2018–2020

LEAD
COLLABORATE
INNOVATE

STATEWIDE STRATEGIC **INFORMATION TECHNOLOGY** PLAN

admin

THE SOUTH CAROLINA DEPARTMENT *of* ADMINISTRATION

Henry McMaster
Governor

A Message from South Carolina Governor Henry McMaster

Elected leaders are stewards of the public trust, and as such must be tireless advocates for good government and efficient management of taxpayer dollars.

For the last two years, our state has worked diligently to create such efficiencies by consolidating and streamlining our information technology (IT) apparatus through the use of shared services for all state agencies. We have made great progress, learning from our collective experiences and working together to better serve the citizens of South Carolina. Not only have we made strides to enhance security – we are also achieving cost savings.

So far, we have identified and implemented: a 10 percent cost reduction for Division of Technology (DTO) Storage; an 82 percent cost reduction for DTO Archive Storage; a 25 percent cost reduction per server for DTO Server Management; and, a 19 percent cost reduction per server for DTO Virtual Servers. Altogether, these reductions will result in overall savings of $800,000 during the next year.

This is just the beginning. A 2017 analysis found $14.25 million in annual savings which can be achieved through brokerage of inter-agency shared services contracts, such as K-12 internet. Beyond savings, the IT shared services model is expected to further enhance reliability, data protection and accessibility of government services. With technology advancing faster than ever, new threats to stability and security will continue to arise. Through IT shared services, we also are better positioned than ever to defend vital networks.

I have tremendous confidence in our state's technology professionals, and I believe that the next two years will bring tremendous benefits to all of our citizens through the implementation of the 2018 South Carolina Statewide Strategic Information Technology Plan.

Yours very truly,

Henry McMaster

A Message from South Carolina Department of Administration

Marcia S. Adams
Executive Director

The South Carolina Department of Administration (Admin) is pleased to present the 2018-2020 Statewide Strategic Information Technology plan. This plan was developed with input from many of the State's agency and information technology leaders and maintains our major IT goals while identifying new strategic priorities for statewide information technology (IT) for the next two years. We appreciate the support of Governor Henry McMaster and leadership for IT Shared Services through Executive Orders, legislation and budget appropriations.

Our state budget includes three provisos intended to shift state government toward the shared services model, conserving taxpayer dollars and moving toward a more sustainable model of governance. The first proviso authorizes Admin to provide to all agencies consolidated administrative services that promote cost savings for the state. All state agencies shall be required to utilize such consolidated administrative services as they become available. The second proviso directs all agencies to work with Admin to meet prescribed uniform space standards, site selection criteria and reporting requirements. The third proviso directs Admin to develop and issue uniform written standards and guidelines for data entry into the Statewide South Carolina Enterprise Information System (SCEIS). All agencies are directed to adopt these standards when issued. Doing so will increase transparency of state finances, help identify savings and ensure that funds are being spent appropriately.

We have collaborated with our partner agencies to bring government and stakeholders together to make our ideas a reality. We have reviewed our IT costs, processes and delivery methods using a statewide perspective and identified more efficient ways to deliver our services. The strategies outlined in this plan do not call for Admin to be the only technology service provider; instead, the plan calls for us to work together to identify and understand agency needs and then work together to find the best possible solutions. This approach does not diminish the critical importance of each agency and its own unique needs; instead, it fosters the trust and relationships needed to continue to achieve far-reaching changes to this government's ability to serve the public.

The strategies identified in this plan, when implemented together, will improve the State's ability to ensure reliable, secure, cost efficient, and innovative IT services and infrastructure. As a result, agencies will be empowered to deliver more responsive and cost-effective services to the citizens of South Carolina. We look forward to continuing to work with all agencies as we evolve our actions to move forward together in the implementation of this Statewide Strategic Information Technology plan.

admin
THE SOUTH CAROLINA
DEPARTMENT *of* ADMINISTRATION

STATEWIDE STRATEGIC **INFORMATION TECHNOLOGY** PLAN

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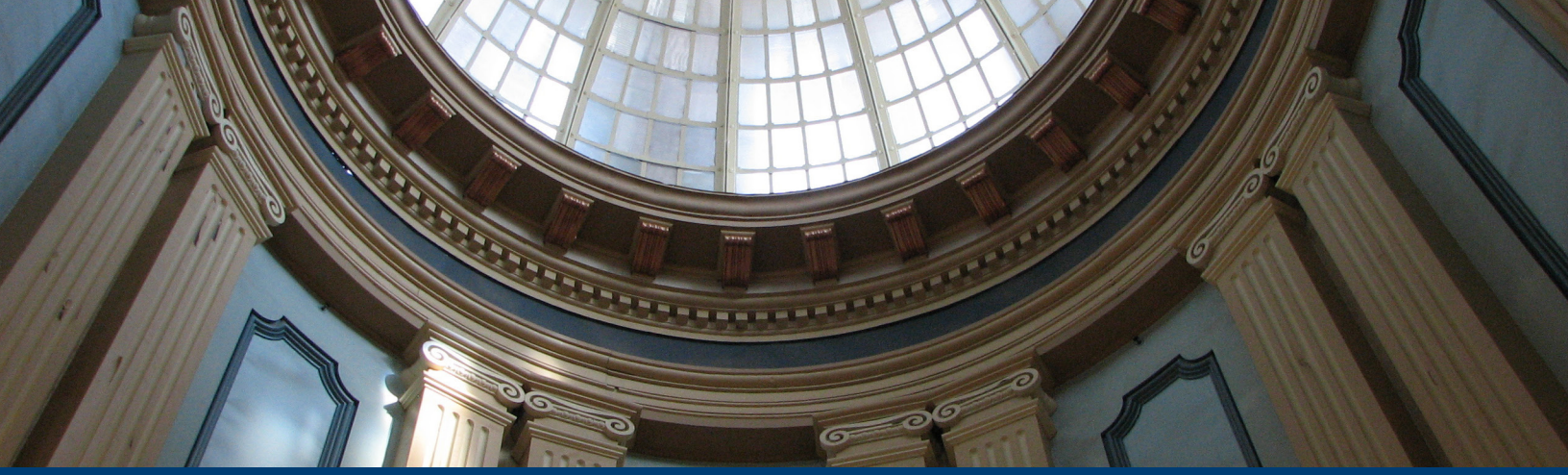


EXECUTIVE SUMMARY

The development of the South Carolina Statewide Strategic Information Technology Plan is the result of a collaborative effort on the part of the South Carolina Department of Administration (Admin), agency executives and information technology (IT) leaders from across the state. As part of the development of this report, an Executive Oversight Group – consisting of state agency executives and a private sector IT executive – was formed to oversee the process and to provide input in the creation of the plan. Also instrumental in its development, was the IT spending and planned investment information provided by 74 state agencies, as well as the direct input of dozens of agency and technology leaders obtained through a structured interview process.

This plan is structured to provide the most recent shared services accomplishments and sets the future strategic direction and initiatives for information technology and security for the state.

Initial implementation of the 2015 Statewide Strategic Information Technology Plan has produced greater IT-related cost savings and enhanced the security of the state's systems and data. Admin-led IT shared services governance groups allow multiple agencies to participate in the recommendations for shared services, standards, and oversight for statewide IT and security.

One of the first IT shared services to be implemented is the consolidation of agency IT infrastructure to a centralized data center. Numerous studies have not only shown the potential for significant cost savings through a common shared infrastructure, but also cited security concerns with "islands of computing" across numerous state agencies. Over the last year, multiple state agencies have successfully transitioned to the State Data Center.

It is important to note that Admin may not always serve as the technology service provider in this model, but instead will seek to understand agency needs and then work with each agency to help develop the necessary IT solutions. For example, through brokering shared services contracts, such as renegotiating K-12 internet and wide area network contracts, Admin helped the state achieve approximately $14.25 million in annual savings.

The State of South Carolina, which includes Admin and the other state agencies, has made significant progress in IT cost transparency. In FY18-19, $510 million of IT related spending was identified across the 74 state agencies. Prior to the implementation of an IT cost transparency initiative, IT spend was not easily visible due to historical account classifications which obscured the true cost of IT. Rate reductions for some IT shared services indicate steady progress since the 2015 Statewide Strategic IT Plan and additional rate reductions are expected over time as the adoption rate of the IT shared services model increases.

Serving constituents is the cornerstone of every state agency. Recent evolutions in technology have enabled agencies to integrate people, businesses, and digitalize information in ways not possible five years ago. To take advantage of these opportunities, we must continue to:

- Establish a solid foundation by building our shared services delivery processes and maturing our governance structure. This combination ensures we have the mechanisms necessary to make the right decisions and implement our decisions effectively and efficiently;
- Provide effective and timely communication essential to the continued success of IT shared services;
- Seize market opportunities presented by cloud-based infrastructure hosting models to efficiently manage and maintain our required technical environments and platforms;
- Account for the common and unique attributes of all stakeholders and communicate expected impacts of change while meeting the needs of each stakeholder, and;
- Strive to build and incorporate additional strategic and tactical capabilities to inform and enable even greater results, which we will measure to maximize the value gained via IT shared services.

IT Strategic Roadmap
Strategic Goals, Initiatives and Actions

The 2018 South Carolina Statewide Strategic IT Plan identifies our strategic goals, multiple related initiatives supporting each goal, and many of the actions defined within each initiative necessary to continue the pursuit of the strategic IT vision, realize additional valuable shared service capabilities and obtain related benefits.

2018 Statewide IT Strategic Initiatives
GOAL 1: Advance Information Security and Accessibility
1.1 Develop a Statewide IT Security Assessment Program
1.2 Mature Statewide IT Security Incident and Disaster Preparedness
1.3 Enhance Statewide IT Security Services and Data Classification
1.4 Provide Statewide IT Security Support
GOAL 2: Improve Reliability of State Systems
2.1 Develop Statewide Cloud Strategy
2.2 Develop Statewide Cloud Capabilities
2.3 Improve IT Shared Services Core Capabilities
2.4 Improve IT Shared Services Migration
GOAL 3: Evolve Citizen Access to Government Services
3.1 Improve Service Level Management
3.2 Advance IT Service Management Capabilities
GOAL 4: Institute Data-Driven Decision Making
4.1 Continue to Mature IT Cost Transparency
4.2 Conduct IT Shared Services Rate Assessment
4.3 Enhance Formal Communication Strategy
GOAL 5: Lead in Technology Innovation
5.1 Establish an Innovation Center
5.2 Evaluate Data as a Service
5.3 Enable Professional Development with Learning Management Platforms

Protecting the State's information assets, including citizen data, has been the foremost priority in developing the 2018 South Carolina Statewide Strategic IT Plan.

We will continue to increase our information security through:

- Continuous assessment and calibration of security processes;
- Improvement of statewide incident and disaster response capabilities; and
- Enablement of agency resources through enhanced risk management training and guidance. Our planned actions reflect the needs of agencies and reinforces the continual development of a mindset which integrates information security and accessibility into every decision.

Reliability, performance and availability are core components to assist agencies in achieving their missions. South Carolina's IT shared services model ensures that modern, well-maintained, and secure infrastructure components contribute to a well-performing, mission-oriented application environment.

Admin will support agencies in their missions by:

- Ensuring agencies have access to the most relevant, effective, efficient and secure IT shared services infrastructure;
- Ensuring agencies have access to the most current technologies and services at cost effective pricing; and
- Enhancing agency IT services by increasing the speed of IT service, diversity of IT service offerings, and IT security capabilities.

Managing our technology services and assets relies on gathering complete and accurate data regarding those services and assets. In order to contribute to our strategic goals, we will use performance measurement methods to provide greater transparency, decision accountability and continuous improvement.

Performance measurement will continue to have three focus areas – IT shared services, agency cost transparency and information security. IT shared services performance measurement goals focus on operating as a true service provider, ensuring that service delivery meets customer requirements. Agency cost transparency goals focus on understanding our statewide technology assets – where they are, what they do and how much they cost. It is important to confirm technology resources are providing value to agencies. Our strategic initiatives will focus on gathering shared services performance information for statewide technology resources.

Infusing innovation into all aspects of IT service delivery is critical to providing agencies with efficient, modern and relevant IT services. Supplying agencies with innovative platforms and environments allows agencies to explore new digital services. Broadening professional development opportunities, targeted at both agency IT and general staff, gives agency resources increased capability to creatively utilize valuable IT services.

Admin will support innovation and education by:

- Serving as an innovation "shared resource," allowing agencies the opportunity to explore and test new technology capabilities;
- Continuing to identify, evaluate and collaborate with innovative technology partners in support of agency related cloud-based and digital initiatives; and
- Enabling broad agency workforce training by providing common training platforms.

In summary, this plan includes the foundational principles and initiatives to further protect and analyze our data assets, understanding the value of current and necessary services, improving our processes to deliver valuable services, and expanding our relationship building capabilities with agencies. Admin is pleased to share the results of this effort, which is intended for use by state leadership, agency directors, agencies and stakeholders.

