Cabinet Unite IT Strategy

Executive Order No. 30

Fixing and Modernizing Information Technology Governance in Cabinet Agencies by Collaborating as One IT

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State of North Carolina

Office of Information Technology Services

Pat McCrory
Governor

Chris Estes
State Chief Information Officer

TO: Governor Pat McCrory, Cabinet Secretaries, Directors and Cabinet CIOs

Governor McCrory directed all of us to create a culture of customer service where doing business with state government is as easy as checking the scores on a smart phone. That requires our agencies to break down their traditional silos and work as a team. This spirit of collaboration is captured in our "One IT" strategy, with IT leaders from the Cabinet Agencies partnering as a statewide enterprise rather than operating as individual businesses.

As provided for by Executive Order 30, the Cabinet Agency CIOs created Collaboration and Innovation Plans with direction from their Secretaries and Directors. Those plans provided guidance for this document, as we work to identify synergies and deliver efficient IT services that meet the business needs of state agencies. This document is the "Cabinet Unite IT Strategy" required by EO30, a benchmark of our shared IT Business and Organizational Capabilities. Our IT planning continues to progress as we build towards the 2015 Biennial IT Plan required by the General Assembly.

I would like to thank all of you for your contributions to this project. It is very rewarding to be associated with a strong team of leaders who are committed to modernizing North Carolina's IT capabilities. We welcome your input on the document and the opportunity to discuss our next steps.

Sincerely,

Chris Estes

State Chief Information Officer

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Introduction

What is the Cabinet Unite IT Strategy?

The 2013-15 Statewide IT Plan was scheduled for delivery in February 2013, a period of significant organizational change associated with an incoming administration. The Governor appointed a new State CIO who needed time to evaluate and prioritize before publishing a biennial plan. The SCIO is employing a multi-step process to align various planning activities and schedules, culminating in the 2015-2017 Biennial State IT Plan. The figure below illustrates the stair step process leading up to the Biennial IT Plan.
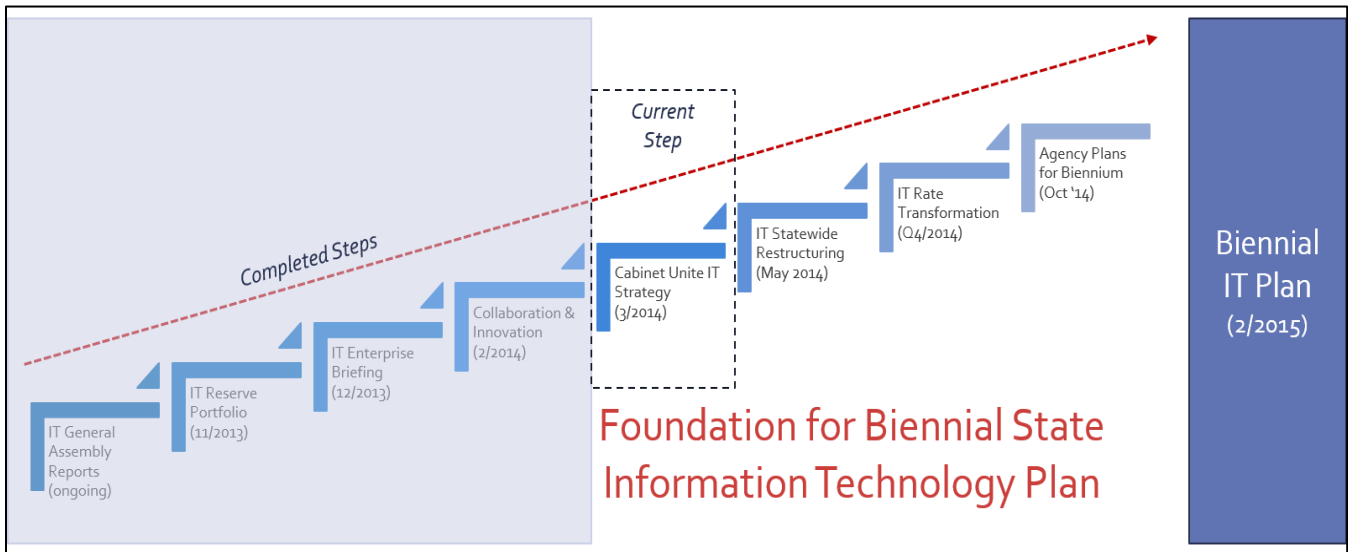

