultivate an effective digital presence for the state of Georgia. Read more about DSGa and the state's digital presence on page 43.

The state's bold modernization of its IT enterprise over the past decade and more have cemented a **national reputation for Georgia as a leader** in using technology to transform government operations. Several recent honors are highlighted in the section titled Georgia's Information Technology Excellence beginning on page 45. The National Association of State Chief Information Officers honored two Georgia projects in its highly respected NASCIO State IT Recognition Awards

for 2021. The **Georgia Department of Labor's identity verification project** was a first-place winner, and the **Georgia Broadband Map** earned finalist status. Separately, GTA's ROVER online application for requesting Georgia birth and death certificates received a Service to the Citizen award. And, in late 2020 Georgia earned its second consecutive letter grade of A, the highest ranking possible, in the **Digital States Survey**, which evaluates states' use of technology to improve service delivery, increase capacity, streamline operations, and reach policy goals.

Innovative technology projects across agencies are strengthening Georgia government's service to constituents. Several of these projects are highlighted starting on page 46. Here are a few examples:

- The **Georgia Department of Agriculture** developed the groundbreaking Agricultural Inputs (Ag Inputs) Division Electronic Inspection Platform. The platform streamlines the inspection process for the division's nearly 30 regulatory inspections and more than 10 sample collection forms for the state's feed, fertilizer, lime, seed, pesticide, soil amendment, and horticultural growing media programs.

- To discourage unauthorized access to unemployment insurance benefits, the **Georgia Department of Labor** instituted an identity authentication project. The first phase of this project, ID.me, encompasses federally certified identity verification and limits the risk of fraudulent claims being paid.

- In June 2019, the **Technical College System of Georgia (TCSG)** implemented an ERP platform to provide a flexible cloud enterprise technology solution for the economic development offices of its 22 member colleges. As a result, TCSG is enjoying an ERP capable of consolidating daily operational workflows, systems, and processes by way of a cost-effective solution with low administrative overhead.

As this report demonstrates, GTA remains committed and engaged as it partners with state agencies to take full advantage of technology to help make government more accessible, responsive, accountable, and secure.

Cybersecurity 2021

A Year of Old Foes, New Tactics, and Increased Cooperation

The abrupt shift to remote work in 2020 created a torrent of challenges for security professionals. Security systems and strategies designed primarily to support an on-premises workforce suddenly needed modification or enhancement. Recognizing an opportunity, adversaries aggressively upped their efforts to compromise systems and data in both the public and private sectors.

Bad actors also shifted tactics. Ransomware continued to be the primary threat, but the vector of attack and motives changed. Phishing emerged as the tool of choice. Adversaries tended to be less likely to stop at locking down computers for ransom. They made a deliberate shift to theft and sale (on the dark web) of critical data *before* executing ransomware attacks. Network defenders faced enormous pressure to improve detection capabilities and trim incident response times.

Supply chain security also demanded fuller attention over the past year. The much-publicized SolarWinds compromise impacted thousands of organizations and highlighted how an attack on commonly used tools potentially multiplies the damage across more victims.

What does it all mean for Georgia's cybersecurity posture and the way forward?

Fortunately, and unfortunately, our experiences with ransomware didn't begin in 2021. Defense and response plans built in the last couple years have paid big dividends for the state. Incidents continued to increase this year, but we were able to resolve them at a much lower severity level. That lowered the impact to operations and service delivery for affected agencies. It's thanks to increased compliance, continued investment in monitoring, and increased collaboration across all agencies to address issues and gaps. That teamwork extends to our partners in the procurement community to address supply chain security for technology we rely on daily for network defense.

Achievements below from 2021 illustrate the great strides the state of Georgia is making in cyber defense. It's enabled by a group of dedicated government professionals with a strong desire to serve our state and nation in cybersecurity.

Managed security services continue to make important capabilities available to state agencies.

SOC and SIEM offer centralized, 24/7 security monitoring and proactive response to any threats to help keep them from spreading. In 2021, we onboarded the AIsaac Cloud platform system. The Atos AIsaac platform is a cloud-native solution with hybrid and multi-cloud support. AIsaac combines award-winning artificial intelligence for cybersecurity, proven high-performance computing, and innovations in edge AI.

Improvements in security incident response—specifically in end-user-compute (EUC) protection and email protection—have led to fewer SEV1 or SEV2 security incidents and more resolution at the SEV3 level. This has been achieved even with increased security activity and attacks.

In 2021, a major integration took place by setting up imports into the Atos VMS System where AT&T data is imported daily into the Atos Tenable.SC system. Work orders for issues to be fixed are generated via this system and sent to the relevant service provider. Additionally, we migrated EUC devices to cloud agent handler offerings to limit risk to data.

AT&T physically installed new firewalls, switches, and load balancers as a first step in modernizing the state's data center network. Security enhancements include a richer feature set for firewall services in the data center using DNS-based firewall policy construction (versus pure IP-based), malware inspection, and integrated IPS services.

NTT DATA improved the McAfee enterprise solution for endpoints. All agencies participating in the GETS program have implemented Threat Prevention, Exploit Prevention, ATP, Web Control, TIE, and MAR. NTT DATA also upgraded to MEM (Microsoft Endpoint Manger), improving automated delivery of operating system and Office patching, including delivery to internet-only-facing devices managed under GETS.

GTA's Office of Information Security facilitated responses for state and local government agencies hit by ransomware attacks in 2020. Such incidents continue to result from spear-phishing emails and poor cyber hygiene in internet-facing systems. OIS, in cooperation with GEMA/HS and the GISAC, continues to facilitate evaluation of local reported incidents and provide recommendations for next steps. This successful partnership and process received significant support from the legislature and the Governor's office with the passage of **HB156**, requiring incident reporting by government entities and managers of certain critical infrastructure. When appropriate, OIS facilitates a handoff to the Georgia National Guard Cyber Protection Team and partners with the DOD to improve incident response processes. OIS has developed its own incident response capability, enabling OIS to directly respond to incidents impacting executive branch agencies. This means significant cost savings for the state.

GTA's OIS also coordinated the third annual **Cyber Dawg** exercise in cooperation with the Georgia Cyber Center and the Georgia National Guard. The five-day, multi-agency security training exercise aimed to sharpen cybersecurity skills across a multitude of tools agencies can use in their IT environments. This year's event drew 60 participants from 20 organizations. State agencies participated, as did Argentina and the Eastern European country of Georgia via the Georgia National Guard's State Partnership Program.

With new funding allocated in 2020, GTA OIS continued **IT security assessments** to determine the state's overall cybersecurity risk posture. Assessments are part of ongoing operations, and findings are reviewed by the State Government Systems Cybersecurity Board, which sets statewide priority for addressing recommendations for closing gaps. Security assessments resumed in 2021 and will expand toward a goal of agencies being assessed every three years.

Continuous vulnerability management is the cornerstone of any information security program. In 2021, OIS completed rollout of the BitSight Technologies platform to all executive branch agencies at no cost to them. For the first time, the state has the capability to identify vulnerabilities in internet-facing infrastructure in real time. Already it has proved its worth by preventing attacks on our infrastructure or limiting their damage. Another aspect of this effort is the Vulnerability Disclosure Program, endorsed by the Cyber Board and approved by the GTA Board of Directors to allow internet researchers to test systems for vulnerabilities simple scanning cannot detect. Through the disclosure program, more than a dozen issues have been remediated – issues that otherwise would have been unknown, potentially resulting in a major incident.

The **State Government Systems Cybersecurity Board** reviews the cybersecurity of executive branch agencies to identify risks, promote best practices, and audit for cybersecurity training compliance. The board is chaired by the Governor's Technology Advisor and includes the Adjutant General, the State Chief Information Security Officer from GTA, the Director of the Georgia Bureau of Investigation (GBI), the Director of the Georgia Emergency Management and Homeland Security

Agency (GEMA/HS), and the Executive Director of the Georgia Cyber Center at Augusta University. In 2021 the board's efforts included: 1) increased mock phishing campaigns for state personnel, 2) support for the adoption of MFA across the enterprise, 3) support of improvements in supply chain security, and 4) support of centralized vulnerability scanning across all agencies.

The **Georgia Cyber Center** at Augusta University is the nation's single largest investment in a cybersecurity facility by a state government. The $100 million, state-owned facility is a unique public/private collaboration among academia, state and federal government, law enforcement, the U.S. Army, and the private sector. It is equipped to keep up with the changing face of cybersecurity and provides needed focus in key areas:

- Education and training for agencies, the military, and the private sector
- Incubation of new security ideas
- Research and development with an emphasis on cyber defense
- IT security information sharing among Georgia agencies, homeland security, and the private sector
- Public-private partnerships for cybersecurity innovations
- The **Georgia Cyber Range** helps strengthen the stability, security, and performance of cyber infrastructure. It is available to students, industry, and government professionals for education and training, product development, offensive activity and competition, detection and defensive competition, response and recovery, and evaluation and benchmarking. This capability is used in the annual Cyber Dawg exercise and is being positioned to support multiple annual events to train even more cyber professionals.
- The **GBI Cyber Crime Unit** allows law enforcement professionals throughout the state to take advantage of the GBI's expertise in digital forensics.

The Cyber Center positions the Augusta community and the state of Georgia as the nation's leader in the critically important field of cybersecurity.

Information Technology Vision and Strategy

Georgia's vision for information and communications technology is captured in the *Georgia Enterprise IT Strategic Plan 2025*, the latest update to the state's assessment of issues influencing which technology solutions agencies will deploy in the years ahead. The plan was published in May 2017 with an updated edition published in FY 2022. The updated vision is accessible online at https://gta.georgia.gov/it-strategic-plan-2025.

The state reviewed its technology vision this year, given the dramatic impact of the COVID-19 pandemic on normal business operation. In most cases, Georgia's response to the pandemic has not affected the long-term view of how technology will enable strategic objectives. However, it has shifted priorities and led to achieving some objectives earlier than expected. These achievements resulted from compressing schedules for high-priority technologies, and no significant delays in any objectives are anticipated. A full review of the Enterprise IT Strategic Plan is scheduled for spring 2022.

The plan is intended to aid Georgia government leaders in making informed technology decisions. It defines IT focus areas and goals and sets the technology direction for the state's IT enterprise.

The Enterprise IT Strategic Plan does not replace the business-oriented strategic plans of individual state agencies but provides a look ahead to help them align their technology with the direction established for the state's IT enterprise.