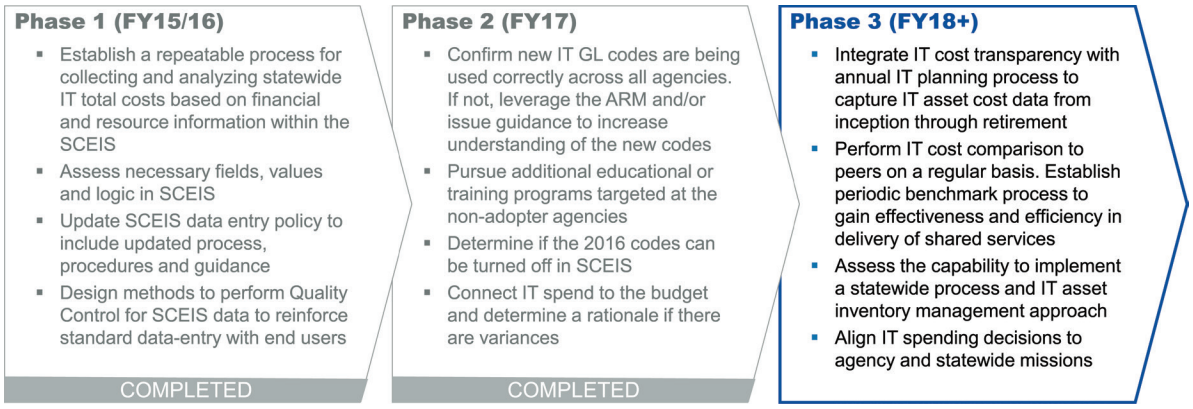
It is important to note that this plan is not a static document. While the Statewide Strategic IT Plan addresses a two-year timeline, annual reviews and updates will be continuous. In addition, Admin, in partnership with state agencies, will continue to evolve its data-driven decision capabilities and will adjust the plan as necessary. Through implementation of the strategic initiatives identified in our previous plan, we have learned much about our information security, IT cost and savings opportunities, necessary decision-making model, IT service requirements and performance, and the support needs of our agencies in their respective missions.

STATEWIDE INFORMATION TECHNOLOGY ACCOMPLISHMENTS

The State has made considerable progress since establishing shared services to support infrastructure centralization. The progress to date is evident in the following examples:

Enhanced IT Cost Transparency

The State of South Carolina has made significant improvements regarding IT cost transparency. In FY18-19, $510 million of IT-related spending was identified across 74 state agencies. The graphic below summarizes the IT cost transparency journey.



Prior to the IT cost transparency initiative, IT spend was not easily visible due to historical account classifications which obscured the true cost of IT. This initiative was successful primarily due to the implementation of a new IT-related general ledger code structure which allowed for more accurate capturing of such costs. This past year, Admin collaborated with agencies to complete significant validation efforts to ensure cost category/functional areas were captured correctly. Agency efforts to embrace the new account structure were key to the benefits realized and will continue to be important in future related efforts to mature transparency. The results of the effort increased the overall effectiveness and efficiency of IT cost tracking, measurement and reporting and allows the state to make peer comparisons and identify potential new shared services.

A sample of some of the IT cost transparency-related accomplishments include:

- Establishing a repeatable process to more accurately collect, analyze and report statewide IT total costs based on financial and resource information within the South Carolina Enterprise Information System (SCEIS);
- Assessing key data fields, values and logic in SCEIS to improve IT cost categorization;
- Improving SCEIS IT data entry policies by enhancing processes, procedures and guidance;
- Designing methods to perform quality control for SCEIS data to reinforce standard IT data-entry with end users;
- Validating new IT general ledger codes to ensure they are being used correctly across all agencies. In cases of exception, the IT financial team leveraged the established governance bodies (e.g., Agency Relationship Management team) and/or issue formal communication guidelines to increase the understanding of the new IT codes to noncomplying agencies;
- Pursuing education and/or training programs targeting adopting agencies;
- Identifying legacy general ledger IT codes that can be rationalized in SCEIS, allowing for less confusing data entry, analysis and reporting; and
- More accurately connecting IT actual spend to budget and more clearly identifying the rationale if variances were discovered.

IT cost transparency must be looked at in terms of data quality. Since the start of this initiative, the State has embarked on a journey to enhance IT cost transparency by improving the quality of spending and staffing data. The State will continue to strive for delivering predictable, repeatable and transparency into core IT processes. A recently enacted proviso directs Admin to develop and issue uniform standards and guidelines for data entry into SCEIS. Agencies are directed to adopt these standards when issued. This effort will increase transparency of state finances, help identify savings and ensure that funds are being spent appropriately.

Benefits Realized through IT Shared Services

The challenges agencies experience in the management of their IT infrastructure are diverse. As a result, the benefits an agency gains from migrating to an IT infrastructure shared services environment are diverse as well.

Admin captures and assesses the gains an individual agency realizes after migrating to the IT shared services infrastructure. Such gains include:

- Agency Satisfaction — Views on server and storage service satisfaction are captured.
- Service Quality/Operational Excellence — Agency data center, server and storage, and service quality attributes are assessed. Topics are grouped into people, process and technology categories.
- Risk Management — Data center risk areas (facility, location and physical security) and server and storage operational risk areas are assessed.
- IT Business Management — IT management, from an infrastructure and operations perspective, is assessed regarding:
  - Planning;
  - Process Management;
  - External Provider (vendor) Management;
  - Project Management;
  - Governance;
  - Financial Management; and
  - Technology Management.
- IT Financial and Workload Metrics — Server and storage related financial and workload metrics are assessed.

Transition to IT Shared Services
Realizing Benefits: Agency Migration Experience

A recent agency migration to IT shared services resulted in a more secure, efficient and effective agency IT environment.

Problem | The agency's initial interest in migrating to IT shared services was to mitigate risk. Specifically, two senior IT staff members responsible for IT infrastructure and security departed the agency. The agency needed immediate assistance to back-fill the services these skilled individuals provided.

Solution | The agency contacted Admin and accelerated onboarding activities to the IT shared services environment.

Impact | The IT shared services transition team was able to:

- Simplify the agency IT environment:
  - Reduced the total number of IT assets under management;
  - Eliminated servers located in agency remote offices; and
  - Retired applications no longer in use.

- Increase efficiency of the IT infrastructure environment:
  - Reduced the number of IT infrastructure assets by over 50 percent;
  - Eliminated the need to provide infrastructure support to IT assets located in over 50 remote branch offices;
  - Eliminated the need to backfill two security and infrastructure open positions; and
  - Focused remaining IT staff solely on the agency's data instead of the agency's server and storage hardware administration.
- Engage the Virtual Chief Information Security Officer (V-CISO) program for guidance and expertise on information security.

This agency migration to IT shared services is an excellent example of the many benefits other agencies may realize through their own transition into the IT shared services model.

Fundamentally, it is important to understand what specifically is included within a given service to make valid cost comparisons before and after migration to shared services.

A simple example illustrates where comparisons may not be accurate given only the label of a specific service. In one instance an agency purchases software licenses from a third party labeled as Service A. In another instance, under a shared services model, a service with the same label also must include the costs associated with providing the required security, disaster recovery, facilities and support personnel to provide the same service. Clearly, the label of a given service is not enough to make a valid comparison. A valid comparison is only possible when the components making up a service are equal. Admin takes great precaution to not overstate the financial benefits gained through IT shared services and desires to make comparisons on an "apples to apples" basis.

Going forward Admin will leverage an IT service catalog rate assessment to compare Admin's IT service rates with the rates or equivalent unit costs of other IT service providers and peer organizations. In defining and reviewing service catalogs, it is key to understand if charge back unit prices are aligned to the market and/or other internal providers to make informed decisions around cost efficiencies. Understanding the competitive price ranges for services provides valuable insight into operational efficiencies and cost reduction considerations, enabling Admin to continue to demonstrate value to agency customers.

The figure on the next page illustrates two example IT shared services views where the state has realized valid cost savings benefits. The graphic to the left highlights one example where an agency migration to IT shared services reduced the agency's server workload by more than 50 percent. The graphic to the right highlights financial benefits the State has realized from IT shared services where virtual server rates have been reduced by 20 percent, server management rates were reduced by 25 percent, data storage rates were reduced by 10 percent and archive storage rates were reduced by 82 percent. The examples of rate reductions for some IT shared services indicates steady progress since the 2015 Statewide Strategic IT Plan and additional rate reductions are expected over time as the adoption rate of the IT shared services model increases.

Agency — Transition to IT Shared Services
Realizing Benefits

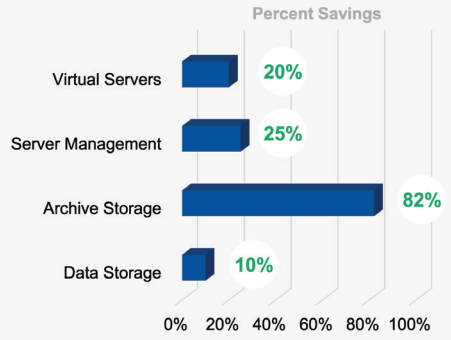
Service Quality/Operational Excellence Benefits

50+ **Server OS Workload Reduction**
The migration to shared service resulted in a more efficient target state architecture for agency remote locations. In addition, the migration process helped identify systems for retirement, reducing the overall agency server workload by **more than 50%.**

57 **Computer/Equipment Rooms**
Rationalized after migration to Department of Administration. The total estimated number of square feet consumed by the remote computer rooms was ~12,000.

Admin — IT Shared Services
Realizing Economies of Scale

IT Shared Services has allowed agencies to combine their buying power for similar data center needs, which results in lower prices and improved service. **In January 2018, Admin recognized savings for the following infrastructure technologies:**



Cost Savings from End-user Computing Standards

Increased Reliability, Saved Cost and Statewide Standards.
Admin published the End-User Computing Device Standard for desktops and laptops, which defines statewide requirements for purchases of these devices. Through the IT Shared Services governing bodies, agencies created this standard and worked closely with the Agency Relationship Management (ARM) team to ensure compliance with the new standard. Since the implementation of this standard in October 2017, several agencies have experienced savings and cost avoidance greater than $390,000.

Through this effort, the State has also negotiated savings from the current National Association of State Procurement Officials (NASPO) contract on the following end-user computing devices.

Dell	Lenovo	Panasonic
39% Average Savings *Standard Enhanced Desktops*	40% Average Savings *Standard Enhanced Desktops*	10% Average Savings *Ruggedized/Semi-Ruggedized Desktops*
40% Average Savings *Standard/Enhanced Laptops*	45% Average Savings *Standard/Enhanced Laptops*	
43% Average Savings *Ruggedized/Semi-Ruggedized Laptops*		

Accomplishments by 2016 Strategic Goal

Advance Information Security and Accessibility

- Managed Security Service Provider
- Defined statewide incident response standard
- Completed application criticality study
- Deployed enhanced business monitoring capabilities
- Critical Infrastructure Plan and Program
- Information Security and Privacy Services Contract
- Virtual CISO program

Improve Reliability of State Systems

- Defined workplace services
- Deployed shared services transition risk framework
- Defined network and telecommunication services
- Transitioned initial agencies to shared services
- Defined enterprise storage platform
- Established Technology Work Group (TWG)
- Established IT planning process
- Established Standards and Architecture Review Board (SARB)
- Provided IT service management tools
- Defined hosting services

Evolve Citizen Access to Government Services

- Created the Agency Relationship Management (ARM) Team
- Created the Program Management Office (PMO) and Strategic Communications Team

Institute Data-Driven Decision Making

- Reviewed major IT spending requests
- Collected and analyzed statewide IT costs
- Provided oversight for IT spending
- Reduced rates for storage and server shared services

Lead in Technology Innovation

- Integrated state IT procurement process
- Published end-user computing device standards
- Leveraged Enterprise buying power

The result of following the 2016 Statewide Strategic IT Plan is the culmination of all the benefits stated and reflects the validity of our shared statewide IT goals as well as our collective efforts to enable real and valuable change in how our state approaches information technology. As this plan has provided a vision and foundation for success, we will remain consistent in our direction toward increasing the shared services foundation and reflect upon the opportunities in the current environment to realize even greater benefits by incorporating the opportunities with the greatest potential for progress. The opportunities with the greatest potential or ability to meet our greatest need are provided in the next section: Statewide Information Technology Opportunities.

STATEWIDE INFORMATION TECHNOLOGY OPPORTUNITIES

Maximizing Market Opportunities
Cloud Services

Improved execution of IT shared services will incorporate valuable and necessary core components including:

- Cloud services,
- Coordination with information technology procurement processes,
- Capabilities and capacity to support Information Technology Shared Services, and
- Communication

The continued adoption of cloud computing in the public sector and the expanding capabilities offered by cloud providers, elevates the need for the Statewide Strategic IT Plan to incorporate a holistic treatment of how the State will embrace cloud capabilities. However, neither traditional data centers nor monolithic clouds alone are sufficient to meet the needs of digital government in the coming years. The adoption of hybrid solutions is necessary and must be well planned to meet State's diverse needs and capabilities.

Cloud Computing Defined

Cloud computing is a style of computing where scalable and elastic IT capabilities are delivered "as a service" using internet technologies. When these services are provided internally by an organization such as Admin to its user community, it is referred to as "private cloud," and when services are acquired from external providers, it is referred to as "public cloud." Some external providers specialize in providing public cloud services to government agencies that adhere to government regulations and security requirements. This form of public cloud is referred to as "government cloud."

There are many other forms of cloud delivery models. For example, an external provider can provision its services on dedicated physical assets for a specific client where the physical assets are not shared with other unrelated organizations. This form of cloud is referred to as virtual private cloud.

Cloud services must adhere to the five basic characteristics described in the following figure.