**Figure 1: Steps to achieving the 2015 Biennium Plan**

Executive Order No. 30 (EO30) directed each cabinet agency CIO to develop a Collaboration and Innovation Plan that demonstrates how the cabinet agencies will work together to support the most efficient operating model for the delivery of IT. These plans were delivered in February of 2014. EO30 also instructed the SCIO to develop this Cabinet Unite IT Strategy to define "the unification of Information Technology and related Platforms and Services for all cabinet agencies, except those services, if any, that cannot be united due to restrictions imposed by security, contracts, state or federal law." This report fulfills the requirement of EO30 and serves as an input to the Statewide Restructuring Plan prescribed by Section 7.4(c) of Session Law 2013-360, which seeks to improve efficiency and the efficacy of IT in state government. Finally, this Cabinet Unite IT Strategy serves as an interim Statewide IT Plan until the publication of the 2015-2017 Statewide IT Plan in February 2015. As such, this strategy must also contemplate the external forces that are shaping the IT industry and the current state of IT across the enterprise.

Technology Industry Trends

Technology is changing at a pace never before seen and organizations must combine these rapidly evolving technology trends with the organizational and process changes required to meet today's dynamic business needs. The consumerization of IT, big data, and cloud computing are just a few examples of disruptive forces in business and IT, and organizations must understand and embrace these trends to remain effective and relevant.

Historically, IT has expected consumers to conform to the requirements or limitations of the technology itself. Modern technologies focus instead on the wants and needs of the consumer, including the use of their personal devices for work activities. This trend is termed *consumerization* – the reorientation of technology around the individual user's needs as the primary driver of technology products and services. Physical limitations, like computing devices and wired or corporate networks, should not create false barriers to accessible, productive use. The modern technology consumer expects connectivity and an ability to work on any device, anytime and anywhere. Adapting technology to meet the needs of the modern user requires the IT organization to evolve the services provided and the mechanisms that deliver those services. The consumerization of IT must be weighed against the benefits of cloud and "as a service" offerings that do require the consumer to use the technology in a specified way. The consumer is the driver but the needs of the individual must be balanced against the needs of the enterprise. Consumerization has led to changes in enterprise delivery of technology in ways that only recently seemed unimaginable. The ability to perform productive business interactions on a smartphone, including a personal smartphone in a bring-your-own-device (BYOD) scenario, and the use of mobile applications are game-changers for traditional IT.
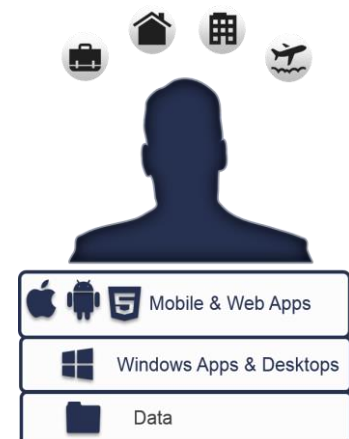
Big Data is another trend that is redefining traditional information technology organizations by transforming the landscape of data governance, data management and business analytics. Data is constantly being captured from numerous sources, including websites, smartphones, chat sessions, industrial sensors, video, email, text messages, and social media. According to IBM, ninety percent of the world's data was generated between 2012 and 2013, with approximately 2.5 quintillion bytes of data created each day. New technologies analyze these vast fields of data to drive informed business decisions, identify potential misuse and better serve customers. The modern workforce requires specialized skills to support and manage these technologies, and to protect the data under the stewardship of the provider.

Decoding the human genome originally took 10 years to process. It can now be achieved in less than a week.

Cloud computing is another disruptive force across the technology landscape. In simple terms cloud or utility-based computing means using the Internet instead of local computers or corporate data centers to store and access data and programs. Movement to the cloud is accelerating and the industry has reached a tipping point. In the early phase of the cloud-computing trend organizations experienced limited adoption of cloud services focused primarily on simple use and where other viable solutions do not exist. This early phase is ending as cloud computing technologies and business models are maturing, becoming more strategic and value-generating. The movement to "the cloud" is a critical element of consumerization, mobility, big-data, and other transformative developments in the industry. As illustrated in Figure 2, cloud computing can no longer be viewed as simply an option. Movement to the cloud is not just a technology shift. It requires an organization to modernize established operating and financial practices because the traditional models are no longer effective in the modern technology world.
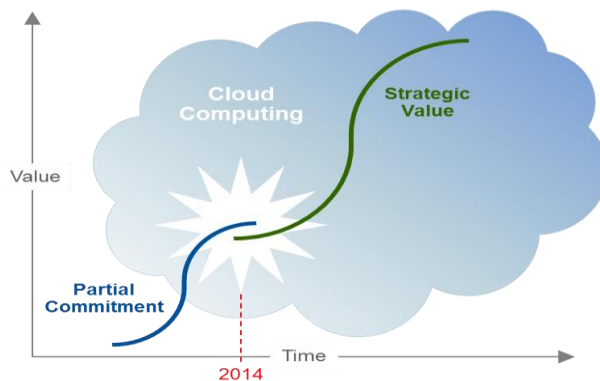