In developing and maintaining the state's IT vision, GTA collaborates with technology leaders throughout Georgia state agencies to understand their business priorities and gathers insights from other states and the private sector to leverage proven technologies. This work identified the following long-term IT priorities:

- Ensuring cybersecurity for Georgia's agencies, citizens, and businesses
- Managing a growing pool of data to support state decision makers
- Taking advantage of proven technologies to improve interactions between government agencies and constituents
- Evolving the portfolio of shared technology services to ensure agency access to the best services at competitive prices
- Partnering with the private sector to bring the latest innovative technologies to bear on the state's business problems

Information Technology Governance Continuously Improved

GTA continues to advance its information technology governance processes by annually assessing the effectiveness and strategic alignment of the existing Policies, Standards and Guidelines (PSG) exemption process.

The primary goals of the PSG exemption process are to assure that investments in IT generate business value, while mitigating the risks that are associated with IT implementations. Recent revisions to the PSG process now require agencies to detail the implementation, operating, and maintenance costs that would be incurred during the first three years of the solution lifecycle.

This requirement provides agencies and their leadership with a true cost of ownership and detailed insight to known and unknown risks that may exist. The process also provides valuable data to the enterprise on how to position existing cloud brokerage offerings now available through GTA. The cloud brokerage offerings, along with the revised PSG exemption process, allow state agencies to make IT decisions with a clear understanding of the associated risks and how GTA can assist in mitigating them.

Strategic Planning

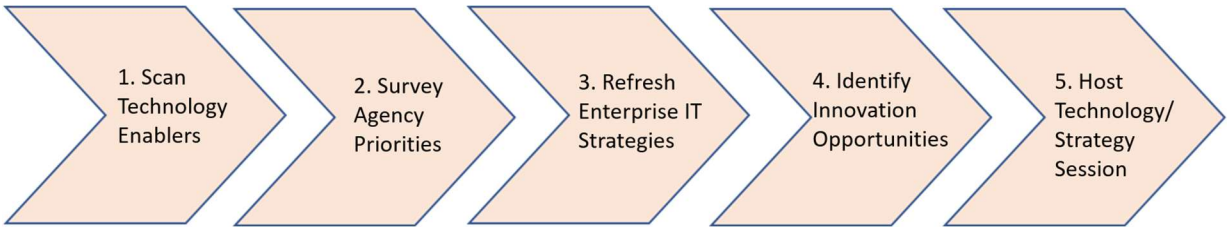
The goal of IT strategic planning is to help agencies make better use of technologies that support their business needs and the Governor's vision for Georgia. During FY 2020, agencies aligned their IT strategies with Governor Kemp's stated initiatives and their underlying priorities (https://gov.georgia.gov/about-us/initiatives-and-priorities):

- Make Georgia number one for small business
- Reform state government
- Strengthen rural Georgia
- Put Georgians first

Georgia's IT Strategy Cycle

The IT strategy cycle is a framework for supporting Georgia agencies in their effective and efficient use of technology to achieve the Governor's vision. A collaborative environment where agencies recognize shared objectives and work together to achieve greater enterprise benefits is key to success. GTA serves as a facilitator in identifying common needs, as a technology guide in identifying technology-enabled business strategies that have proven successful in other organizations, and as an advocate for agency solutions that show promise for the enterprise.

The Strategy Cycle is comprised of the following five components:



Environmental Scan for Technology

Technology scanning is a continuous process of gathering information about how technology may help Georgia state agencies meet their objectives. It identifies what is relevant and shares appropriate findings through periodic reports and presentations. Effective new uses of technology are incorporated into the annual update of the Georgia Enterprise IT Strategic Plan.

GTA relies on numerous sources for information about new business uses of technology, including Gartner, the National Association of State Chief Information Officers (NASCIO), and the Center for Digital Government.

In addition, GTA monitors a broad range of publications and participates in professional organizations and national summits, conferences, and symposia targeting the effective application of technology to business problems.

Survey Agency Priorities

GTA places high value on understanding agency business needs and continues to review agency strategic plans, conduct agency surveys, and hold regular meetings with agencies to ensure a clear picture of the business objectives that drive technology needs. In addition to one-on-one meetings with agency leaders, the State Technology Annual Report Register (STARR) is used to conduct an annual IT strategy survey of all agency CIOs or IT directors.

Refresh Enterprise IT Strategy

As mentioned in the opening section, the Georgia Enterprise IT Strategic Plan provides a vision of future technology use and establishes focus areas for the state's IT enterprise in a multi-year look ahead. It guides agency IT leaders in choosing new technology solutions that align with the state's enterprise IT vision and direction.

Identify Innovation Opportunities

GTA continues to recognize agency successes in using technology to deliver services in new and better ways. Top innovations are recognized at the annual Georgia Digital Government Summit. Examples of these successes can be found beginning in the section titled **Technology Innovation Showcase** on page 46.

GTA works closely with and supports the Governor's Office and the Office of Planning and Budget (OPB). GTA works with OPB to leverage technology in support of business process improvements identified each year by OPB. GTA provides leadership in identifying and adopting proven technologies to solve pressing government issues.

Host Technology/Strategy Summit

GTA's annual Technology/Strategy Summit was held as a virtual event in 2021 due to the COVID-19 pandemic. The summit, which features presentations by subject matter experts from leading technology companies, is directed toward both business leaders and technology professionals within state agencies. The agenda for the 2021 summit included a diverse and dynamic group of speakers and panelists who provided in-depth insights as well as actionable and practical tools in cybersecurity, digital disruption, and more.

- Cybersecurity expert John Sileo, CEO of a cyber think tank, shared his cautionary tale about falling victim to cybercrime. He shared his own experience to encourage organizations to make sure their cybersecurity culture is robust enough to stand up to today's widespread remote work, increased reliance on online services, and ever-present cyber threats.

- Daryl Plummer, a Gartner distinguished fellow dug deep into digital disruption during his remarks, and he gave us his top strategic predictions for 2021 and beyond.

- Mark Keith of Merlynn Intelligence Technologies teamed with Emory University professor Dr. Karl Kuhnert to discuss "cloning" human wisdom and using artificial intelligence to create "digital twins" for an organization's key decision makers.

- Greg Sparrow of CompliancePoint shared insights from his wide-ranging cybersecurity work spanning the payment card industry, healthcare, banking, retails, transportation, and even professional sports.

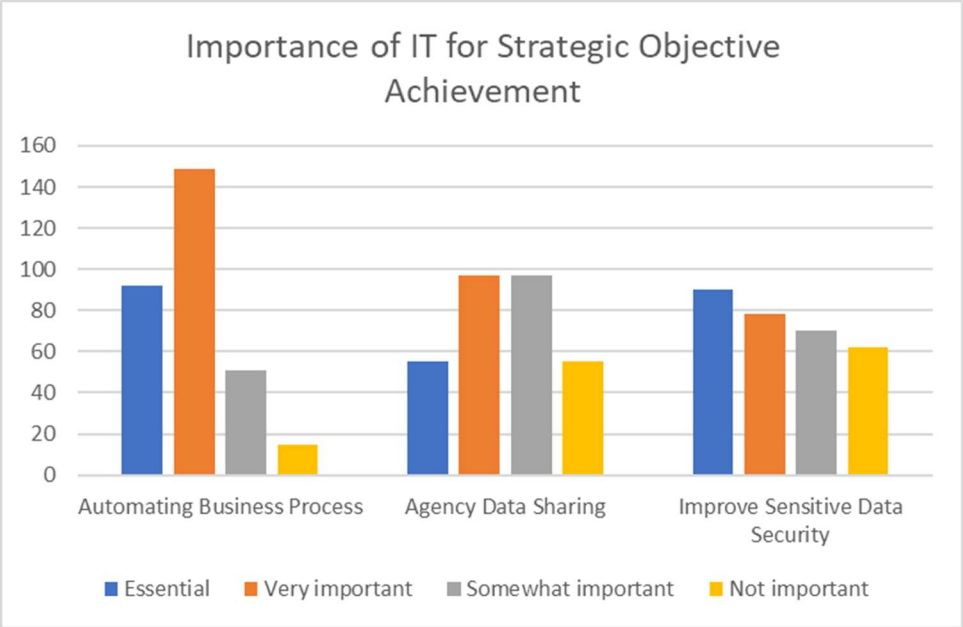
Strategic Planning Survey – 2021 Results

GTA continued its annual survey of agency CIOs in 2021 to better understand how agencies depend on IT to meet their strategic objectives. Data from agencies is carefully analyzed and used to inform GTA's efforts to leverage innovations in a rapidly changing technology environment and ensure better support for state operations. Agency data is also used to update the Georgia Enterprise IT Strategic Plan.

The 2021 IT strategy survey focused on individual agencies' strategic objectives. It asked agencies to rate the importance of information technology in supporting their activities in the following areas:

- Automating or improving business processes
- Sharing information or data with other agencies
- Improving the security of sensitive information

Respondents from 42 agencies identified more than 200 IT-dependent strategic objectives. The top three uses of technology in enabling agency strategic plans were: process automation, agency data sharing, and improved data security. Responses are summarized in the following bar graph.


Importance of IT for Strategic Objective Achievement
160
140
120
100
80
60
40
20
0
Automating Business Process
Agency Data Sharing
Improve Sensitive Data Security
Essential
Very important
Somewhat important
Not important

Georgia's Approach to Broadband

In a year unlike any other, broadband has become widely appreciated as critical 21st century infrastructure … connecting students and teachers, patients and physicians, families, and communities. Too many Georgians, however, still lack access. Since 2018, the Department of Community Affairs (DCA) and Georgia Technology Authority (GTA) have championed the state's broadband efforts with a singular purpose: to bring high-speed internet access to unserved Georgians.

Recently, the **National Governors Association** (NGA) published a white paper on *Governor Strategies to Expand Affordable Broadband Access.* This report highlighted Georgia's location-based broadband availability mapping as a best practice. Indeed, **Georgia's broadband map is regarded as the new gold standard.** Georgia can be proud that its state broadband program had in place every element identified in the NGA best practices, including cross-cutting governance structures, strategic partnerships, and grant funding frameworks.

Collaboration is a hallmark of the Georgia broadband program. The involvement of private and public sector leaders, as well as numerous state agencies, is envied among other state broadband programs. Provider participation has enabled the program's success to date. Similarly, community involvement – including public funding – is important. This is especially true when the conversation expands beyond profit-driven solutions (which have shaped the current landscape) to community-oriented solutions that ensure broadband service for those who remain unserved.

Over the past 18 months, public-private partnerships have yielded investment to serve thousands of new locations, both residential and business. **In 2021, 9.1 percent of locations in Georgia remain unserved – improved from 10 percent the prior year.** However, 482,374 locations still lack access to high-speed broadband, so there is much work yet to be done.