1. Service-based

Cloud computing services can be considered "ready-to-use" or "off the shelf." Each service is designed to serve the specific needs of a set of consumers. User interfaces hide the implementation details and enable an automated response by the provider of the service to the consumer of the service (known as self-provisioning).

2. Scalable & Elastic

Elasticity, meaning the ability to grow or shrink infrastructure resources based on changes to workload, is a trait of shared pools of resources. Services can be scaled on-demand to add or remove technology resources as needed.

3. Shared

The underlying infrastructure, software or platforms are shared among the consumers of each service. This enables unused resources to serve multiple needs for multiple consumers, all working at the same time. This sharing enables the realization of economies of scale.

4. Metered by Use

Services are tracked with usage metrics. These may include pay-as-you go plans, subscriptions and fixed price models. Usage metrics allows the consumer to shift from a capital expense model to an operating expense model, thus enabling chargeback (billing) based on usage.

5. Uses Internet Technologies

Services are delivered using internet identifiers, formats and protocols.

Coordination with IT Procurement Processes

All agencies must be engaged, work together and support strong processes and capabilities for IT Shared Services to provide the intended benefits. For example, the State Fiscal Accountability Authority's (SFAA) Division of Procurement Services has opportunities to reduce the cost of IT by centralizing buying and procurement across the state and negotiating the best value with partners. State Procurement plays a significant role in risk mitigation activities as well as achieving cost savings.

The State may choose different options for IT service delivery based on what is best for the State, market conditions, availability of state resources and other factors. These choices may involve managing external providers and services differently than the State has done historically. This requires improved response times and human resources that are experienced in managing IT procurements. For example, the State has less experience in scoping, defining and managing external providers in a managed service environment. As a result, many steps from scoping to procuring these services will be more challenging while the state gains experience. In addition, the State should consider streamlining IT procurement processes, which will result in faster procurement of critical IT resources.

It is important for Admin and SFAA to work together to review IT and technology procurement processes and identify opportunities to improve across the IT procurement lifecycle. Establishing clarity of roles, defining realistic and necessary turnaround times, reviewing staffing levels and assessing our collective ability to scale and respond to demand are all critically important.

Capabilities and Capacity to Support IT Shared Services

Agency transitions to IT Shared Services have matured greatly since the first migration and continue to improve with each occurrence. It is critical to continuously assess the process of such migrations by incorporating "lessons learned" into all future related activities. This helps to ensure continuous process improvements are realized.

In addition to assessing the agency migration process to IT Shared Services, it is also essential to periodically assess the "health" of IT shared services from a core capabilities and capacity perspective. As Admin absorbs IT workload from migrating agencies, Admin must ensure it has the appropriate level of resources from people, process and technology perspectives relative to the IT workloads expected to be managed.

Finally, Admin must act upon the opportunity to clearly communicate the rates the Division of Technology Operations (DTO) charges for each IT shared service. Transparency in what comprises these rates will help stakeholders understand the cost associated with developing and delivering services and enable comparison to similar services offered by other potential providers.

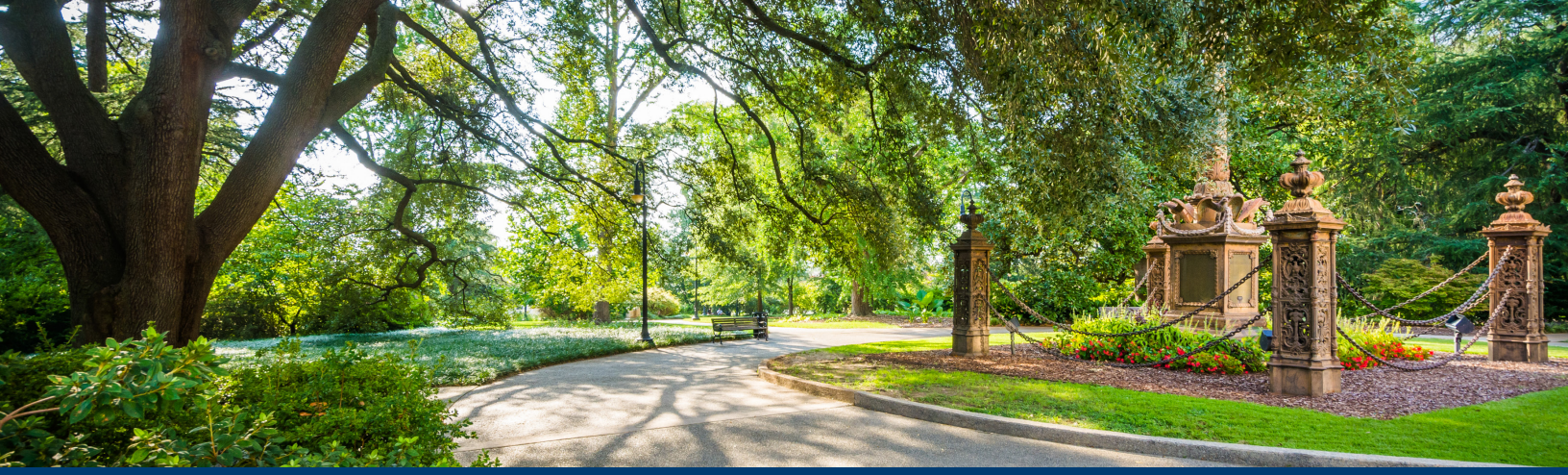
Communication

Effective and timely communication is essential to the continued success of the IT Shared Services initiative. The stakeholders involved in this effort need to understand how any changes in services will impact them and the programs and citizens they support. A formal refined communications plan will define how and when such items are communicated.

The plan will account for the common and unique attributes of our stakeholders to achieve the purpose of the communication, while meeting the needs of the stakeholder. Communications will consider the "why" and "what does it mean to you."

Consistent communications regarding activities will be provided through governance meetings and working groups. In the case of difficult or emergency situations, communications will be provided frequently throughout any crisis period. After each communication, it will be announced when the next update should be received. In addition, feedback on communication efforts will be sought to assist in refining messages, identifying additional stakeholders, improving timing and measuring success.

Embracing the appropriate opportunities will provide for the greatest collective benefits. As the state hones the ability to adopt and adapt to IT Shared Services and harness the realities of the IT landscape, we must strive to continually enhance the ability to execute upon the strategic plan. The combination of continuing what has worked well to-date and the addition of realistic opportunities provides the fuel necessary to envision, articulate and ultimately achieve a fresh IT strategic vision which is defined in the next section.



2018–2020 INFORMATION TECHNOLOGY STRATEGIC VISION

IT Strategic Principles, Governance and Performance Management

This Statewide Strategic Information Technology Plan maintains the previous three foundational supporting pillars of IT Principles, IT Governance and Performance Management. These pillars help to ensure the plan's successful implementation. We have improved our IT governance and performance management methods since 2016. To continue this progress and realize even greater results, a strategic initiatives roadmap has been developed and identifies, prioritizes and defines the distinct projects required to implement this plan.

Today, the State's information technology is more centralized, however, there is a lot of work still required. In most cases, agencies continue to operate their own individual "islands of computing" separate from mutually beneficial shared services This approach makes it very difficult to understand the State's true technology costs, and, more importantly, such decentralization increases the State's information technology security risks and makes economies of scale more challenging to achieve.

The cornerstone of this plan rests on the premise that it is in the entire State's best interest to find better ways to leverage and share what is common across the state in terms of IT. It reflects the improvements the State can make in security, reliability, citizens' access to services, decision making and innovation when we share our limited resources, including our human resources.

Under this plan, Admin will continue to serve as the shared services organization to ensure reliable IT infrastructure services – such as data center, end-user computing, IT service desk and network services – are provided on behalf of the State. Admin will continue to function as a service coordinator to match agency needs to the best services available, whether such services are delivered through state resources or via external providers. It is important to note that agencies will continue to be responsible for their own business applications.

In the future, shared infrastructure services will be the foundation upon which new and improved IT systems are built to support cross-agency collaboration, resulting in improved government services for citizens without the need for expensive and duplicative systems. Achieving this statewide transformation, and the benefits associated with it, will require new investments in a variety of areas including the modernization of aging assets, improving service reliability and workforce skills, and the protection of sensitive information.

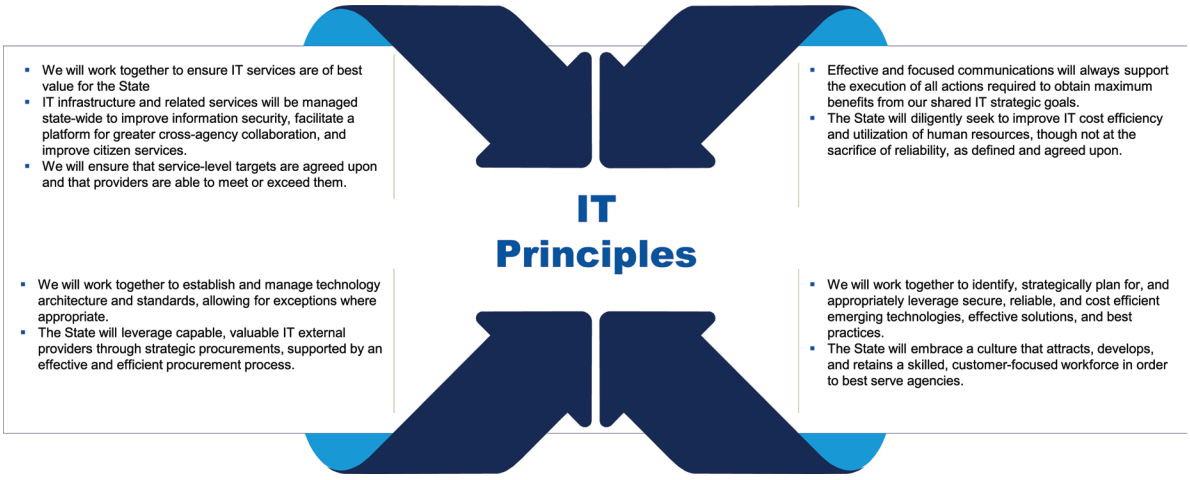
Strategic Vision Statement

We will capitalize on the previous IT Shared Services capabilities which have provided for tangible, proven and repeatable benefits. As we continue to apply aspects that have worked well, we will strive to build and incorporate additional strategic and tactical capabilities to inform and enable even greater results, which we will anticipate, project and measure to support an ongoing desire to maximize the value gained via IT shared services.

It will take years, beyond the timeframe of this plan, to fully execute this strategy. During this time, Admin will work with agencies to better understand the required degree of agency alignment with the shared services model, and together will determine a practical, achievable and risk-based approach for the transition. This data driven decision-making approach will result in agencies moving to the shared services model over time when it is mutually beneficial for all stakeholders.

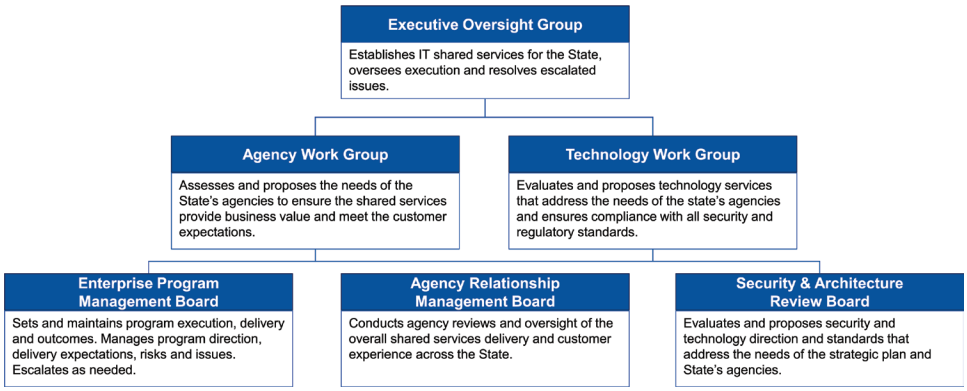
IT Principles

IT principles provide statewide guidance and direction on the use of information technology. These were instrumental in the development and execution of the 2016 Statewide Strategic IT Plan and will continue to help guide IT decision-making in the state. IT principles are broad statements that serve to guide the key information technology-related decisions. The principles serve as a guidepost for the agency and IT leaders, who are charged with key decisions and the implementation of this plan. It is within this human element that positive change is truly enabled and the importance of this contribution cannot be emphasized enough. Leaders must carry out the principles embodied within this plan on a regular basis for the plan to derive valuable results. South Carolina will embrace the following IT principles on a statewide basis:



IT Governance

Governance is critical to success and must evolve to meet both enterprise and agency needs.
Since 2016, the State established critical IT shared services governance groups to collaboratively provide tiered-guidance for IT Shared Services initiatives. The State has adopted a flexible governance approach and structure to make critical technology decisions at different levels across the state. It's working and will continue to evolve.