Figure 2 : Cloud Computing is no longer an option - Gartner

These external forces and the demands of the modern consumer have thrust IT from the back office to the board room. IT is now recognized as a strategic business function that improves consumer interactions, adapts to rapidly changing business needs, and operates more effectively and efficiently. To achieve these objectives, IT and business decision makers must work together to develop strategic priorities and evaluate the use of technology to execute them. The true value of IT is in translating an organization's goals and objectives into technology solutions that improve or accelerate business outcomes.

An Inflection Point in Government: CIO and IT Leaders are on the Front Line of Transformation. - Gartner

In the modern IT era, CIOs are considered true business peers who drive business innovation, cultivate new partnerships and develop business strategy. Those CIOs operating in the legacy service provider model fulfill a back office function with no clear correlation to business value.

Game-Changing CIOs have a much different focus than CIOs who run IT groups viewed as back-office providers	
Game-Changer & Business Peer Focus	Service Provider or Cost Center Focus
1. Driving business innovation	1. Improving IT Operations
2. Cultivating the IT: Business relationship	2. Deploying new systems
3. Developing business strategy	3. Controlling IT costs

Source: State of the CIO 2014 – CIO Magazine

These disruptive changes present exciting opportunities and significant challenges for IT departments. Consumers, businesses and citizens demand the "new" IT paradigm and expect existing IT solutions to continue operating consistently and dependably. The IT enterprise is challenged to support established technologies while building and orchestrating the new IT capabilities in parallel. These struggles can be magnified by the integrated nature of existing solutions, the availability of required talent, the organization's culture and financial practices or limitations.

IT organizations can address these challenges by clearly delineating legacy and new IT solutions and operations. New IT operations are established and staff is aligned to focus on new and innovative services and solutions built to make IT more flexible and responsive to changing business needs. The new and legacy IT organizations run in parallel but not in silos. A strong conduit between the organizations is necessary to ensure that consumers' needs are being met regardless of the IT group that delivers the solution. Figure 3 illustrates the dual model.
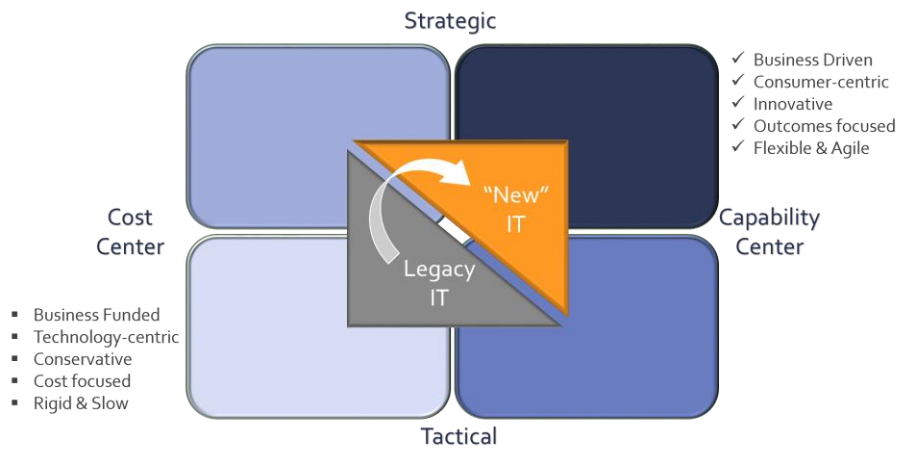
Figure 3 : Legacy IT vs. Strategic IT

Adapting to the various internal and external forces shaping today's IT organizations is a large, transformational journey over a series of years. The first year, or generation, of this journey is focused on assessing and remediating specific problem areas. Future generations will continue to fix identified problem areas while also modernizing the ways in which IT is governed and delivered. This Cabinet Unite IT Strategy describes the vision for IT and the supporting transformative steps to achieving it.