Provider Engagement

The state broadband program is focused on ensuring that entire communities are served. Accomplishing this community-driven approach is complex, and providers play an essential role. Private providers offer experience and knowledge of technology, network engineering and deployment, as well as operations and maintenance of the broadband network.

In 2018, an advisory committee was formed to aid Georgia's broadband deployment efforts. A representative group of providers, local governments, electric cooperatives, and state agencies have worked collaboratively for three years. The sustained commitment of **ACCG, AT&T, Comcast, Windstream, Georgia Cable Association, Georgia Economic Developers Association (GEDA), Georgia EMC, Georgia Cities (GMA), Georgia Telecom Association**, as well as **DCA, GTA, and the Georgia Department of Transportation (GDOT),** is unique among state broadband programs. This collaboration has contributed to streamlining local ordinances, developing the broadband availability map, designing a state grant framework, as well as valuable insights on various state and federal policy matters.

Inter-Agency Coordination

Addressing the digital divide also involves coordination across numerous state agencies. The Georgia broadband program has regularly convened state agencies to share information, strategize, and develop deployment initiatives. Active participants include DCA, GTA, and GDOT, as well as the Departments of Education and Public Health, University System of Georgia, Technical College System of Georgia, Georgia Emergency Management Agency, State Properties Commission, and Department of Economic Development.

The broadband project activity across agencies is extensive. Ongoing projects include rethinking education models and extending the concept of "campus" to include entire communities. Issues such as NexGen 911 and broadband workforce development are on the collective radar. All of these remain focal points of the Georgia broadband program. The following examples highlight a few ways these relationships have proven instrumental, particularly during the pandemic.

Student Connectivity & Remote Learning (Department of Education)

In March 2020, 1.8 million public school students, 120,000 teachers, and 50,000 school administrators were challenged to shift to digital learning overnight. To aid student connectivity, Governor Kemp allocated $30 million from the Governor's Emergency Education Relief (GEER) funds to the Department of Education (DOE).

Immediately, DOE engaged the broadband team to determine how to best allocate funds. Leveraging broadband availability data to precisely identify who is and is not served, the broadband team identified **135,756 unserved student households**.

The broadband team also assisted with expanding home access to broadband for students residing in multi-family housing and other low-to-moderate income areas. After identifying more than 49,000 students residing in low-income housing, the broadband team leveraged data from other DCA programs to assist DOE in targeting and engaging landlords to deploy solutions to serve these unserved students.

Georgia's robust broadband data facilitated targeted assistance and deployment of connectivity solutions such as mobile wi-fi rangers, expansion of school bandwidth, placement of wi-fi antennas, and other at-home connectivity solutions.

Connecting County Health Departments (Department of Public Health)

At the onset of the pandemic, many Georgians were unable to access hospitals and physician offices, and instead were driven to use telehealth resources. It was quickly apparent that those lacking broadband access suddenly lacked the ability to access routine and specialized healthcare. The Department of Public Health (DPH) engaged the broadband team to help equip all 159 county health departments with high-speed connectivity, in order to enable patient access. Leveraging relationships with internet service providers, Georgia Broadband quickly convened providers from each unique geography, and was ultimately able to bridge the digital divide among patients by enabling access to local health departments via telehealth resources.

Affordable Housing Development (Department of Community Affairs)

The Georgia Broadband team works with other divisions of DCA, including the Housing Finance Division. In 2020, the broadband team facilitated the inclusion of a broadband element in Georgia's Qualified Allocation Plan (QAP). The QAP dictates the allocation of low-income housing tax credits for developers to construct affordable, multi-family housing. This change helps to ensure that new affordable housing developments or renovations are equipped with fast and robust broadband capability.

Disaster Recovery and Mitigation – CDBG (DCA, GTA, GEMA)

In 2017 and 2018, Georgia was impacted by a series of natural disasters that were particularly devastating to southern parts of the state. In 2020, HUD provided Community Development Block Grant (CDBG) disaster recovery funds to address unmet needs that were a result of these disasters, as well as to mitigate future losses. These funds are competitively awarded to address local priorities.

To analyze communications infrastructure across all 15 eligible counties, the Georgia Broadband program successfully competed for and received $750,000. A partnership with GTA and the Georgia Emergency Management Agency (GEMA), this project will result in a guide to inform local and state officials and help drive investment decisions to address infrastructure gaps and to leverage existing assets to improve network resiliency, particularly as it relates to public safety and disaster response.

Georgia Broadband Availability Map

In June 2020, Governor Kemp released the inaugural Georgia Broadband Availability Map. It set a new gold standard in broadband mapping. Georgia became the first state to map broadband availability at the street-address level.

The Broadband Availability Map uses a location-level methodology that precisely maps access to broadband at every home and business in Georgia. The map is created by overlaying the location of every home and business in the state with provider service availability records. In total, more than 5 million locations are mapped, including data contributed and verified by 44 retail broadband service providers.

This map is updated annually, with the full participation of Georgia's 44 retail internet service providers. The Georgia broadband team, including an exceptional team at UGA's Carl Vinson Institute of Government, is in regular contact with all providers, including multiple touch points throughout the year to ensure data accuracy. This initiative truly would not be possible without the strong collaboration of the provider community.

Improved mapping and data more accurately demonstrate the need and urgency to solve the digital divide. Our state's work in this arena has earned broad recognition. National outlets have commended Georgia's effort to create an accurate, granular depiction of who does and does not have service.

The 2021 Broadband Availability Map depicts large areas of the state that remain unserved. Of **Georgia's 482,374 unserved locations**, nearly 75 percent are in rural Georgia. This fact is clearly apparent on a statewide map.

It is noteworthy that public attention and public-private investment does have an impact. Since last year, the number of unserved locations has declined by roughly 25,000. Considering a significant

number of new locations in a growing state, this yields a full percentage point (1.0%) improvement year over year. However, a significant number of Georgians still lack quality broadband access.

The benefits of Georgia's enhanced methodology, especially over preexisting federal maps that consider a census block served if only a single location can receive service, have been touted by many. The National Governors Association now cites accurate broadband mapping as a recognized best practice. "The Georgia initiative's 2020 map showed significantly more areas of the state lacked broadband coverage than had been identified by the 2019 FCC Form 477 map."

In August 2020 – just months after the launch of the Georgia Broadband Map – the President signed the Broadband DATA Act directing the FCC to collect more granular, precise coverage data. Congress allocated $65 million in December for the FCC to develop an enhanced mapping methodology. It is too early to determine the timeline for rolling out new federal coverage maps; therefore, the state will maintain its mapping initiative to equip state and local officials, providers, and community leaders to make effective, need-based decisions about broadband investment.

Visualizing Broadband Availability & Other Data Sources

The Georgia Broadband Availability Map empowers state, local, and departmental leaders with granular, accurate broadband availability data that has proven paramount in quickly and effectively deploying connectivity solutions to populations that need broadband the most.

The Carl Vinson Institute of Government is an important partner to the Georgia Broadband program. In addition to producing the annual Georgia Broadband Map, CVIOG helps the broadband team provide specialized support to local communities.

Cost Analysis and Mapping

The Georgia Broadband team has conducted cost analysis for the entire state and has determined the average capital cost for each of the 291,086 census blocks based on fiber to the home and fixed wireless technologies. Typically, the more locations in a census block the lower the average cost. Larger census blocks with fewer locations that are more dispersed generate the highest cost blocks. Census blocks can be grouped into low, medium and high cost for further analysis when considering changes to government funding contribution for broadband projects to reach the higher cost locations.

Uses of Georgia Broadband Availability Map

- Accurately identify unserved areas
- Stimulate private investment and prioritize limited public funding
- Assist communities, providers, and funders who seek to address the issue of broadband connectivity
- Improve public policy and funding decisions
- Support cost analysis, deployment, and other initiatives aimed at bridging the digital divide
- Prevent use of public funds to overbuild, or duplicate service
- Provide a baseline for evaluating progress of broadband deployment to serve the unserved

Information Technology Investment Management

The state of Georgia spends a large sum of money every year on information technology, including services, equipment, applications, personnel, software licensing, development, and maintenance. However, determining exactly how much is spent, where the money goes, and what taxpayers are getting in return can be difficult to report on in the aggregate. Coupled with this challenge is the need to better understand whether Georgia is receiving or could receive greater value for the dollars invested in information technology. This is likely to be a continuing challenge due to the rapid changes in technology each year.

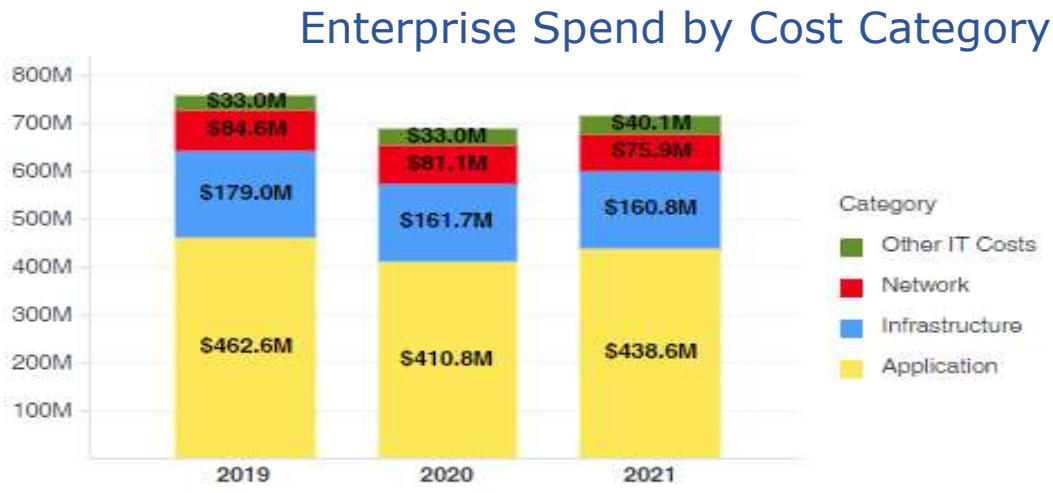
The General Assembly has charged the Georgia Technology Authority (GTA) with compiling information from executive branch agencies about their IT expenditures and presenting a report to state leaders every year (O.C.G.A. 50-25-7.10). With comprehensive and accurate information, state leaders can make facts-based decisions about the allocation of limited state resources to support technology.

GTA uses the State Technology Annual Report Register (STARR) to collect data about IT expenditures from executive branch agencies. Information is requested in the categories of application, infrastructure, network, other IT costs, and projects.