These established governance groups include:

- Executive Oversight Group (EOG) — The EOG is comprised of agency executive directors focused on establishment of the IT shared services direction for the State. The EOG will continue to provide sponsorship from a statewide viewpoint on the disaster recovery project, approve the statewide priority of the critical applications and approve recommended technical requirements and toolset requirements.
- Agency Work Group (AWG) — The AWG assesses the IT needs of state agencies from the business perspective. This group will continue to recommend the approval of the statewide prioritization of the agency critical applications and provide sponsorship on statewide agency application ranking.
- Technology Work Group (TWG) — The TWG evaluates technology services and ensures compliance with security and regulatory standards. This group will continue to recommend the approval of the technology ranking in the application criticality framework, the technical solutions provided by the Security and Architecture Review Board and review the implementation plan for the required technical areas
- Security and Architecture Review Board (SARB) — The SARB will continue to perform a critical role in defining how IT shared services will be implemented and in reconciling the technology approaches in use across the State with those of the shared services environment. The SARB ensures agencies provide critical input into IT shared services architecture decisions and standards.
- Agency Relationship Management Team (ARM) — The ARM team provides agency feedback and input on current IT shared services and emerging services and systems that support information technology.
- Agency Relationship Management Board (ARM Board) — The ARM Board has been developed to coordinate the resources allocated to the ARM role and to help ensure agencies' needs are prioritized and met with efficiency.

IT governance will continue to evolve to remain effective and relevant to our journey toward IT shared services. In addition to the continuation of the governing bodies currently in place, the membership of each group will be reviewed and revised to gain the right level of participation from those most in control of and impacted by migration to IT shared services.

Performance Management

The State continues to adopt a performance management approach to measure and track key indicators to achieve the strategic goals and ensure focus on the most important priorities. Key operational metrics, as well as more detailed IT benchmarks, serve as a link between strategic business outcomes. Business outcomes resulting from IT investments in terms of tangible hard and soft benefits are evaluated and reported to ensure business value is realized. Over time, increased transparency and accountability will serve as a cornerstone for agency and IT management, collaboration and communication. Performance management will continue to solidify the commitment to create measurable value for the State through IT, which requires a consistent commitment to measurement, transparency, accountability and continuous improvement.

IT Strategic Planning Life Cycle

Maintain our existing goals. Our previous goals established a sound framework for success as evidenced by the progress that has been made. Therefore, for the next period of growth, we will maintain focus upon the five goals while evolving the actions necessary to accomplish these goals. These goals include:

- Advance information security and accessibility;
- Improve reliability of state systems;
- Evolve citizen access to government services;
- Institute data driven decision making; and
- Lead in technology innovation.

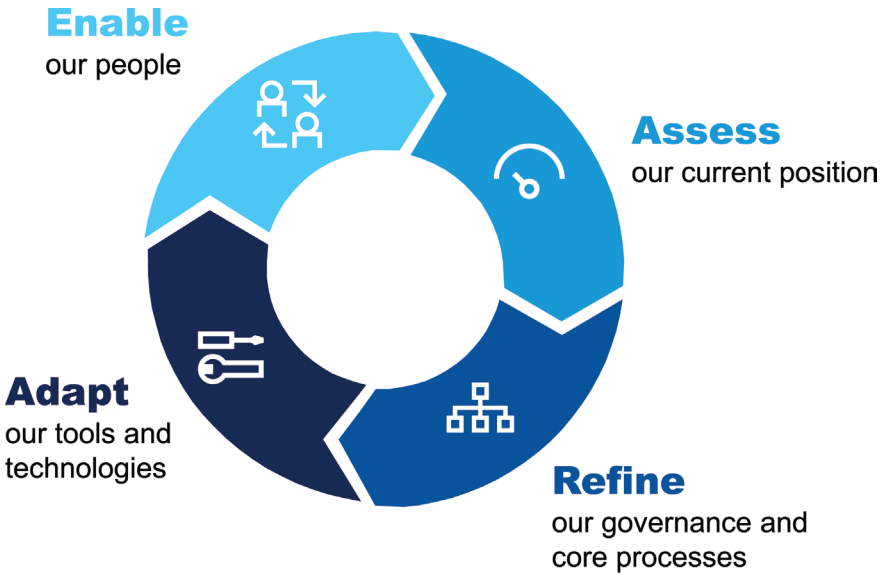
In preserving the existing goals and establishing refreshed actions, it is our intent to continue the current direction while ensuring efforts remain relevant to the State's collective needs.

Advance Information SECURITY and Accessibility	The State will protect citizen data and all State information assets, and ensure the availability of systems and data in the event of a disaster.
Improve RELIABILITY of State Systems	The State will improve the reliability and cost efficiency of IT systems through a shared services model.
Evolve CITIZEN ACCESS to Government Services	The State will establish a common IT infrastructure to better support access to government services and build a foundation for improved cross-agency collaboration.
Institute DATA-DRIVEN Decision Making	The State will establish a culture focused on delivering value for citizens, businesses, and State agencies, enabled by data-driven IT decision making.
Lead in TECHNOLOGY INNOVATION	The State will identify innovative technologies to support the mission of agencies and serve citizens.

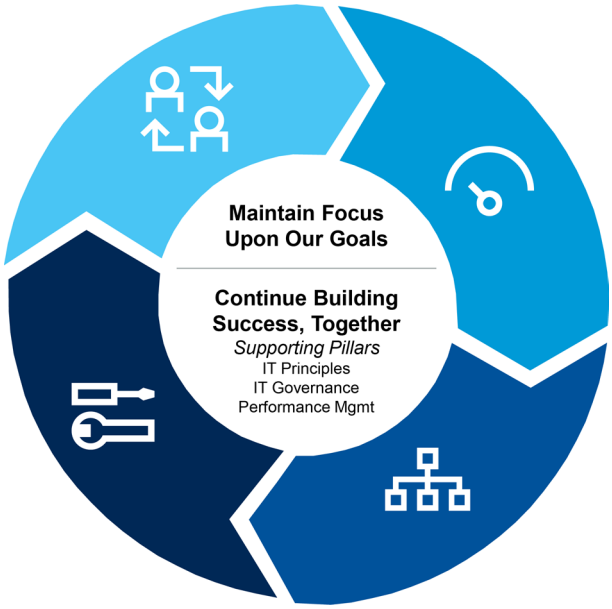
Evolve actions and continue to build success together. To evolve our actions, Admin listened closely to multiple perspectives regarding progress to date and opportunities to advance together.

A cyclical review considered each strategic goal and helped elicit and elaborate actions relevant to collective experiences and needs.

The combination of our goals with this approach helped to identify our future actions and defines our focus for the 2018-2020 Statewide Strategic IT Plan.



We will continue to move forward together and will leverage the experience of our past accomplishments to enable our continued success moving forward.



admin THE SOUTH CAROLINA DEPARTMENT of ADMINISTRATION

STRATEGIC GOALS, INITIATIVES AND ACTIONS

Goal 1: Advance Information SECURITY and Accessibility

Strategic Goal: The State will protect citizen data and all state information assets and ensure the availability of systems and data in the event of a disaster.

Advance Information SECURITY and Accessibility	The State will protect citizen data and all State information assets, and ensure the availability of systems and data in the event of a disaster.

Based upon direction provided by key stakeholders, including agency executives, IT directors and Admin representatives, this goal is maintained as the primary goal in the 2018-2020 Statewide Strategic IT Plan. The continuation of an extensive statewide focus upon driving information security maturity must be informed by the current forces shaping the threat landscape.

Significant security and accessibility related accomplishments since the publishing of the 2016 Statewide Strategic IT Plan include:

- Defining the Statewide Incident Response Standard;
- Completing application criticality study;
- Deploying enhanced business monitoring capabilities;
- Executing an information security and privacy services contract; and
- Implementing a Virtual Chief Information Security Officer (V-CISO) program.

The following strategic initiatives and the related actions support the continuation of focus on maturing our information security capabilities:

- Develop a Statewide IT Security Assessment Program.
- Mature Statewide IT Security Incident and Disaster Preparedness.
- Enhance Statewide IT Security Services and Data Classification.
- Provide Statewide IT Security Support.

In general, we will continue to assess our current statewide information security posture, refine our governance and core processes, adapt our information security tools and technologies, and enable our people and processes in alignment with the goal to advance information security and accessibility.

The expected benefits across all four information security and accessibility strategic initiatives include:

Assess
our current position

- Strengthen security by formalizing an Information Security Assessment Program.
- Improve security of state business operations by developing and offering statewide security services like vulnerability management services.
- Improve statewide response to and recovery from potential IT security incidents
- Provide agencies with the information to make an informed business decision regarding an agency's current capability to recover from an unplanned business disruption.

Refine
our governance and core processes

- Establish statewide cultural norms of information security first and always.
- Align IT security posture to the current threat landscape.
- Enhance statewide response to and recovery from potential physical disasters.
- Manage data to enhance and enable new and valuable citizen services.

Adapt
our tools and technologies

- Obtain statewide value from currently available IT security solutions.
- Verify disaster recovery preparedness across all agencies.

Enable
our people

- Obtain statewide value from currently available IT security solutions.
- Verify disaster recovery preparedness across all agencies.

Security Strategic Initiative 1.1: Develop a Statewide IT Security Assessment Program

Our fundamental information security questions include: Are our information and assets protected? How can we know? What should we do next? To answer these and other related questions, it is critical for each organization and the State as an enterprise to continuously examine the security risks and objectives within its business environment and systematically incorporate protection into the way we collectively operate. Security is not something any organization can simply purchase; it must become a cultural norm and requires a consistent and disciplined set of behaviors. Actions related to development of a formal Statewide IT Security Assessment Program include:

1.1 Statewide IT Security Assessment Program Actions
1.1.1 Document the current-state security environment including people, process and technology.
1.1.2 Define the future-state security posture by identifying business drivers and requirements for protection.
1.1.3 Identify improvement opportunities and risk exposure through weighted-gap and maturity analyses between current-state and industry leading practices.
1.1.4 Define recommended risk mitigation initiatives for improving security maturity and reducing risk exposure aligned with organizational risk tolerance and culture.
1.1.5 Develop a multiyear, prioritized deployment roadmap for the identified initiatives including estimated duration, capital costs, level-of-effort, skills and constraints and dependencies.
1.1.6 Communicate executive summary contextual results of the assessment for select project and organization stakeholders.

During the period covered by this Statewide Strategic IT Plan, we will formalize the IT Security Assessment Program through implementation of an independent auditing capability consistent with IT security compliance standards. We will continue to refresh the statewide IT security strategy periodically while regularly assessing and supporting each agency's ability to identify, protect, detect, respond to, and recover from evolving threats leading to an aligned IT security posture based upon the current IT security threat landscape.

Security Strategic Initiative 1.2: Mature Statewide IT Security Incident and Disaster Preparedness

Should state agencies encounter a security or physical event we must be prepared to recover methodically. The preparation will help minimize exposure and return to normal operations, quickly and efficiently.

During the period covered by this Statewide Strategic IT Plan we will:

1.2 Statewide IT Security Incident and Disaster Preparedness Actions
1.2.1 Develop statewide cyber insurance business case(s).
1.2.2 Implement IT disaster recovery capabilities.
1.2.3 Assist agencies with security and disaster resources.
1.2.4 Provide agencies with the information to make an informed business decision regarding an agency's current capability to recover from an unplanned business disruption.

Development of statewide cyber insurance business cases will include cost benefit analysis of alternatives intended to result in effective statewide response to and recovery from potential IT security incidents. Similarly, the implementation of IT disaster recovery capabilities which are reliable and economical for all agencies is intended to accomplish an effective statewide response to and recovery from potential physical disasters. Finally, assisting agencies with information and resources ensures:

- IT disaster recovery and business continuity tests are performed.
- Testing is based upon well-defined and documented plans.
- Testing is completed at pre-determined time intervals.
- Supports the achievement of a verifiable statewide disaster recovery preparedness posture.

Security Strategic Initiative 1.3: Enhance Statewide IT Security Services and Data Management

Reliable services and solutions that can be broadly employed are more efficient. Consistent and reliable data are core to deriving increased citizen value.

During the period covered by this Statewide Strategic IT Plan we will:

1.3 Statewide IT Security Services and Data Management Actions
1.3.1 Formalize and offer statewide security services.
1.3.2 Identify enterprise and agency master data management foundational processes.
1.3.3 Continuously review and improve enterprise IT security solutions.

Formalized statewide security services will be designed to identify and mitigate operational vulnerabilities leading to the enablement of secure state business operations. We will work to identify enterprise and agency master data management foundational processes including the identification of shared data use cases and data classification requirements leading to managed data which can enable new and valuable citizen services. Finally, we will continuously review and improve Enterprise IT security solutions, for example, expanding statewide multi-factor services, to derive value across all agencies maximizing the statewide value from currently available IT security solutions.

Security Strategic Initiative 1.4: Provide Statewide IT Security Support

As information security risks increase, we must make the most of limited security resources. We must remain vigilant by providing our people the processes, forums and guidance necessary to efficiently defend against all threats to our information security.

During the period covered by this Statewide Strategic IT Plan we will:

1.4 Statewide IT Security Support Actions
1.4.1 Routinely share security related experiences and best practices.
1.4.2 Establish and provide guidance on a statewide IT security risk management process.

Providing forums to routinely share security related experiences and best practices and leverage limited IT security staff to operate as a unified support system will result in the efficient maturation of IT security across agencies. Establishing and providing guidance on a statewide IT security risk management process that prioritizes risks by probability and impact, appropriately assigns resources and identifies risk mitigation strategies will result in achieving the maximum IT security posture from limited IT security resources.

In summary, the outcomes expected from the security related strategic initiatives include:

- Strengthened security of the State's information.
- Aligned IT security posture to the current threat landscape.
- Established cultural norms of information security first and always.
- Provide agencies with the information to make an informed business decision regarding an agency's current capability to recover from an unplanned business disruption.
- Effective statewide response to and recovery from potential IT security incidents.
- Effective statewide response to and recovery from potential physical disasters.
- Verified disaster recovery preparedness.
- Enablement of secure State business operations.
- Data managed to enable new and valuable citizen services.
- Statewide value from currently available IT security solutions.
- Efficient maturation of IT security across agencies.
- Maximum IT security posture from limited IT security resources.

Goal 2: Improve RELIABILITY of State Systems

Strategic Goal: *The State will continue to improve the reliability and cost efficiency of IT systems through a shared services model.*

Admin's IT shared services has made substantial progress in improving the reliability of the State of South Carolina IT Systems. Over 25 agencies use Admin's IT shared service infrastructure and other shared services. This provides agencies with a computing infrastructure foundation that is modern, maintained and secure.

Modern and Reliable

Modernization of IT infrastructure and operations is key to improved reliability, dependability and scalability of services. This modernization is made possible by economies of scale gained through IT shared services that would otherwise be prohibitively expensive and complex for each agency to undertake independently. Through shared services, agencies can now leverage the latest compute and storage technology from leading technology providers. This focus allows the agency to increase support of the agency mission.

Hosting mission critical IT systems in a reliable data center facility is another important factor in ensuring availability of business and mission critical applications. Over the past two years, many agencies have opted to leave their unreliable data centers and computer rooms, that were never designed to support mission critical applications, to utilize IT shared services hosted at a more resilient state data center.

Maintained and Managed

Admin trained IT infrastructure professionals apply a consistent set of policies, processes and reporting metrics for managing and monitoring the IT shared services that all agencies will benefit from. This allows agency leaders to free their IT staff to focus on initiatives and/or applications that closely support the agency's mission versus maintaining and monitoring infrastructure components such as power, cooling, server, network and storage systems.

Secured and Monitored

Protecting the State's applications and data are a critical priority. Vulnerability assessment, intrusion detection, and threat detection are critical elements of Admin's IT shared services that all agencies will benefit from. IT shared services employ a consistent set of critical IT security tools, policies and processes to protect agency's applications and data. Examples of deployed capabilities that IT shared services agencies are benefiting from include:

- Centralized monitoring of firewalls and routers to protect agency's critical IT systems.
- Proactively applying computer security patches and ensuring that proper configurations are applied to protect against unauthorized access.
- Physical security ensuring only authorized personnel could enter the computer room floor.

Accomplishments since publishing of the 2016 Statewide Strategic IT Plan related to improving reliability of state systems include:

- Defined the first phase of IT shared services which includes: Workplace Services, Network and Telecommunication Services, Hosting Services and Enterprise Storage.
- Designed shared services technology risk framework.
- Transitioned the first set of agencies to shared infrastructure.
- Established IT shared services governance groups which includes: Executive Oversight Group, Agency Work Group, Technology Work Group, Security and Architecture Review Board, Agency Relationship Management Board.
- Created the IT Shared Services Catalog for shared services.
- Created the IT Service Portfolio for shared services.
- Provided IT service management tools.
- Established the IT planning process.

The following strategic initiatives and the related actions support the continuation of focus on improving reliability of state systems:

- Develop statewide cloud strategic plan
- Develop statewide cloud capabilities
- Improve IT Shared Services core capabilities
- Improve IT Shared Services migration

The expected benefits of actions planned to improve reliability of state systems include:

Assess our current position

- Provide agencies with the most relevant, effective and efficient IT infrastructure shared services.

Refine our governance and core processes

- Ensure agencies IT infrastructure consists of the most cost effective and well supported technologies and services.
- Ensure agencies have access to the most current and cost-efficient technologies and services.
- Establish a statewide cross-agency architecture team to resolve common agency technology issues.
- Increase awareness among a broad group of agency stakeholders regarding IT initiatives and decisions.

Adapt our tools and technologies

- Continue to realize lower per unit costs to agency customers of the IT Shared Service environment.
- Expand agency application sourcing options to include native cloud-based applications (Software as a Service).
- Increase the speed of IT service, diversity of IT service offerings, and IT security compliance by leveraging cloud service broker capabilities.

Enable our people

- Continuously improve shared service migration by capturing and applying lessons learned methodically.
- Improve efficiency of IT procurements though stronger agency and SFAA partnerships.

Admin and agency partners will continue to move forward together. The main areas of focus for improving the reliability of state systems include:

- A well-planned strategy for the adoption of cloud computing.
- Continuous improvement of IT shared services.
- Enhancing IT shared services core capabilities.
- Enhancing IT shared services migration process.

Reliability Strategic Initiative 2.1: Develop Statewide Cloud Strategic Plan

A well-planned strategy for the adoption of cloud computing involves developing a set of actions for the design, implementation and operation of a consistent set of cloud capabilities, to be implemented by Admin, that benefits all agencies.

The actions will collectively identify how Admin will address:

- Cloud capabilities, integration models and reference architecture
- Cloud security and use policies
- Cloud governance
- Resource and talent development
- Lifecycle management
- Financial management, and
- IT Procurement

2.1 Statewide Cloud Strategic Plan Actions
2.1.1 Develop statewide cloud strategic plan.
2.1.2 Re-assess State Data Center infrastructure capabilities.
2.1.3 Evaluate alternative hosting capabilities.

Reliability Strategic Initiative 2.2: Develop Statewide Cloud Capabilities

Admin will use the Statewide Cloud Strategic Plan as guidance for identifying, evaluating and then selecting leading cloud service providers to best meet the collective needs of the State. Admin will also continue to reassess its data center infrastructure capabilities and evaluate alternative hosting capabilities including co-location and the cloud to provide even better reliability in the future.

2.2 Statewide Cloud Capabilities Actions
2.2.1 Procure cloud services or cloud service broker (CSB) capabilities.
2.2.2 Operationalize acquired cloud capabilities into IT Shared Services offerings.
2.2.3 Incorporate cloud related decision frameworks into the established governing groups.
2.2.4 Provide training and knowledge transfer to Admin IT Staff tasked with architecting and administering newly acquired cloud capabilities.

Reliability Strategic Initiative 2.3: Improve IT Shared Services Core Capabilities

This initiative will continue to focus on providing IT services to agencies in the most effective and efficient manner. Examples include:

- Admin will continuously assess and benchmark the IT Shared Service delivery capabilities relative to external market offerings and peer organizations to ensure that agencies have access to services that are most relevant to their shared business needs and are provided in the most cost-effective manner.
- Admin will enhance efficiencies through increased automation, self-service capabilities and self-provisioning capabilities.
- All enhancement to IT shared services capabilities will be underpinned by the development of enterprise architecture standards and tightly integrated with IT procurement to ensure that agencies have access to the most current, supported technologies and services at cost effective pricing.

2.3 IT Shared Service Core Capabilities Actions
2.3.1 Assess and benchmark IT Shared Service delivery capabilities.
2.3.2 Enhance efficiencies through increased automation, self-service capabilities and self-provisioning capabilities.
2.3.3 Develop enterprise architecture standards.
2.3.4 Implement a tiered server and storage model.
2.3.5 Enable self-service IaaS provisioning.
2.3.6 Integrate with IT procurement processes.

Reliability Strategic Initiative 2.4: Improve IT Shared Services Migration

Enhancing IT shared services migration process will focus on the continuous improvement of the agency migration experience to shared services. Agency migrations to IT shared services has matured greatly since the first migration and continues to improve with each subsequent migration. Examples include:

- Admin incorporates migration lessons learned into all migration-related activities to ensure that continuous process improvements are realized. Select examples of continuous improvement activities include conducting formal pre-migration and post-migration assessments by leveraging the benefits realization toolkit and ensuring that operational level roles and responsibilities between the agency and IT shared services are well defined and understood by agencies before and after the migration to shared services.
- Admin will continue to leverage a practical, risk-based approach in the selection of candidate agencies targeted for migration to shared services to ensure that agencies in the most-need are prioritized. Agencies that have a longer wait period for migrating to IT shared services will have more options too.
- Admin will be establishing a statewide cross-agency architecture team to resolve common agency technology issues with standardized solutions and one of the key areas to be addressed is to define a temporary server and storage solution to address short term compute and storage needs to help carry-over agencies that are on the IT shared services migration waitlist.

2.4 IT Shared Services Migration Actions
2.4.1 Conduct benefits realization assessment.
2.4.2 Define infrastructure standards for temporary solutions.
2.4.3 Perform pre-migration test planning activities.
2.4.4 Perform post-migration remediation assessment and planning activities.

In summary, the outcomes expected from the strategic initiatives and actions identified to continue improving the reliability and cost efficiency of IT systems through a shared services model include:

- Provide agencies with the most relevant, effective and efficient IT infrastructure shared services.
- Ensure agencies IT infrastructure consists of the most cost effective and well supported technologies and services.
- Ensure agencies have access to the most current and cost-efficient technologies and services.
- Establish a statewide cross-agency architecture team to resolve common agency technology issues.
- Increase awareness among a broad group of agency stakeholders regarding IT initiatives and decisions.
- Continuously improve shared service migration by capturing and applying lessons learned methodically.
- Improve efficiency of IT procurements though stronger agency and SFAA partnerships.
- Continue to realize lower per unit costs to agency customers of the IT Shared Service environment.
- Expand agency application sourcing options to include native cloud-based applications (Software as a Service).
- Increase the speed of IT service, diversity of IT service offerings, and IT security compliance by leveraging cloud service broker capabilities.

Goal 3: Evolve CITIZEN ACCESS to Government Services

Strategic Goal: *The State will continue building a common IT infrastructure to better support access to government services and build a foundation for improved cross-agency collaboration.*

How to serve constituents is the cornerstone of every state agency. Since the publication of the 2016 Statewide Strategic IT Plan, agency interest in how to better serve constituents using technology has only increased. Currently the State provides many online services to citizens, visitors and business stakeholders from all over the world. Citizens expect the same services from state government as the private sector. State agencies are in search of ways to better serve the public, not only through providing additional access channels, but through harnessing the power of information.

The Value of Data Assets to Agencies and Citizens

How data are used, shared and stored varies by agency, driven by differing missions, regulations and the unique values and cultures of each agency. As a result, data resides in silos, making it more difficult for all agencies and citizens to realize the value of data assets and costing the state more money to maintain.

Examples of the value of state data assets and how the assets can be used by citizens and agencies are unlimited. Examples include:

- Open data that can be shared with the public to encourage citizen engagement and enables transparency.
- Agencies use of data assets to improve existing services, provide new services as well as to improve productivity within agencies.
- Access to data enables informed decision making, from understanding what jobs are in demand by employers and to enable the state's workforce development strategy to delivering better public health services for prioritizing infrastructure investments.
- Innovations in technology will allow the state to mobilize data assets for usage in unprecedented ways.

Building the Foundation

Data assets must be secure, reliable and provide value to stakeholders. One of the benefits of shared services is the consolidation of assets, including data. Shared services will result in increased reliability, data protection, governance and the development of a common set of tools. Common process will enable state agencies to focus on effective and efficient use of citizen data for their mission, however, it will take time to realize the full spectrum of benefits. There are significant challenges surrounding data assets – including legal, regulatory and security.

Before taking advantage of the potential that data assets can offer, a solid foundation must be built. This foundation will require stakeholders working together to break through silos toward a common goal. Investments will be required in infrastructure, tools, training and expert advice. There are multiple layers in this foundation, beginning with building out service delivery processes and enhancing governance to have mechanisms to make the right decisions and carry out these decisions effectively. This strategic plan maintains an inward focus on building that foundation. Future instances of the Statewide Strategic IT Plan will begin to focus on external delivery to constituents to evolve citizen access to government services.

Citizen Access to Government Services related accomplishments since the publishing of the 2016 Statewide Strategic IT Plan include:

- Creating the Program Management Office (PMO).
- Enacting the Agency Relationship Management (ARM) team.

These formalized, staffed teams enable the necessary skills and capabilities needed to provide the right services to all state constituents. The PMO and ARM work not only with other Admin teams, such as the Division of Technology Operations, Division of Information Security and the Enterprise Privacy Office, but agency workgroups as well.

The following strategic initiatives and the related actions support the continuation of focus on evolving citizen access to government services:

- Institute Service Level Management
- Advance IT Service Management Capabilities

The expected benefits of actions planned to evolve citizen access to government services include:

Assess our current position

- Need based articulation of future shared service offerings.

Refine our governance and core processes

- Shared services with maturity and service levels matching current agency values.
- Easily accessible and current IT Shared Services Catalog.
- IT processes evolving from foundational to advanced maturity.

Adapt our tools and technologies

- Quick and simple self-service options.

Enable our people

- Efficient collaboration between agencies and IT Shared Services capabilities.
- Collaborative process for identifying citizen digital moments to enable.

Evolve Citizen Access Strategic Initiative 3.1: Institute Service Level Management

Supporting agency missions is paramount and working through the PMO, ARM and the governance groups enables our collective ability to assess data sharing opportunities among agencies. This will enable agencies to operate more efficiently and deliver additional valuable services to citizens.
Running technology as a business – and taking advantage of the opportunities shared services brings to the State – requires knowledge of the customers. Admin will provide services that State agencies need. Admin in partnership with the agencies will stay on top of the latest research and market trends to adjust IT services to meet agency needs.