The state has a more comprehensive understanding of the cost of infrastructure and network services than it does for applications. Infrastructure and network services are provided through the Georgia Enterprise Technology Services (GETS) program. Under GETS, Georgia can measure consumption and value through detailed reporting for all agency users of infrastructure and network services.

Enterprise IT Spend

The following graph depicts the most comprehensive summary available of IT expenditures by infrastructure, network, application, and other IT costs in FY 2019, FY 2020, and FY 2021.



Fiscal Year	Application	Infrastructure	Network	Other IT Costs	Total
2021	$438,610,810	$160,760,494	$75,892,313	$40,090,083	**$715,353,701**
2020	$410,812,881	$161,733,991	$81,072,530	$32,995,414	**$686,614,816**
2019	$462,557,755	$179,037,593	$84,597,646	$32,980,207	**$759,173,201**

Agency Participation in IT Expenditure Reporting

A total of 46 agencies submitted a report.

Complete listings of the agencies reporting and their expenditures are in **Appendix A** and **Appendix B**. The agencies listed in Appendix A with NR in the "Reported 2021" column did not submit reports because:

- The agency no longer exists.
- Its expenditures were included in the report from an agency to which it is administratively attached.
- The agency is attached to one of the state's constitutional agencies, which are exempt from filing the report.

In addition to constitutional agencies, other state entities with large IT budgets are not required to report their IT expenditures, including the University System of Georgia.

IT expenditures increased in FY 2021

Participating agencies spent over **$715 million** on technology in FY 2021, more than the **$686 million** reported in FY 2020. Several agencies increased their IT spend by incurring additional application costs. The difference in spending is attributable to:

- More accurate application costs captured in the application inventory.
- More accurate IT full-time equivalent and IT contractor costs.

GTA continues working with agencies to increase both the quantity and quality of data received.

Annual Investment Strategy Sessions

GTA's investment strategy sessions in FY 2021 included agency decision makers in business, operations, and finance. The agenda was targeted to increase awareness of the challenges associated with technology investments while also providing tools and best practices for a variety of investment scenarios. The information gathered in these sessions provides the baseline for annual reporting on Planned New Investments as shown on page 33.

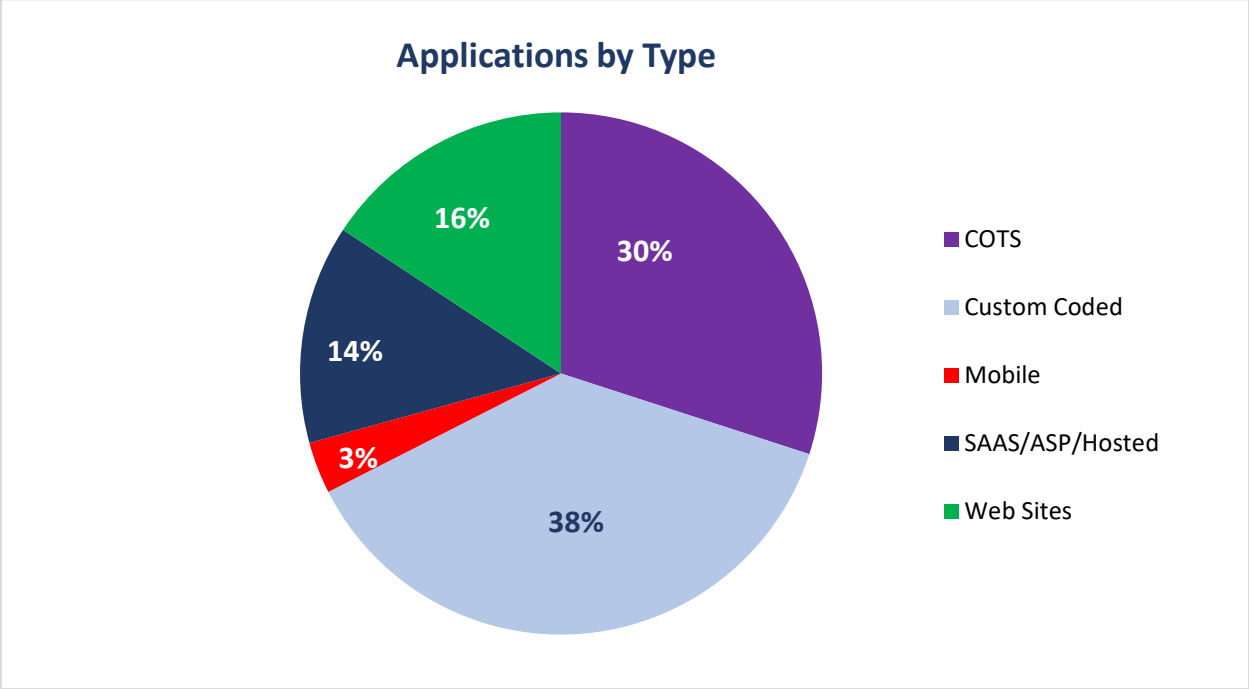
Procurement Reviews

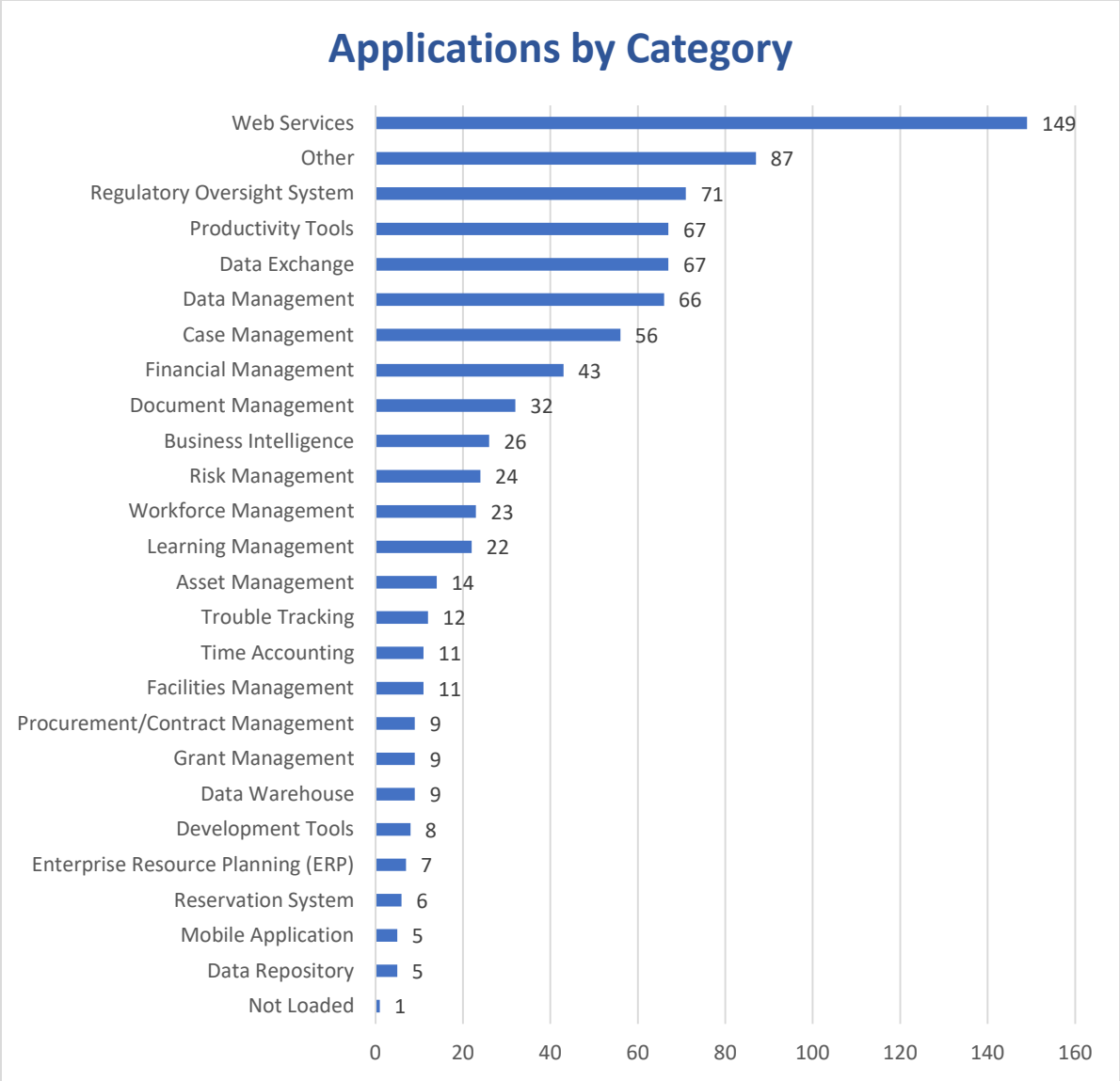
GTA enhanced the procurement review process to provide more proactive support as agencies plan for large investments.

GTA's procurement review process continues to provide valuable feedback as agencies navigate complex Requests for Proposal (RFPs) and provider service agreements. Over the past year, GTA reviewed more than 12 sets of procurement documents, including RFPs, Requests for Information (RFIs), Scopes of Work (SOWs), and contracts representing approximately $143 million in investments.

IT Application Portfolio

The state's IT application portfolio included 840 applications in FY 2021, an increase of 268 since FY 2013. The following graph shows the number and percentage of applications by type:





Applications by Category (840 Applications)

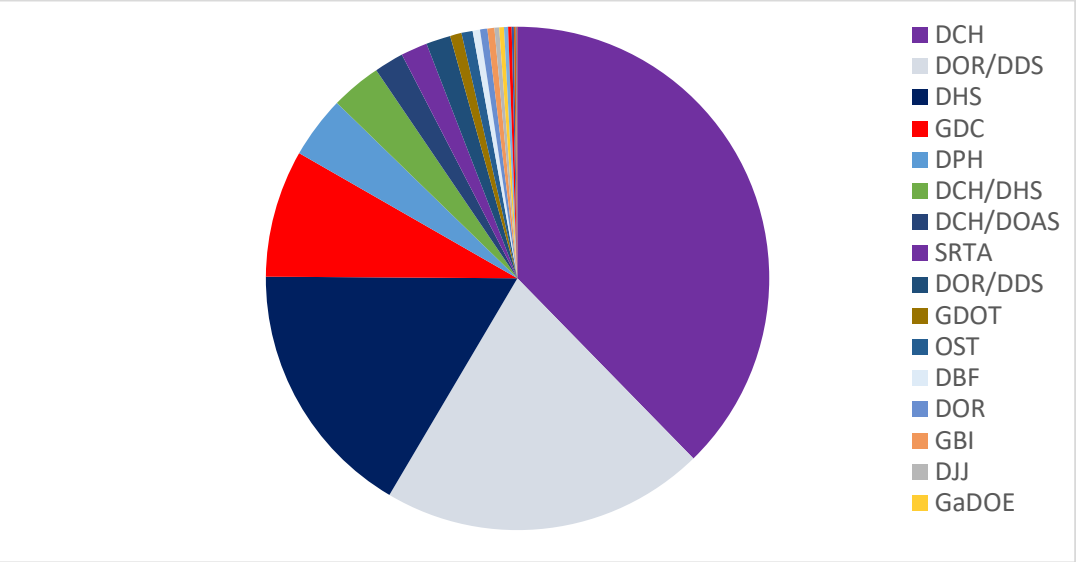
The graph above shows the number of applications by category.