Equally important to adding services is the decommissioning of services that are no longer in demand or strategically viable. Adopting a life-cycle approach will enable new services to be added while freeing up funds by avoiding “piling on” to existing services that are no longer needed.
While building the foundation, Admin will refine processes and continue to build capabilities on core services and look toward differentiated offerings such as evaluating IT shared services for non-production workloads.

Keeping Customers Informed

The IT Shared Service Catalog serves as a source of information describing the services offered and the value they provide to agency customers. The IT Shared Service Catalog must stay up to date and function as the best and most convenient source of information.

Expanding and refining processes – how work gets done and when agency customers can expect results – is critical to the success of shared services. Admin teams have been hard at work on foundational processes – such as how requests for new services are handled, how Admin respond to incidents – and Admin will begin to formalize the next generation of processes to improve service delivery capabilities.

3.1 Implement Service Level Management Actions
3.1.1 Manage IT shared services to defined service levels.
3.1.2 Assess and communicate service level metrics.
3.1.3 Learn agency requirements to identify potential new IT shared services.
3.1.4 Define process for decommissioning unnecessary services.

Evolve Citizen Access Strategic Initiative 3.2: Advance IT Service Management Capabilities

Increasing Speed

State agencies and constituents are used to having the option to access services from any channel at any time. A key initiative is to increase the speed of service for agencies by offering self-service options. Example of self-service capabilities include (but are not limited to):

- Automating requests for equipment and access.
- Reporting outages and incidents.
- Checking status from anywhere.
- Enabling the automated provisioning of server and storage compute resources.

Exploring Possibilities

While focus is expected to remain inward during the next period of the Statewide Strategic IT Plan while the foundation continues to be developed, we must not ignore possibilities for the future. It takes time to take an idea from concept to fruition, therefore we cannot waste time and must explore what government will look like in the future.

Admin will continue to evolve and improve engagement with agencies through the further development of the Agency Relationship Management team's capabilities. We envision an account manager at each agency the ARM represents.

Brainstorming and scenario building are important ways to discuss how the State can improve citizen access to government services. The State will facilitate cross-functional forums to engage business and mission leaders in exploring the opportunities and challenges of executing on a digital moment. The goal is to provide a mechanism to brainstorm speculative situations that can ignite creativity around the "art of the possible."

3.2 Improve IT Service Management Capabilities Actions
3.2.1 Identify agency desire for and requirements of self-service capabilities.
3.2.2 Implement account management at each agency via ARM function.
3.2.3 Facilitate cross-functional forums to identify digital moments to enable.

In summary, the outcomes expected from the strategic initiatives and actions identified to enable increased citizen access of IT systems through a shared services model include:

- Need-based articulation of future shared service offerings.
- Shared services with maturity and service levels matching current agency values.
- Easily accessible and current IT shared services catalog.
- IT processes evolving from foundational to advanced maturity.
- Efficient collaboration between Agencies and IT shared services capabilities.
- Collaborative process for identifying citizen digital moments to enable.
- Quick and simple self-service options.

Goal 4: Institute DATA DRIVEN Decision Making

Strategic Goal: The State will establish a culture focused on delivering value for citizens, businesses and state agencies, enabled by data-driven IT decision making.

Agencies use technology resources every day to conduct business. It is important that technology resources provide value to the agencies, as the State does not have unlimited funding to maintain assets that do not provide benefits. The state has made significant strides in understanding its technology resources – physical assets, software and people – where they are, what they do and how much they cost. The development of uniform standards and guidelines for data entry into the South Carolina Enterprise Information System (SCEIS) has helped significantly to increase transparency of state finances. Data also helps identify savings and ensures that funds are being used appropriately. The work agencies have done has supported Admin with the adoption of these standards.

Information technology planning for the future is also important. An understanding of what the State has and what it plans to do can assist the State tremendously in ensuring it receives value and benefits from IT resources. Admin continues to work with agencies to better understand their IT plans.
One of the goals of consolidation and shared services is to allow agencies to have a consistent cost for a stable, reliable and secure infrastructure. Developing statewide standards for items such as desktops increases reliability and ensures that agencies have what is needed to perform their missions. Joint planning with Admin allows agencies to take advantage of this infrastructure, allowing agencies to prioritize resources on activities such as mission objectives new and old and modernizing legacy applications.

Accomplishments since the publishing of the 2016 Statewide Strategic IT Plan for this strategic goal include:

- Collecting IT plans for any major IT-related procurement request.
- Providing oversight for agency budget requests.
- Reducing State rates for services related to shared services model.
- Publishing the End-User Computing Device Standard for desktops and laptops.
- Establishing a repeatable mechanism for collecting data to support benchmarking statewide IT costs.

Since the beginning of the shared services program, substantive progress has been made using the investments in people, processes and technology. Most important, we have a statewide view of IT. We have an understanding on how to work together to provide services in the most efficient and effective manner possible. The State has developed end-user computing standards which is a significant achievement. Information gathered includes IT plans for all major IT-related spending requests. Oversight for agency budget requests is also in place, enabling better use of resources. Establishing a repeatable mechanism for collecting and analyzing statewide IT costs is a significant achievement – this was accomplished through agencies working together with Admin. Work continues to refine and automate this process. Having a better understanding of cost and using a shared services model has already resulted in rate reductions for customers.

The following strategic initiatives and the related actions support the continuation of focus on instituting data driven decision making:

- Continue to mature IT cost transparency.
- IT Shared Services rate assessment.
- Enhance formal communication strategy.

The expected benefits of actions planned to institute data-driven decision making include:

Assess our current position

- Run statewide IT like a business using performance measurements to optimize statewide resources.
- Drive service quality through baselining performance measures for the core processes (incident, request and change).
- Provide reliable turnaround times.
- Collect agency feedback.
- Communicate statewide IT performance to stakeholder agencies.

Refine our governance and core processes

- Continue to enhance IT cost transparency based on analysis of financial and resource information.
- Integrate staffing and IT asset cost data into the state's enterprise financial systems.

Adapt our tools and technologies

- Identify/invest in the right tools to support improvements in communicating IT performance.

Enable our people

- Equip agency resource managers with agency specific performance and usage metrics to support trend analysis and proactively suggest improvements.

Data Driven Strategic Initiative 4.1: Mature IT Cost Transparency

The information gathered for statewide IT total costs from the South Carolina Enterprise Information System (SCEIS) is a valuable tool enabling strategic data driven decision making. This information will continue to help the State to optimize resources and understand the capacity to provide IT services. Integrating staffing data into SCEIS will enable better management of IT resources from a statewide perspective. Collecting IT asset cost data from purchase through retirement also helps to understand the total lifecycle cost of IT assets.
Admin must consistently evaluate performance. This includes looking at ourselves against external organizations on a periodic basis. Independent, external comparisons help to ensure our services and rates are competitive, our processes are efficient, and our resources can meet service expectations.

4.1 Mature IT Cost Transparency Actions
4.1.1 Define mechanisms and policies to collect IT staffing data within SCEIS.
4.1.2 Define mechanisms and policies to collect IT asset cost data within SCEIS.
4.1.3 Assess IT Cost performance against peer organizations periodically.

Data Driven Strategic Initiative 4.2: Assess IT Shared Services Rates

Shared services customers deserve to know what services are available and when they will be available. Developing service levels will enable customer agencies to drive reliable turnaround times for citizens of agency services.

4.2 IT Shared Service Rate Assessment Actions
4.2.1 Update IT Shared Services catalog including service descriptions, rates and service levels.
4.2.2 Assess IT rates against peer organizations periodically.

Data Driven Strategic Initiative 4.3: Enhance Formal Communication Strategy

Consistent and reliable communication between Admin and agencies is important. It will help to develop and refine the right service level targets as well as find out how we are doing when compared to peers. In addition to the agency relationship management function and the working groups, formal customer satisfaction surveys will be implemented. This allows Admin to ensure a view of performance through multiple lenses and at all levels of agency workers. Investments in additional data analytics, metrics reporting, and dashboard tools will highlight service performance and drive service improvement. Additional tools can also enable the development of an inclusive IT asset inventory that is visible statewide and provides value in understanding where opportunities for leverage might exist.

4.3 Enhance Formal Communication Actions
4.3.1 Implement formal customer satisfaction surveys.
4.3.2 Identify and invest in valuable service performance reporting mechanisms.

The overarching goal of these efforts is to foster a culture of continuous improvement. Results of performance measurement programs will be available through summary level reports and enable future measuring of both agency and statewide performance. The results of each identified improvement serve to teach every agency to make better IT decisions, become fully transparent and accountable to a common set of performance expectations at an application level. Admin will take the lead on improving our collective understanding of statewide IT spend.

In summary, the outcomes expected from the data driven decision making strategic initiatives and actions include:

- Run statewide IT like a business using performance measurements to optimize statewide resources.
- Drive service quality through recording of performance measures for the core processes (incident, request and change).
- Provide reliable turnaround times.
- Collect agency feedback.
- Communicate statewide IT performance to stakeholder agencies.
- Continue to enhance IT cost transparency based on analysis of financial and resource information.
- Integrate staffing and IT asset cost data into the state's enterprise financial systems.
- Equip agency resource managers with agency specific performance and usage metrics to support trend analysis and proactively suggest improvements.
- Identify and invest in the right tools to support improvements in communicating IT performance.

Goal 5: Lead in TECHNOLOGY INNOVATION

Strategic Goal: The State will identify innovative technologies to support the mission of agencies and serve citizens.

Lead in TECHNOLOGY INNOVATION

The State will identify innovative technologies to support the mission of agencies and serve citizens.

Admin identifies, evaluates and incorporates innovative IT technologies and services into its portfolio of offerings to support broad agency technology needs. Since publishing the 2016 Statewide Strategic IT Plan, Admin has focused on developing critical foundational capabilities such as tighter process integration with State IT procurement.

Leading in technology innovation related accomplishments since the publishing of the 2016 Statewide Strategic IT Plan include:

- Admin's integrated process with the State IT procurement process incorporated procurement into governance processes to enable quicker, more comprehensive and cost-effective solutions for the State's IT needs.
- Admin's work with governance groups defined technology standards for Hyper-Converged Computing and End-User Computing Devices.

Moving forward Admin will continue to build a strong foundation for enabling innovation which is critical to providing agencies with efficient, modern and relevant IT services.

The following strategic initiatives and the related actions support the continuation of focus on leading in technology innovation:

- Establish an innovation center.
- Evaluate Data as a Service.
- Enable IT professional development.

The expected benefits of actions planned to advance Lead in technology innovation include:

Assess our current position

- Allow agencies to benefit from rapidly evolving information technology innovations and sourcing options.
- Identification of catalog of shareable data.

Refine our governance and core processes

- Provide an innovation "shared resource" allowing agencies the opportunity to explore and test new technologies.
- Continue to identify, evaluate and partner with innovative technology partners in support of agency related cloud and digital initiatives.

Adapt our tools and technologies

- Assist agencies in identifying viable and supportable digital initiatives.
- Provide leadership and best practice advice on the adoption of cloud computing technologies.
- Enable broad agency workforce training by providing common training platforms.

Enable our people

- Support IT professional development initiatives targeted toward agency IT staff and end-users.
- Provide agencies with education and best practices for mitigating business impact risks from an unplanned business disruption.

Leveraging technology standards across the State promotes cost efficiencies from a technology support and IT procurement perspective. Admin will continue to evaluate new technology standards based on agency requirements. Admin will ensure a regular review process of existing technology standards is conducted and as appropriate refreshed on a periodic basis.

Innovation Strategic Initiative 5.1: Establish an innovation center

Before a new technology and/or service can be a candidate as a standard for the State, the technology must be vetted appropriately. Agencies have unique missions and, in many cases, have unique scenarios for leveraging a specific technology. Agencies must have the opportunity to test new technologies to determine if the technology and/or service is appropriate to support agency specific needs.

Admin will work with agencies to identify how to develop an innovation lab to allow agencies the ability to test evolving technologies and provide guidance regarding common use cases for the specific technologies. Examples of services Admin's innovation center will provide include:

- Serving as a shared resource to assist agencies in identifying viable and supportable digital initiatives and facilitating the identification and exploration of emerging digital ecosystems of interconnected people, businesses and technology-enabled devices.
- Serving as a shared resource to agencies by providing leadership and best practice advice on the adoption of cloud computing technologies.

To realize the benefits of an innovation center, Admin must continue to evolve its capabilities. Example capabilities to establish and/or evolve include:

- Establishing a dedicated role to lead technology innovation for the State supported by an innovation forum that allows for the identification and exploration of new technologies.
- Identifying a select group of experts to provide leadership and best practice advice on private cloud, public cloud and government-based cloud offerings (i.e., IaaS, PaaS and SaaS).
- Continue to collaborate with State agencies and other entities to opportunistically leverage innovation opportunities.
- Continue to identify, evaluate and partner with innovative technology partners in support of agency related cloud and digital initiatives. Continue to expand the State's network of partners that provide innovative technology services at competitive pricing as complementary and/or supplementary to Admin's services (e.g., cloud workload migration).
- Continue to actively incorporate innovative ideas at the IT Planning Summit.

5.1 Establish an Innovation Center Actions
5.1.1 Collaborate with agencies to define the requirements of an innovation lab.
5.1.2 Establish a Technology Innovation Leadership role.
5.1.3 Establish a Cloud Leadership Council.