Note: These applications were categorized by the reporting agency based on definitions provided by GTA. Many applications are accessible on mobile devices, but they are not categorized as mobile-only applications.

Investments by Agency

The total portfolio of in-flight and planned projects is $876 million. The FY 2021 active project portfolio of $525 million shows a decrease from FY 2020, primarily due to the large health care initiatives that have been implemented and greater accuracy in planning estimates. The FY 2021 portfolio is tracking more than 56 active projects in 20 agencies, with several projects spanning multiple years. In addition to the active projects, several large projects totaling $351 million are in the planning phase.

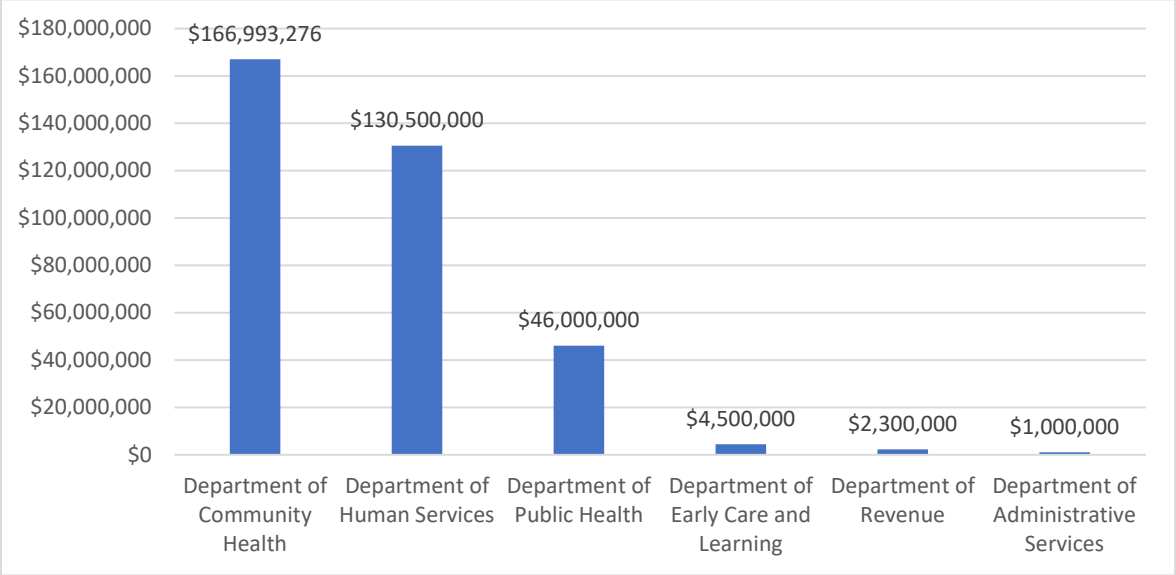
The following chart/graph depicts each agency's percentage of the total budget for all active projects.



Dept of Community Health	$198,000,000	37.7%
Dept of Revenue/Dept of Drivers Services	$117,768,763	22.4%
Dept of Human Services	$87,246,142	16.6%
Dept of Corrections	$43,059,354	8.2%
Dept of Public Health	$20,952,710	4.0%
Dept of Community Health/Dept of Human Services	$16,983,391	3.2%
Dept of Community Health/Dept of Administrative Services	$10,000,000	1.9%
State Road and Tollway Authority	$8,893,951	1.7%
Dept of Transportation	$3,933,125	0.7%
Office of the State Treasurer	$3,702,141	0.7%
Dept of Banking and Finance	$2,500,000	0.5%
Dept of Revenue	$2,471,895	0.5%
Georgia Bureau of Investigation	$2,356,620	0.4%
Dept of Juvenile Justice	$1,631,975	0.3%
Dept of Education	$1,548,500	0.3%
GA Government Transparency & Campaign Finance Comm	$1,394,918	0.3%
Dept of Behavioral Health	$1,171,349	0.2%
Secretary of State	$800,000	0.2%
Dept of Administrative Services	$574,346	0.1%
Technical College System of Georgia	$350,000	0.1%
Dept of Community Affairs	$168,373	0.0%
Georgia Firefighters Pension Fund	$81,132	0.0%
	$525,669,815	

Planned New Investments by Agency

The following graph depicts the several large projects totaling $351 million that are in the planning phase.



Department of Community Health	$166,993,276
Department of Human Services	$130,500,000
Department of Public Health	$46,000,000
Department of Early Care and Learning	$4,500,000
Department of Revenue	$2,300,000
Department of Administrative Services	$1,000,000
	$351,293,276

Project Delivery Effectiveness

Critical Project Review Panel

The monthly reviews of the Critical Project Review Panel continue to have a positive impact on the success of the monitored projects. The panel limits its reviews to the most critical projects in the state's portfolio. For FY 2021, the critical project portfolio was valued at $484 million and encompassed 22 projects in 12 agencies.

The information below puts into perspective the value and benefits of portfolio management and oversight.

Without disciplined project management, the eight projects completed, with a value of $186 million, would have delivered only 77% of the functionality originally planned.

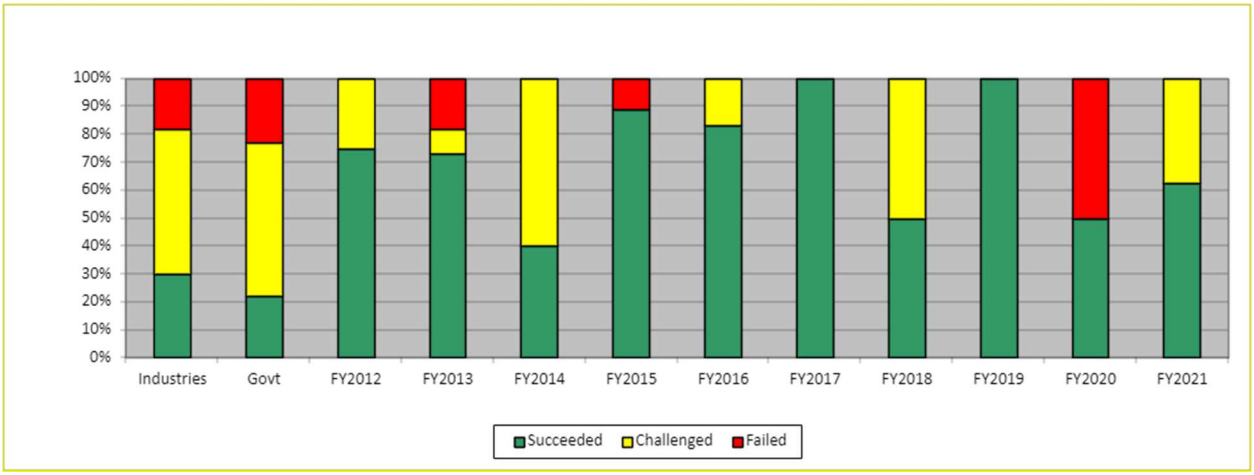
Applying industry statistical information (based on the Standish Group's 2020 CHAOS Report) to our completed projects that reported to the Critical Panel Review yields the following results:

23% of projects would be cancelled = $42.9 million

55% would cost 189% of the original estimate = $193.8 million

22% would be successful with no cost increase = $41.0 million

The chart below displays how the state of Georgia compares to government and industry metrics compiled for the Standish Group's 2020 CHAOS Report for technology projects. It measures only critical IT projects that were completed in each fiscal year. The chart indicates a significant increase in successful projects from FY 2020 to FY 2021. Of the 22 projects in the critical project portfolio, eight large projects were completed this year.



Technology Services

Georgia's Unique Approach

For more than a decade now, GTA has offered technology services through a public-private partnership. It's a method that allows delivering top-quality services from leading IT companies like AT&T, NTT DATA, Unisys and others. GTA follows this model to provide a full range of managed network services and IT infrastructure services to a core set of 14 agencies in the state's executive branch, as well as a la carte services to many other agencies. The managed technology services approach aligns directly with Governor Kemp's strategic goal to **"Expand public-private partnerships and leverage technology to best utilize limited state resources."** Georgia has demonstrated a viable alternative to states developing and delivering technology services themselves, and other states have paid close attention.

The partnership continues to meet its original goals of consolidating IT infrastructure; securing state data and systems; and ensuring a modern, reliable, and recoverable operating environment. In its first 10 years it also produced **cost reductions of $379 million**, more than double the original estimate.

Over 100,000 workers spread across more than 1,200 state and local government locations received managed network services through the partnership in FY 2021. In addition, the partnership provided 40,000 state workers with IT infrastructure services while hosting 54,000 e-mail accounts and managing 2,500 servers. The state's storage environment offered 2.5 petabytes of storage space (a petabyte equals one quadrillion bytes).

Georgia uses a cyclical five-stage procurement process to contract for technology services from leading private-sector providers. The resulting plug-and-play model allows for quick response to agencies' changing business needs. It ensures competitive pricing and a readiness to capitalize on market innovation by regularly rebidding services. It makes it easy to expand the types of services and the number of service providers to meet demand. It's also easy to replace service providers when warranted. By utilizing the world-class skill set of the selected providers, Georgia is able to stay current with technological progress while containing costs and reducing risk in the state's IT environment.

To better manage service delivery and ensure consistency, the state applies the same business processes across all technology service providers. A strong governance structure benefits from regular involvement of agencies in defining business needs and in other aspects of the procurement process.

Using the state's five-stage process, GTA has competitively rebid managed network services, mainframe, print and mailroom/courier, end user computing, and server services in recent years. Re-procurements reduced overall costs and added several new service providers, while also producing numerous service enhancements. Cost savings enabled procurement of managed security services as an entirely new service line to help address fast-growing security needs.

Network Services

Network services, among the state's most extensive technology offerings, include WAN, LAN, WLAN, telephony and remote worker access services. Voice services include long distance, business access lines, audio and video conferencing, Centrex, voice over IP, and other telecommunications services. AT&T won a new contract with the state in 2021 and continues to provide network services as it has since the shared IT services program started. These services are used by many local governments, in addition to state agencies.