Innovation Strategic Initiative 5.2: Evaluate Data as a Service (DaaS)

Data as a Service (DaaS) is a design approach or a style of information architecture geared toward transformation of raw data into meaningful data assets for agile/timely data provisioning, and the delivery of these data assets on demand via consistent, pre-built access, with the aid of standard processing and connectivity protocols. DaaS is a data delivery mechanism and a design solution. DaaS is an architectural construct — not a single vendor product, tool or technology — which can provide ways to deliver and collect and compose data from a variety of sources in varying formats.

5.2 Evaluate DaaS Actions
5.2.1 Define the DaaS governance process to identify, define and apply appropriate security mechanisms for sharing data.
5.2.2 Identify DaaS use cases.
5.2.3 Develop DaaS architecture.

Innovation Strategic Initiative 5.3: Enable IT Professional Development

As IT shared services adoption increases, and innovative technologies are adopted, it is critical that IT staff have the skills to fully exploit the environment. Admin will support agency resources through IT professional development initiatives targeted toward agency IT staff and agency end user staff. IT professional development training will be facilitated through a learning management system (LMS) and focus on agency-demanded IT skills (e.g., data and security related). End user / staff training can also be enabled by a LMS with a focus on office productivity tools (e.g., Microsoft Office applications).

Education and training activities will also address business continuity foundations. Admin will provide agencies with education and best practice advice regarding foundational activities for mitigating business impact risks from an unplanned business disruption.

Admin will provide a common education platform that agencies can leverage to conduct external provider and staff security training awareness courses, for example providing and tracking participation in required information sessions regarding how to handle agency specific sensitive information.

5.3 IT Professional Development Actions
5.3.1 Facilitate IT professional development training through a Learning Management System.
5.3.2 Develop and provide business continuity foundational training.

In summary, the outcomes we expect from the innovation related strategic initiatives and actions include:

- Allow agencies to benefit from rapidly evolving information technology innovations and sourcing options.
- Continue to identify, evaluate and partner with innovative technology partners in support of agency related cloud and digital initiatives.
- Support IT professional development initiatives targeted toward agency IT staff and end users.
- Assist agencies in identifying viable and supportable digital initiatives.
- Identification of catalog of shareable data.
- Provide an innovation “shared resource” allowing agencies the opportunity to explore and test new technologies.
- Provide leadership and best practice advice on the adoption of cloud computing technologies.
- Enable broad agency workforce training by providing common training platforms.

CONCLUSION

At its core, statewide information technology is about serving South Carolina's citizens effectively and efficiently with valuable and necessary services that lend to safety, security and an improved quality of life. The Statewide Strategic Information Technology Plan includes a set of goals and strategic initiatives designed to set the direction for the State's information technology community. This plan is intended not only for Admin, it is created for the entire State and includes input from a variety of stakeholders solicited through a collaborative process. With this plan, our technology direction for the next two years is reinvigorated for the State of South Carolina.

The next step is to develop a plan to implement the State's strategic information technology initiatives. Admin will collaborate with agencies to finalize a prioritized roadmap for implementation and governance of this plan so that each of us understands our important roles in making this strategic direction a reality.

A website has been created for readers to stay informed on new developments and provide feedback regarding this plan. More information can be found at http://www.admin.sc.gov/SCStrategicITPlan.

Admin looks forward to working closely together with agencies and other partners in achieving our respective missions and strategic goals through the priorities and associated actions defined in this plan. Together, we will continue to move South Carolina's information technology forward in a positive direction and endeavor to further realize the reliable, secure, cost efficient and innovative technology support our citizens require and deserve.

APPENDIX

The State of South Carolina's Admin has made substantial accomplishments since the publication of the 2016 Statewide Strategic IT Plan. A more detailed list of the accomplishments, by goal, are summarized in this section.

Accomplishment Details

Goal 1: Advance Information SECURITY and Accessibility

Defined Statewide Incident Response Standard. Admin defined comprehensive requirements for preparing for and responding to events that pose a threat to the confidentiality, integrity, or availability of information or information systems. This includes guidance in developing an incident response program at the agency level, identifying incident response types and tiers, and establishing incident response steps.

Completed application criticality study. All agencies studied and ranked their critical agency business applications and developed appropriate disaster recovery plans. This service supports the design of disaster recovery environments and corresponding services for the technical components of disaster recovery for agency business functions.

Deployed enhanced business monitoring capabilities. Admin implemented advanced tools to improve agency-level information security operations. These tools improve the agency's ability to monitor, assess and defend enterprise information systems. This capabilities set is a solution-based offering that has the potential to be utilized broadly by agencies.

Executed an Information Security and Privacy services contract. Admin's Division of Information Security (DIS) and Enterprise Privacy Office (EPO) assist state agencies in establishing information security and privacy programs. To support agencies in meeting the accelerating demand for information security and privacy services, DIS and EPO have collaborated to issue the Information Security and Privacy Services (ISPS) statewide term contract. The services provided are classified into seven distinct lots with specific areas of focus.

Through the services available via the ISPS contract, Agencies gain access to approved Managed Security Services (MSS) services contracts, by various lots, to support the ongoing needs of the State. These services were selected to meet accelerating demand for information security and privacy services that focus on detection, prevention and response from incidents that threaten the State's information assets. With the ISPS in place, the State has established a service channel, with qualified contractors who can provide information security and privacy related services in a targeted and expedited manner.

Implemented a Virtual Chief Information Security Officer (V-CISO) program.

- Process Benefits
  - Information Security Program Management and Maintenance. The V-CISO will have the requisite knowledge and expertise to ensure each agency achieves and maintains compliance with DIS policies, standards, procedures, guidelines and other South Carolina Information Security Program requirements.
  - Information Security Risk Management. As DIS continues to mature the State's information security-related governance, risk and compliance functions, the V-CISO will be well positioned to guide and direct each agency's participation in these activities. The V-CISO will be responsible for interfacing with senior agency staff to ensure agency understanding and commitment to this critical work.
  - Improved Information Security Incident Response. As a member of the DIS staff, the V-CISO will have a close relationship with the security team that monitors state information assets. In the event a security incident is detected at one of the V-CISO's agencies, the V-CISO will work closely with the DIS incident response team and the affected agency's staff to ensure prompt and appropriate management of the incident.
- People Benefits
  - Information Security Training. As part of the Division of Information Security (DIS) team, the Virtual Chief Information Security Officer (V-CISO) will receive the same training other DIS staff receive, targeted to his or her specific role. DIS is committed to employee professional development, which will help ensure quality and consistent security services.
  - Information Security Experience and Management. Since DIS will hire and manage the V-CISO, agencies will not need to worry about vetting skillsets during the interview process, nor should they be concerned about V-CISO performance management tasks, such as annual performance reviews. DIS will use the newly established information security core competency and role and responsibility models, developed in conjunction with the State Human Resources Division and Deloitte, to manage V-CISO performance.
  - Information Security Liaison. The V-CISO will serve as each agency's appointed information security liaison. All state agencies must have an appointed liaison, regardless of internal title, who is assigned to work with DIS in the development, implementation and maintenance of South Carolina's Information Security Program goals and objectives. Additional functions typically assigned to security liaisons include: receiving and acting on security alerts from DIS; providing DIS with agency-specific information relevant to the DIS mission; leading agency-specific information security program efforts; and communicating with agency staff and management.
  - Affordable. Security staff with the requisite combination of experience, education, certifications, business acumen and people skills are increasingly in demand, and therefore expensive and difficult to find. This is especially true for small agencies, which often have very limited resources to allocate toward such a position. For the cost of an entry-level information technology (IT) resource at each agency, four agencies could instead receive access to more intensive Deputy CISO-level support.

- Technology Benefits
  - Information Security Technology Implementation Assistance. Working with Division of Technology Operations (DTO) and DIS staff, agencies will receive enterprise security technologies (i.e., data discovery, whole disk encryption, etc.) as part of their DTO Service Level Agreement (SLA), which will include support and maintenance. The V-CISO will help prioritize deployment of technologies based on each agency's risk profile.
  - Improved Information Security Monitoring. As DIS improves security monitoring for state agencies, agencies with servers in the State Data Center will generally receive a higher-level of monitoring by DIS having more efficient and effective access to servers, networking equipment and other log sources present at this physical location. More specifically, the V-CISO can ensure high-risk systems are being monitored by working with each agency during data discovery and other risk assessment processes

Goal 2: Improve RELIABILITY of State Systems

Defined first phase of offerings for the IT shared services model. Determined which services the state would first offer within the shared services model. The following were the first four identified, scalable services:

- Workplace Services — Provide agencies' employees the resources and tools needed to perform their jobs. This includes services like desktop and laptop computers support, printer support and email services.
- Network and Telecommunication Services — Facilitate integrated connectivity of state agencies with one another and the internet. These services also include local and long-distance telephone services, voicemail and the Palmetto 800 Radio System.
- Hosting Services (hosting platforms or IT infrastructure housed in the State Data Center) — Provide security and reliability for critical applications used by various agencies. Some examples include virtual database hosting and virtual servers.
- Enterprise Storage — Offer secure storage for applications and user data. Admin offers an enterprise-class platform that can accommodate large data sets and provide high performance disk storage for mission critical applications.

Designed shared services technology risk framework. Determined criteria to prioritize agency transitions into the IT shared services model. This process resulted in a prioritized list based upon several critical factors including each agency's immediate security and technology profile in addition to anticipated transition complexity.

Transitioned first set of agencies to shared infrastructure. Successfully migrated four agencies to the State Data Center, including; the South Carolina Department of Probation, Parole and Pardon Services (SCPPP); the South Carolina Commission on Indigent Defense; the South Carolina Commission for the Blind, and the South Carolina Department of Social Services (SCDSS) (Child Enforcement and Disaster Recovery Equipment Relocation).

Established IT shared services governance groups. Created tiered governance groups to collaboratively provide guidance for shared services initiatives. These groups include:

- Executive Oversight Group – Establishes the IT shared services direction for the state.
- Agency Work Group – Assesses the IT needs of state agencies.
- Technology Work Group – Evaluates technology services and ensures compliance with security and regulatory standards.

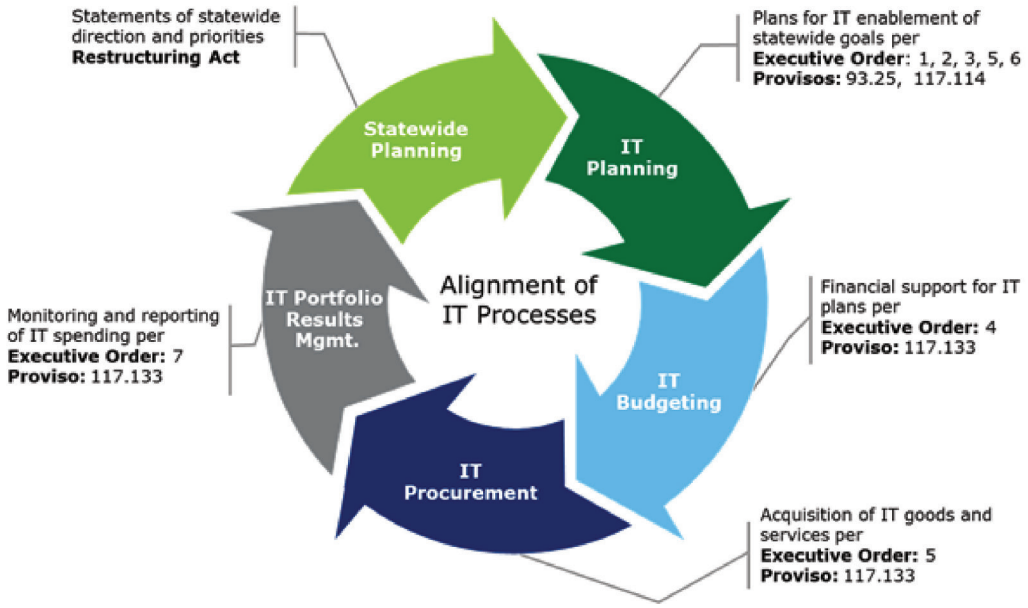
- Security and Architecture Review Board — Determines the security, privacy and technology direction and standards.
- Agency Relationship Management Board (ARM) — Provides feedback and input on current shared services and emerging services and systems that support IT.

Created the Information Technology Shared Service Portfolio and Information Technology Shared Service Catalog. Published a catalog of the State's shared services model offerings. The portfolio, used to introduce the IT shared services model, provides agency directors an overview of available IT shared services. The more than 100-page catalog offers a detailed look at each service and corresponding rate. Additionally, the catalog explains the responsibilities of both Admin and the customer agency.

Admin has also achieved substantial accomplishments beyond IT shared services since 2016 for improving the reliability of the State of South Carolina IT Systems. A sample of some of the major accomplishments related to broad enterprise IT Services Process optimization include:

Provided IT service management tools. Created access to a leading IT service management software, which allows agencies to track and resolve issues that impact the IT environment. Agencies have found this tool valuable in reducing IT incidents, managing requests, and gaining more visibility into performance.

Established IT planning process. Conducted an IT planning study that resulted in a process that aligns the IT strategic goals of the State with financial/procurement support and monitoring/reporting for that IT. This process enables the State to deliver consistent and reliable services while achieving the goals of the Statewide Strategic Information Technology Plan.



Goal 3: Evolve CITIZEN ACCESS to Government Services

Created the Program Management Office (PMO). Developed entity to execute initiatives related to the IT shared services model. The PMO oversees the management of projects related to IT shared services, which includes developing and maintaining relationships with partner agencies.