During FY 2021; spurred by widespread remote work across the state's work force, GTA enhanced the SSL VPN remote access platform which now serves some 40,000 staff. In coordination with AT&T, a new enterprise SSL VPN load balancer solution was implemented to increase the availability of the SSL VPN system.

End User Computing Services

As provider of end user computing (EUC) services, NTT DATA focuses on the computers on state workers' desks and the technicians who help with any computer problems. EUC also encompasses anti-virus and encryption software, network printers, software license management, and regularly scheduled refreshes of laptop and desktop computers and network printers.

The refresh cycle, so important to the reliability and security of the state's computing environment, was challenged but undeterred by the abrupt shift to remote work in 2020. In 2021, a much-anticipated self-service EUC refresh option has been introduced that removes need to be in an agency office with a technician to perform the refresh. Both self-service and in-office refresh options continue to feature automated refresh notifications, appointment scheduling, reminders and completion acknowledgements. And complementing the refresh program is an EUC hardware depot that enables delivery of most standard EUC catalog items within five business days.

Other key EUC-related developments during FY 21 include:

Data Loss Prevention Endpoint (DLPe) software controls what data can be copied to removable devices or controls the devices themselves. It can block devices completely or make them read-only. It provides comprehensive protection for all potential data loss channels, including removable storage devices, the cloud, email, instant messaging, web, printing, clipboard, screen capture, and file sharing applications.

NTT DATA now makes this service available to agencies to gain visibility into data used in the EUC environment and to understand how users and data traverse the network. This equips agency administrators to make informed decisions on how to stop data loss. DLPe can also be used for its extensive reporting and investigation features in the event of a data leakage/loss.

Global supply chain issues that arose during the COVID-19 crisis created lingering challenges for delivery of EUC devices such as laptops. NTT DATA has worked on behalf of the state to stay ahead of this. Among other successes, delivery of more than 2,200 laptops to new Department of Public Health contact tracers was achieved.

Server Services

While physical and virtual servers in the state's data center continue to be essential, increasingly, state agencies also capitalize on **cloud-based server services**. GTA supports those efforts by offering managed cloud server services. GTA anticipates agencies will further expand their reliance on cloud computing, so GTA is exploring additional cloud service options to address those needs.

Greater flexibility and quicker delivery are among the appeals of cloud computing. Standardization of server types – whether cloud, virtual or physical – has also significantly trimmed delivery time by fashioning new servers from an existing standard blueprint.

In coordination with Unisys, which provides server services within the state's IT shared services program, GTA complements these offerings with identity and directory management, disaster recovery, and storage services. Identity and Access Management (IAM) refinements continue to be made, and in 2021, the state made real inroads with implementation of multi-factor authentication (MFA) for Microsoft Office 365 services including email. **This provides a more secure environment for the state's Office 365 customers.**

GTA, in coordination with Unisys, has also begun offering a Windows Virtual Desktop (WVD) solution to GETS agencies. Several are piloting WVD. It uses the Microsoft Azure Virtual Desktop product, and Unisys layers on top the integration and management services. Virtual desktop offers a scalable, secure, and productive remote work experience for any device with a modern web browser.

For enhanced ability to backup and restore applications in the Azure service, Unisys has implemented a CommVault Backup Agent server in Azure. This provides agencies the same backup and restore self-service opportunities available in the state's data center.

In the first half of FY 2021, GTA and Unisys worked with several agencies to introduce chatbots to deal with surging constituent requests for COVID-19 information. The chatbot solutions were delivered very quickly as they leverage cloud provider bot services.

Mainframe Services

IT services company Atos provides mainframe services. Mainframe processing continues at the state's North Atlanta Data Center (NADC), though at lesser volumes as agencies modernize applications and move some off mainframe platforms. Storage and virtual tape systems are also maintained at the NADC, and a backup mainframe environment has been established at an Austin, Texas, data center.

Several critical mainframe software components were upgraded in the last fiscal year. These included the Z/OS operating systems and the Customer Information Control System (CICS), the system that provides online transaction management and connectivity for applications on mainframe systems. The DB2 database system, the ChangeMan version control system, and COBOL programming language on the mainframe were also upgraded.

A newer, more efficient processor was installed, and the Microprocessor without Interlocked Pipelined Stages (MIPS) architecture was re-tooled to suit the workload and reduce cost.

In close coordination with mainframe users, additional encryption was implemented to enhance security. A mainframe application assessment was completed to build understanding of the longer-

term effort to move off the mainframe. And, software no longer needed was removed to save on mainframe costs.

Print and Mailroom/Courier Services

Xerox continues to provide state agencies not only enhanced print services, but also print-to-mail (mailroom) and courier services from the Capitol Hill Mailroom in Atlanta's Twin Towers building. Customers can print, package, and mail, all through one provider and a single, streamlined process.

Xerox works with agencies to optimize and reduce the cost of print services. They've collaborated with both the State Accounting Office (SAO) and the Employee's Retirement System (ERS) to move printing checks and 1099 forms off the mainframe. Similar optimization continues with SAO (W2 forms) and Teacher's Retirement System (checks, 1099s).

Xerox has also added envelope manufacturing to their services and is developing scanning and other content management services.

Office 365 Services

GTA offers messaging and collaboration services through Microsoft 365 within the Microsoft Government Cloud. GTA's Office 365 offering provides compliance with federal requirements for cloud services, including FedRAMP High, and requirements for criminal justice and federal tax information systems. These cloud-based SAAS services include Exchange Online, Exchange Online Protection, Microsoft Office 365 applications for the Enterprise, One Drive for Business, Teams and SharePoint Online. The service supports 54,000 state email accounts and offers state agencies competitive pricing.

Disaster Recovery (DR) Exercise

The state cannot wait for a convenient time to perform a live DR exercise. So, even with all the pressing business brought by COVID-19 in 2020 and 2021, the Georgia Enterprise Technology Services (GETS) teams made substantial improvements to the DR environment and completed a successful 2021 **disaster recovery exercise** in October. It helps ensure that DR continues to be a GETS priority. Participating agencies in 2021 included the Department of Human Services, Department of Juvenile Justice, Department of Administrative Services, Georgia Bureau of Investigation, Georgia Department of Corrections and GTA. GETS server services provider Unisys played a central role, in collaboration with GTA and GETS service providers AT&T, Atos and Capgemini. All recovery objectives were met, with recovery accomplished in less time and more completely than in previous years.

GTA Direct Services

The GTA Direct program provides access to a range of managed IT services for Georgia agencies, local governments, public and not-for-profit colleges and universities, and boards of education statewide. GTA qualifies the pool of vendors and provides governance over the service contracts, while agencies purchase the services directly from the providers and manage the vendor relationships themselves.

In the past year, the program saw several **notable developments**:

- Continued to provide an efficient procurement process allowing agencies to purchase IT services from GTA-qualified suppliers that understand regulatory requirements government entities must meet.
- Increased services sold across the GTA Direct portfolio by eight percent over the previous year.
- Released a request for proposal (RFP) for hosted contact center services that will better serve today's needs and incorporate additional suppliers.
- Developed a supplier scorecard to monitor contractual governance across all service offerings.
- Added 14 new network services contracts while renewing seven existing contracts.
- Counted among its customers Department of Education, which capitalized on GTA Direct services to provide broadband access for students.

Services offered through GTA Direct include:

- Broadband Connections
- Conferencing
- Data Circuits for Wide Area Networking
- Dedicated Internet Circuits
- Disaster Recovery
- End User Computing
- Hosted Contact Center
- Inside Cable/Wiring
- Mainframe
- Managed Print
- Managed Security
- Managed Wi-Fi
- Oracle Products and Services
- Public Switched Telephone Network (PSTN) Voice
- Server and Storage
- Software Compliance and Software Professional Consulting
- Telecommunications
- Unified Communications
- Wireless Communications Devices and Services

Digital Services Georgia

The Office of Digital Services Georgia (DSGa) manages digital strategy for state agencies and elected officials to cultivate a mature digital presence and constituent-centric service delivery. The focus of DSGa expands GTA's view of the technology landscape from larger systems to granular interactions. The state offers both through various delivery channels and consumer devices. Constituents access state digital properties through newer channels like voice assistants and chatbots that did not exist just two years ago. To be able to serve this need, DSGa enables an omni-channel approach, keeping information and data consistent and centralized.

DSGa oversees a very robust web environment. In 2020, the DSGa team completed the development of the GovHub Digital Content Management System. The platform supports 86 state websites. Some of the stats for the GovHub are very impressive. Last year, the platform had 323 million page views from 52 million users. 151 million sessions occurred as a result. The most visited website was https://georgia.gov/. It had 16 million pageviews from 7.5 million users. 9.7 million sessions occurred from that traffic.

DSGa launched the Georgia Analytics Program (GAP) for state agencies. The program provides transparency on how people interact with government sites and applications. When the usability, accessibility, and overall performance can be quantified and measured, we can take meaningful steps to improve the digital experience for citizens. We launched the Analytics Dashboard in 2021 with agencies participating to a total of 84 sites and applications. Seventy of the websites have improved or maintained their score to meet the state benchmark score. The GAP dashboard is available at https://analytics.georgia.gov. DSGa continued to mature and grow its training and educational offerings in 2021 with the launch of a learning management system (LMS), as well as continuing to offer live training webinars. DSGa provides training and educational instruction to agency site editors. DSGa trainers conducted 22 webinars and developed 20 modules of content in the LMS. The training helps agency editors to better navigate the GovHub content management system affiliated digital tools. DSGa also educates agencies through blogs and has published 35 blog posts this year on a wide range of topics, including content strategy, accessibility, and the importance of customer feedback.

GOVTalks is an annual conference that DSGa hosts for state agencies in Georgia. In 2021, the focus was on digitally maturing the state's sites and the actionable steps agencies may take to improve the experience for Georgians. DSGa held the conference virtually in April 2021 with attendees from 43 agencies.

DSGa has kicked off the Digital Center of Excellence, a statewide effort to bring agency participation to promote adoption of best practices across the state's digital landscape. This community of public and private sector professionals will share knowledge and experiences, as well as contribute to the state's Digital Standards and Guidelines. The current participation of members comes from state agencies, content strategy firms, public health agencies, and universities.

Georgia's Information Technology Excellence

The state of Georgia has taken bold steps to modernize its IT enterprise over the past decade. In doing so, it has earned a national reputation as a leader among states in the use of technology to transform government operations. At the same time, Georgia's pioneering approach to partnering with world-class technology companies has become a model for other governments. The following accomplishments and honors from 2020 and 2021 document Georgia's continuing successes.

Georgia Shines in Digital States Survey 2020

Good news from the latest report card - the state of Georgia earned a grade of A, the highest score possible, in the 2020 **Digital States Survey**. Not only that, but Georgia also ranked among the top three states in the Leadership category.

What does it take to get this A? Digital States criteria say it indicates a state that is demonstrating "strong innovation, high performing solutions with verifiable impacts across all categories. Excellent practices have been applied in all aspects of operations, governance, and administration."

States are judged every two years by the Center for Digital Government, a national research and advisory institute focused on information technology policies and best practices in state and local governments. Over the last nearly 25 years, the center has evaluated states' use of technology to improve service delivery, increase capacity, streamline operations, and reach policy goals. Each state is then assigned a letter grade based on quantifiable results.

Georgia's A marks its second consecutive top score going back to the 2018 survey. The state earned an A- in 2016. Georgia shared the A status in 2020 with only four other states: Michigan, Missouri, Ohio, and Utah. That is select company to be in. It reinforces Georgia's status as one of the nation's leading states in the use of technology to serve its citizens and improve government efficiency.

The category of Leadership gauges a state's technology strategy on consistency and support of the governor's priorities, as well as effectiveness of collaboration with agencies on programs, planning, and policies.

Georgia boasts recognition in NASCIO IT awards

The Georgia Department of Labor (DOL) identity verification project received a first-place award in the National Association of State CIOs (NASCIO) State IT Recognition Awards. DOL integrated the ID.me identity verification software into their unemployment insurance benefits payments system in early fall 2020. It enhanced fraud detection capabilities and helped DOL speed processing of verified claims, getting much-needed relief into the hands of Georgians.

Georgia's broadband map was named a finalist in the awards. The interactive online map was created collaboratively among the Georgia Department of Community Affairs, Georgia Technology Authority, and Carl Vinson Institute of Government at the University of Georgia.

ROVER earns Service to the Citizen™ Award

GTA's Request Official Vital Event Records (ROVER) service was selected as a winner of the 2021 Service to the Citizen™: Champions of Change Awards in the State and Local Government category. The ROVER service enables the online ordering of certified copies of Georgia birth and death certificates. Orders are fulfilled by the Georgia Department of Public Health (DPH) Office of Vital Records. The goal of the Service to the Citizen™ Awards is to recognize public servants who demonstrate excellence in their delivery of services that positively influence constituents' lives.

Technology Innovation Showcase

The Georgia Technology Authority has announced the honorees of the 2021 Technology Innovation Showcase, selecting seven projects that display innovative uses of technology that enable agencies to better meet constituent expectations for services and information, improve operating efficiency, and conserve tax dollars.

Ag Inputs Division Electronic Inspection Platform

Georgia Department of Agriculture

Out of a recent partnership with Mi-Corporation, the Georgia Department of Agriculture (GDA) developed the groundbreaking Agricultural Inputs (Ag Inputs) Division Electronic Inspection Platform. The platform streamlines the inspection process for the division’s nearly 30 regulatory inspection and more than 10 sample collection forms for the state’s feed, fertilizer, lime, seed, pesticide, soil amendment, and horticultural growing media programs. In addition, the GDA Ag Inputs Division Electronic Inspection Platform promotes increased communication between field staff and program managers and quicker analysis of inspection results.

Contract Management and Vendor Connect

Georgia Department of Behavioral Health and Developmental Disabilities

The Georgia Department of Behavioral Health and Developmental Disabilities (DBHDD) Contract Management and Vendor Connect program is a comprehensive enterprise application that offers DBHDD and its partners greater visibility into the contract workflow. The program makes the contracting process transparent through the centralized Contract Management Application (CMA) and Vendor Connect (VC). The applications contain single sign on capabilities, workflow management tools, contract approval tracking and visibility, and more, using user-friendly, web-based .NET apps. Ultimately, it allows DBHDD to better manage their network of providers and vendors who serve Georgia constituents.

Intelligent Mail Bar Code

Georgia Department of Driver Services

Failure to pay child support, appear in court, or respond to a traffic citation are all reasons that the Georgia Department of Driver Services (DDS) can suspend a constituent's driver's license. Early in 2020, DDS prioritized a more cost-efficient way to send these suspension notices, and the Intelligent Mail Bar Code helps meet this goal. The barcode leverages a 65-bar USPS barcode used to track mail, routing codes, a mail identifier (MID), a unique serial number strategy, and reporting with USPS to address several opportunities for increased efficiency, improved service, and enhanced delivery of driver's license suspension notices.

Identification Authentication

Georgia Department of Labor

To mitigate the risks related to unauthorized access to UI insurance, DOL instituted an identity authentication project. The first phase of this project, ID.me, encompasses federally certified identity verification, including flagging applicants that are unbanked, have no credit, and more, while simultaneously blocking evident fraud. Based on these flags, DOL directs individuals to verify at the ID.me hosted landing page (HLP), and if DOL receives the "all clear" results back from ID.me, the department can remove any flags on the account and process payments quickly.

Perceptive Content

Georgia Department of Transportation

Every month, the Georgia Department of Transportation (DOT) receives thousands of invoices from their vendors. Some of that invoice processing took place manually, taking 15 to 25 days to complete - until DOT made AP process automation a priority. To do that, DOT launched a software known as Perceptive Content. The initiative resulted in a standard eight days to process an invoice, no more paper receipts for payments on purchase orders, no more voucher summary forms for payments on contracts payable invoices, and more.

The Dual Enrollment Funding Application

Georgia Student Finance Commission

The Dual Enrollment Funding Application, part of the GAfutures enterprise, was developed in .NET with an Oracle database. Through the new streamlined process of enrolling high school students in

college courses, all parties use the same interface to transfer information among stakeholders. The system has a universal view, allowing users to view application status and next steps. In the first year, 59,000 Georgia high school students successfully registered and were approved for funding for 155,000 college courses. This new process also brought online dual enrollment funding applications for over 2,500 home study students whose process previously was entirely manual.

Economic Development Systems, Student, and Industry Management Enterprise Resource Planning (ERP)

Technical College System of Georgia

In June 2019, the Technical College System of Georgia (TCSG) implemented an ERP platform to provide a flexible cloud enterprise technology solution for its 22 member colleges economic development offices. As a result, TCSG is enjoying an ERP capable of consolidating daily operational workflows, systems, and processes by way of a cost-effective solution with low administrative overhead. Most importantly, the Economic Development Systems, Student and Industry Management ERP is a system that provides ease of use for employees while delivering optimization of activities that results in positive client experience journeys.

Appendix

Appendix A: Agencies Reporting IT Expenditures

#	Agency Name	Reported 2019	Reported 2020	Reported 2021
1	Administrative Office of the Courts	NR	NR	*
2	Atlanta Regional Commission	NR	NR	NR
3	Board of Regents	*	*	*
4	Brain & Spinal Injury Trust Fund Authority	✓	✓	✓
5	Council of Criminal Court Judges	*	*	*
6	Council of Juvenile Court Judges	*	*	*
7	Community Service Boards	NR	NR	NR
8	County Health Departments	NR	NR	NR
9	Court of Appeals	*	*	*
10	Criminal Justice Coordinating Council	✓	✓	✓
11	Department of Administrative Services	✓	✓	✓
12	Department of Agriculture	✓	*	*
13	Department of Audits	*	*	*
14	Department of Banking and Finance	✓	✓	✓
15	Department of Behavioral Health and Developmental Disabilities	✓	✓	✓
16	Department of Community Affairs	✓	✓	✓
17	Department of Community Health	✓	✓	✓
18	Department of Community Supervision	✓	✓	✓
19	Department of Corrections	✓	✓	✓
20	Department of Defense	✓	✓	*
21	Department of Driver Services	✓	✓	✓
22	Department of Early Care and Learning	✓	✓	✓
23	Department of Economic Development	✓	✓	✓
24	Department of Education	✓	✓	✓
25	Department of Human Services	✓	✓	✓
26	Department of Juvenile Justice	✓	✓	✓
27	Department of Labor	✓	✓	*
28	Department of Law	*	*	*
29	Department of Natural Resources	✓	✓	✓
30	Department of Public Health	✓	✓	✓
31	Department of Public Safety	✓	✓	*
32	Department of Revenue	✓	✓	✓
33	Department of Transportation	✓	✓	✓
34	Department of Veterans Services	✓	✓	*
35	Employees' Retirement System	✓	✓	*
36	Georgia Board for Physician Workforce	NR	NR	NR
37	Georgia Building Authority	✓	✓	✓
38	Georgia Bureau of Investigation	✓	✓	✓
39	Georgia Commission on Equal Opportunity	*	*	*

#	Agency Name	Reported	Reported	Reported
		2019	2020	2021
40	Georgia Commission on the Holocaust	NR	NR	NR
41	Georgia Correctional Industries	*	*	*
42	Georgia Council for the Arts	NR	NR	NR
43	Georgia Development Authority	*	*	*
44	Georgia Drugs and Narcotics Agency	*	*	*
45	Georgia Emergency Management Agency	✓	✓	✓
46	Georgia Environmental Finance Authority	✓	✓	✓
47	Georgia Firefighter Standards and Training Council	*	NR	✓
48	Georgia Firefighters Pension Fund	*	*	✓
49	Georgia Forestry Commission	✓	✓	✓
50	GA Gov Transparency & Campaign Finance Comm.	NA	NA	*
51	Georgia Lottery Corporation	*	*	*
52	Georgia Peace Officer Standards & Training Council	*	✓	*
53	Georgia Peanut Commission	NR	NR	NR
54	Georgia Ports Authority	*	*	*
55	Georgia Professional Standards Commission	*	*	*
56	Georgia Public Broadcasting	✓	✓	✓
57	Georgia Public Defenders Council	*	✓	*
58	Georgia Public Safety Training Center	✓	✓	✓
59	Georgia Public Service Commission	*	*	*
60	Georgia Public Telecommunications Commission	NR	NR	NR
61	Georgia Real Estate Commission & Appraisers Board	*	*	*
62	Georgia Seed Development Commission	NR	NR	NR
63	Georgia State Financing and Investment Commission	✓	✓	✓
64	Georgia Student Finance Commission	✓	✓	✓
65	Georgia Technology Authority	✓	✓	✓
66	Georgia Vocational Rehabilitation Agency	NR	*	*
67	Georgia World Congress Center Authority	✓	✓	*
68	General Assembly	*	*	*
69	Governor's Office of the Child Advocate	NR	NR	NR
70	Governor's Office of Highway Safety	*	*	*
71	Governor's Office of Student Achievement	✓	✓	✓
72	Jekyll Island State Park Authority	*	*	*
73	Lake Lanier Islands Development Authority	✓	✓	✓
74	Nonpublic Postsecondary Education Commission	*	*	*
75	Office of Commissioner of Insurance	✓	✓	✓
76	Office of Inspector General	✓	✓	✓