Enacted the Agency Relationship Management (ARM) team. Created targeted function within PMO focused on understanding agencies. The ARM works to build and maintain relationships with IT shared services customer agencies. Currently, there are five dedicated ARM team members who assist customer agencies in aligning business requirements with technical solutions that meet their needs.

Goal 4: Institute DATA DRIVEN Decision Making

Collected IT plans for any major IT-related spend request. Required detailed proposals for any spend request above $50,000. To date, Admin has received over 290 plans from agencies to review. Admin continues to mature this due diligence process and is currently developing a new IT planning tool to offer agencies a more efficient reporting method.

Provided oversight for agency budget requests. Reviewed agency budget requests and provided recommendations based on each request's alignment with the Statewide Strategic IT Plan. In 2017, over 70 budget requests totaling approximately $224 million were evaluated and provided strategic guidance.

Reduced state rates for services related to IT shared services model. Agencies and DTO collective efforts to shift to IT shared services have resulted in savings opportunities on select services. These services and reductions include:

- Storage — Reduced by 10 percent.
- Archive Storage — Reduced by 82 percent.
- Server Management — Reduced by 25 percent, per server.
- Virtual Servers — Reduced by 20 percent, per virtual server.

Published the End-User Computing Device Standard for desktops and laptops. Defined statewide requirements for desktop and laptop purchases, resulting in more favorable contract negotiation for the State. Through the governance model, agencies created the End-User Computing Device Standard and worked closely with the Agency Relationship Management team to ensure compliance with the new standard. Since the implementation of this standard in October 2017, several agencies have already experienced savings and cost avoidance in the collective amount of approximately $390,000. Examples include:

- An agency saved $216,000 on an end-user computing devices refresh.
- An agency saved/avoided $35,000 as part of a desktop replacement project utilizing external provider negotiations and standard configuration.
- An agency saved/avoided $6,000 as part of a purchase of rugged laptops by working with the state contract external providers to leverage a better price.
- An agency saved $6,000 as part of a purchase of tablets due to external providers' negotiations and standard configuration.

Established a repeatable mechanism for collecting and analyzing statewide IT costs. Completed an IT Infrastructure Cost Benchmark and Infrastructure Cost Reduction Assessment, which resulted in enhanced transparency of financial and resource information from the South Carolina Enterprise Information System (SCEIS).

Goal 5: Lead in TECHNOLOGY INNOVATION

Admin's integrated process with the State IT procurement process incorporated procurement into governance processes to enable quicker, more comprehensive and cost-effective solutions for the State's IT needs. For the State to leverage the collective buying power of all applicable agencies for a certain IT solution, procurement has been closely involved in each phase of the development and securing of those solutions.

Security Related Context

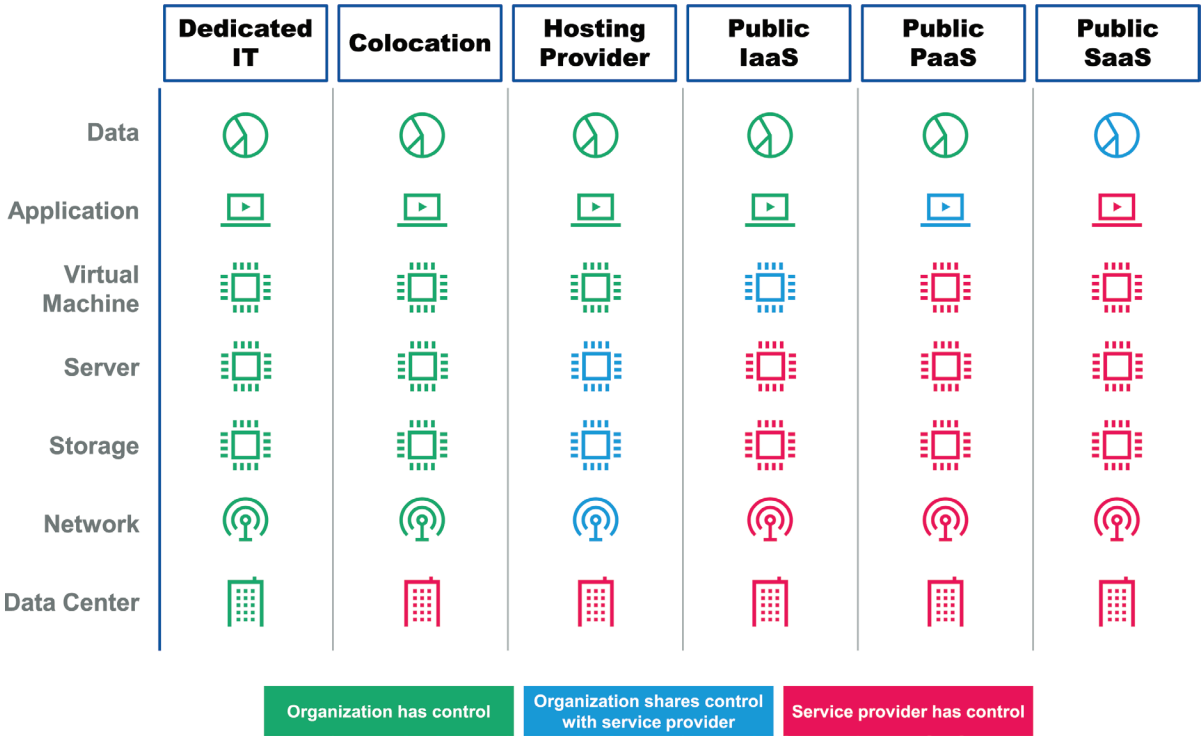
To support a robust and formal Information Security Program, we will mature IT governance processes to support IT security at all levels of decision making and control leading to established cultural norms of information security first and always.

The specific tasks we will contemplate and enable include:

Tasks	Expected Benefit
Measure the current-state level of security maturity across industry-recognized security domains. How capable is each organization in defending itself using the current approach?	Facilitates reporting and peer benchmark comparison.
Measure the level of risk exposure resulting from the current level of security maturity, based on organizational business objectives, risk tolerance and assurance requirements.	Facilitates prioritization of security and compliance improvement.
Measure the required future-state - or target level of security maturity – how capable should the organization be in defending itself.	Facilitates the definition of "how much security is enough" specific to the organization.
Compare the current-state of security maturity to similar peers.	Provides context for understanding best practice approaches.
Identify actionable recommendations to improve security maturity and reduce risk exposure that are based on industry leading practices, industry trends and how peer organizations are managing similar risks.	Facilitates development of an appropriate plan of action.
Measure the level of investment required to achieve the target level of maturity in people, organization, process and technology.	Facilitates an appropriate resource-leveled plan of action as well as funding rationale and justification for initiatives.
Define a phased, prioritized, and ROM priced roadmap and plan of action for achieving the target level of security maturity over a multiyear planning horizon.	Provides a baseline for measuring and reporting progress against the long-term strategy as well as enabling some quick wins.

Cloud Education

The “as a service” nature of cloud computing lends itself to the grouping of services based on software, platform or infrastructure layer. These are commonly referred to as software-as-a-service (SaaS), platform-as-a-service (PaaS), or Infrastructure-as-a-service (IaaS). These service layers will determine the delineation of responsibilities between the consumer of cloud services and the provider. An illustration of the different operating model impacts is illustrated below:



Realities of Cloud Computing

The evolution of cloud computing and the external provider community’s desire to leverage or challenge this now mainstream computing model while positioning their products has resulted in several misconceptions that need to be understood and addressed. Those of note include:

- Security — A common misconception about cloud computing is that it is not as secure as the traditional on premises computing environments. Leveraging and properly configuring available government cloud capabilities such as data encryption, threat analytics and multifactor authentication technologies will allow the State to realize the benefits of the cloud environment while maintaining appropriate security protections.
- Cost — It is assumed by many that cloud computing is always cheaper than other alternatives, however, that is not always the case. The applications and workload identified for the cloud must be reviewed and managed carefully to ensure cloud resources are being leveraged in the most effective and efficient manner.

- Everything can live in the cloud — At some point in the distant future this may become a true statement, however limitations of legacy workloads or dependencies on legacy operating systems will have to be addressed first. Many applications may need to be modernized at significant cost before they can be cloud-hosted. Furthermore, as stated above, characteristics of some applications may result in higher total cost of ownership in the cloud. Many organizations are considering a cloud first strategy for new applications.

Strategic Treatment of Cloud Computing

South Carolina recognizes that flexibility and agility in deployment of new services is paramount to success of future service delivery capabilities for state agencies. Cloud computing will be an integral component of a hybrid service delivery capability that will be addressed by the IT Strategic Plan in the form of a Cloud Strategy. Cloud and traditional data center models will be part of a continuum of complementary solutions for the foreseeable future. The Cloud Strategy will develop a set of goals and priorities for design, procurement, implementation, and operation of a uniform set of cloud capabilities from which all agencies could benefit. These goals and priorities will collectively outline a roadmap to address:

- Required cloud capabilities such a private, public or government cloud;
- Integration models and reference architectures;
- Cloud security and use policies;
- Cloud governance;
- Resource and talent development;
- Lifecycle management;
- Financial management; and
- Procurement

Multisourcing for cloud computing models will become a critical component of a hybrid service consumption. Multiple external providers will be needed to effectively support the State's requirements without external provider lock-in. Admin will provide cloud services with as a service broker for the State, enabling deployment of cloud service broker (CSB) capabilities with a consolidated view for provisioning cloud services.

In addition, Admin will evaluate enhancement of its core shared services capabilities to enable private cloud features such as automation and self-provisioning, Admin with a CSB will deliver value through three primary roles:

- Aggregation — Bringing together multiple services in scale, such as: cloud-scale provisioning, consistent management view, single sign-on (SSO), unified billing, unified management, ease of access, customer support and SLA management.
- Integration — Bringing multiple cloud services together and making them work together to deliver an integrated result: integration of cloud endpoints, governance, community management and migration.
- Customization — Altering or adding to the capabilities of a service, such as: layering new data and process functions, visibility and analytics, or incorporating a new look and feel to the service.

IT Strategic Initiatives

The IT initiatives listed below enable the state to continue to move forward in support of the IT Strategic Vision.

2018 Statewide Strategic IT Initiatives
Goal: Advance Information Security and Accessibility
1.1 Develop a Statewide IT Security Assessment Program
1.2 Mature Statewide IT Security Incident and Disaster Preparedness
1.3 Enhance Statewide IT Security Services and Data Classification
1.4 Provide Statewide IT Security Support
Goal: Improve Reliability of State Systems
2.1 Develop Statewide Cloud Strategy
2.2 Develop Statewide Cloud Capabilities
2.3 Improve IT Shared Services Core Capabilities
2.4 Improve IT Shared Services Migration
Goal: Evolve Citizen Access to Government Services
3.1 Improve Service Level Management
3.2 Advance IT Service Management Capabilities
Goal: Institute Data-Driven Decision Making
4.1 Continue to Mature IT Cost Transparency
4.2 Conduct IT Shared Services Rate Assessment
4.3 Enhance Formal Communication Strategy
Goal: Lead in Technology Innovation
5.1 Establish an Innovation Center
5.2 Evaluate Data as a Service
5.3 Enable Professional Development with Learning Management Platforms

Development of the Statewide Strategic IT Plan

An Executive Advisory Group, consisting of seven State departmental executives and a private sector information technology (IT) executive, was formed to oversee and provide input to this plan. Information collected from 74 State agencies regarding IT spending and planned investments, as well as direct input from several agency and IT leaders through a structured interview process, was used in developing this plan.

Executive Oversight Group

An Executive Oversight Group comprised of 15 State departmental executives and one private sector information technology executive was formed to oversee and provide input to this plan. The group membership consists of the following individuals:

- Marcia Adams, Executive Director, Department of Administration
- Rick Makla, Chief Strategy Officer, Department of Administration
- Lindsey Kremlick, Division Director, Division of Program Management
- Keith Osman, Chief Information Officer, Department of Administration, Division of Technology
- James Brown, Chief Information Security Officer, Department of Administration, Division of Information Security
- Mark Keel, Chief, State Law Enforcement Division

- David Wilson, Acting Director, Department of Health and Environmental Control
- Josh Baker, Executive Director, Department of Health and Human Services
- Jerry Adger, Director, Department of Probation, Parole and Pardon Services
- Grant Gillespie, Executive Director, State Fiscal Accountability Authority
- Emily Farr, Executive Director, Department of Labor, Licensing and Regulation
- Sara Goldsby, Executive Director, Department of Alcohol and Other Drug Abuse Services
- Mark Plowden, Deputy Chief of Staff, Governor's Office
- Hartley Powell, Executive Director, Department of Revenue
- Renee McCormick, Senior Vice President and Chief Information Officer, Blue Cross Blue Shield

Participating Agencies

Direct input was provided by the following agencies through a structured interview process. The participating agencies included:

- Commission on Higher Education
- Commission on Indigent Defense
- Department of Administration
- Department of Alcohol and Other Drug Abuse Services
- Department of Health and Environmental Control
- Department of Health and Human Services
- Department of Labor, Licensing and Regulation
- Department of Probation, Parole and Pardon Services
- Department of Revenue
- Department of Social Services
- Governor's Office
- State Fiscal Accountability Authority
- State Law Enforcement Division

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