#	Agency Name	Reported 2019	Reported 2020	Reported 2021
77	Office of Planning and Budget	✓	✓	✓
78	Office of State Administrative Hearings	✓	*	✓
79	Office of State Treasurer	✓	✓	✓
80	Prosecuting Attorneys' Council	*	✓	*
81	Secretary of State	✓	✓	✓
82	State Accounting Office	✓	✓	✓
83	State Board of Pardons and Paroles	✓	✓	✓
84	State Board of Workers' Compensation	✓	✓	✓
85	State Properties Commission	✓	✓	✓
86	State Road and Tollway Authority	✓	✓	✓
87	Stone Mountain Memorial Association	*	*	*
88	Subsequent Injury Trust Fund	✓	✓	✓
89	Superior Courts of Georgia	*	NR	NR
90	Teachers' Retirement System	✓	✓	✓
91	Technical College System of Georgia	✓	✓	✓
*	Cost data through the Georgia Enterprise Technology Services (GETS) program			

NR in the "Reported 2019, Reported 2020, Reported 2021" column indicates that the agency did not submit a report because:

- The agency no longer exists.
- Its expenditures were included in the report from an agency to which it is administratively attached.
- The agency is attached to one of the state's constitutional agencies, which are exempt from filing the report.

Appendix B: Agency IT Expenditures (Required to Report)

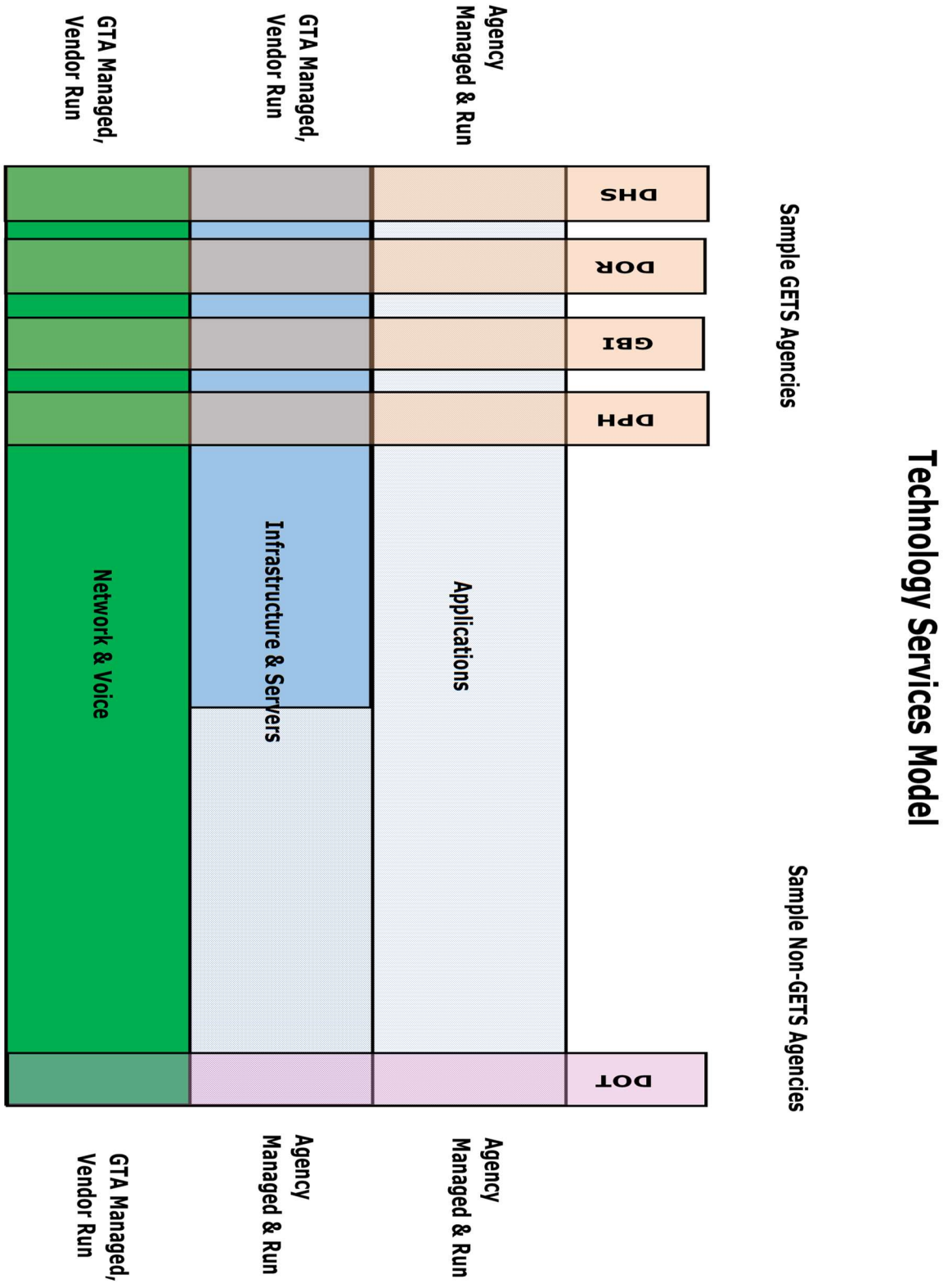
#	Agency Name	2021 IT Spend
1	Administrative Office of the Courts	$77,549.29
2	Brain & Spinal Injury Trust Fund Authority	$42,337.04
3	Council of Juvenile Court Judges	$5,148.00
4	Court of Appeals	$80,992.26
5	Criminal Justice Coordinating Council	$1,523,415.20
6	Department of Administrative Services	$10,631,663.33
7	Department of Banking and Finance	$1,524,883.20
8	Department of Behavioral Health and Developmental Disabilities	$34,986,032.47
9	Department of Community Affairs	$8,442,380.01
10	Department of Community Health	$87,455,997.88
11	Department of Community Supervision	$7,612,293.01
12	Department of Corrections	$30,019,397.92
13	Department of Defense	$3,842,092.26
14	Department of Driver Services	$21,000,865.38
15	Department of Early Care and Learning	$19,897,395.45
16	Department of Economic Development	$744,915.89
17	Department of Human Services	$105,404,327.64
18	Department of Juvenile Justice	$20,323,393.58
19	Department of Natural Resources	$11,586,783.93
20	Department of Public Health	$42,209,998.19
21	Department of Public Safety	$12,667,354.28
22	Department of Revenue	$41,298,310.72
23	Department of Transportation	$45,592,891.77
24	Department of Veterans Services	$709,494.91
25	Employees' Retirement System	$3,252,877.27
26	Georgia Government Transparency & Campaign Finance Commission	$239,000.00
27	General Assembly	$136,004.51
28	Georgia Aviation Authority	$15,874.99
29	Georgia Board for Physician Workforce	$0.00
30	Georgia Building Authority	$1,904,337.70
31	Georgia Bureau of Investigation	$16,266,953.24
32	Georgia Commission on Equal Opportunity	$17,916.96
33	Georgia Correctional Industries	$34,447.80
34	Georgia Development Authority	$1,787.52
35	Georgia Drugs and Narcotics Agency	$55,627.65
36	Georgia Emergency Management Agency	$1,119,706.11
37	Georgia Environmental Finance Authority	$621,587.00
38	Georgia Firefighter Standards and Training Council	$0.00
39	Georgia Firefighters Pension Fund	$148,598.90

#	Agency Name	2021 IT Spend
40	Georgia Forestry Commission	$1,919,615.33
41	Georgia Lottery Corporation	$801.36
42	Georgia Peace Officer Standards & Training Council	$84,366.00
43	Georgia Peanut Commission	$4,448.04
44	Georgia Ports Authority	$337,856.92
45	Georgia Professional Standards Commission	$1,404,507.33
46	Georgia Public Broadcasting	$1,910,374.00
47	Georgia Public Defenders Council	$564,787.42
48	Georgia Public Safety Training Center	$1,737,421.03
49	Georgia Real Estate Commission & Appraisers Board	$31,893.04
50	Georgia State Financing and Investment Commission	$1,588,687.04
51	Georgia Student Finance Commission	$4,674,121.00
52	Georgia Technology Authority	$27,532,462.02
53	Georgia Vocational Rehabilitation Agency	$2,024,362.49
54	Georgia World Congress Center Authority	$2,841,281.96
55	Governor's Office of Highway Safety	$57,477.66
56	Governor's Office of Student Achievement	$3,731,475.72
57	Jekyll Island State Park Authority	$76,245.47
58	Lake Lanier Islands Development Authority	$24,346.02
59	Nonpublic Postsecondary Education Commission	$600.00
60	Office of Inspector General	$46,557.30
61	Office of Planning and Budget	$2,467,427.94
62	Office of State Administrative Hearings	$716,906.24
63	Office of State Treasurer	$1,404,745.20
64	Governor’s Office of the Child Advocate	$605.85
65	Prosecuting Attorneys' Council	$1,460,409.63
66	State Accounting Office	$21,113,748.57
67	State Board of Pardons and Paroles	$538,083.71
68	State Board of Workers' Compensation	$1,878,141.16
69	State Properties Commission	$147,855.20
70	State Road and Tollway Authority	$5,053,755.75
71	Stone Mountain Memorial Association	$4,461.84
72	Subsequent Injury Trust Fund	$155,246.76
73	Teachers' Retirement System	$3,743,190.00
74	Technical College System	$53,322,054.44
	Sub-Total	$674,094,952.70

Appendix B: Agency IT Expenditures (Not Required to Report)

#	Agency Name	2021 IT Spend
1	Board of Regents	$0.00
2	Council of Juvenile Court Judges	$5,148.00
3	Court of Appeals	$80,992.26
4	Department of Agriculture	$1,870,481.96
5	Department of Audits	$4,996.53
6	Department of Education	$13,608,536.26
7	Department of Insurance	$2,655,899.24
8	Department of Labor	$14,598,082.45
9	Department of Law	$199,097.69
10	Georgia Public Service Commission	$82,356.66
11	Secretary of State	$8,239,297.21
	Sub-Total	$41,344,888.26

Appendix C: Georgia's Managed Technology Services Model



Georgia Technology Authority
47 Trinity Avenue, S.W.
Atlanta, Georgia 30034
gta.georgia.gov