> "Interacting with government should be as easy and cost effective as checking the latest sports scores or shopping on a smartphone." - Governor Pat McCrory

The Big Picture

This Cabinet Unite IT Strategy presents the approach that IT will use to provide effective and efficient services by focusing on the needs of the people that use technology and streamlining state agency operations. Like the private sector, state government must move away from a technology-centric world to one built upon the needs and desires of the consumer. Citizens are growing accustomed to an increasingly digital world where they can work, shop and play at any hour of any day. They expect interactions with government to be as simple and seamless as interactions with online merchants and institutions.

Modern business operates at high speed, requiring technology solutions that can adapt rapidly to dynamic demands. Today's state employees need the ability to conduct business anytime, anywhere, on any device. The IT organization must embrace these radical changes, while improving agility and efficiency in state government operations, in order to deliver vital services to citizens. Redefining and refocusing on the role of IT is at the heart of this effort. This Cabinet Unite IT Strategy illustrates the One IT mission, vision and approach to modernizing IT in state government.

The One IT leadership team, as established through EO30, began collaborating on the top IT priorities and the capabilities necessary to execute their business strategies. This collaborative process defines five organizational capabilities and six business capabilities that can unite IT across the cabinet agencies. *Organizational Capabilities* refer to the ways people in the organization cooperate to get things done; including the way leaders foster a shared mindset to manage talent, change, accountability, and collaborate across boundaries. *Business Capabilities* are the collection of people processes and technologies the organization needs to align to execute its strategy. This report introduces and summarizes five IT organizational capabilities and six common IT business capabilities that are required for execution of the One IT mission.

5 IT Organizational Capabilities

1. **Collaborative IT Governance**
2. **Strategic Planning and Architecture**
3. **IT Program and Project Management**
4. **Innovation**
5. **Talent Development and Management**

6 IT Business Capabilities

1. **Digital Focus**
2. **Big Data and Analytics**
3. **Enterprise Resource Planning**
4. **Application and Service Modernization**
5. **Risk Management and Security**
6. **IT Operations**

One IT Vision, Mission, Strategies and Guiding Principals

Disruptive forces, both internal and external, exert pressure on IT organizations. To succeed, organizations must have a clear vision and strategy supported by a strong, collaborative governance model to maintain focus and guide the organization. The following vision, mission, strategies and guiding principles shape the decisions and delivery of information technology in state government.

IT Vision

Making government services more accessible and efficient for all consumers is the foundation of the One IT strategy.

IT Mission

Promoting a stronger North Carolina that connects citizens, businesses, education, and government is the mission of IT.

IT Strategies

Strategies focus organizations to achieve complicated goals or objectives. With an eye to the future while sustaining current foundational requirements, the SCIO has adopted the "ABC" strategy to fix and modernize IT.
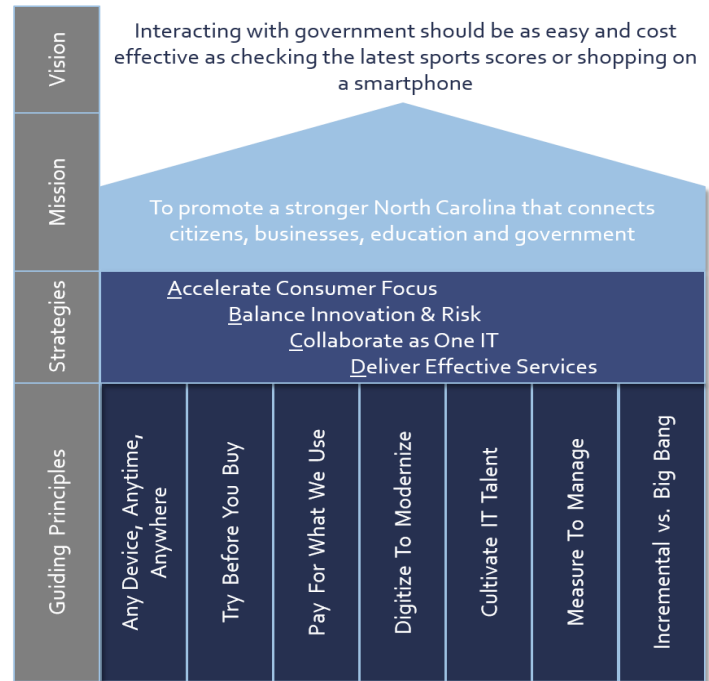
Figure 4 : IT Vision, Mission, and Strategies

	Strategy	Intended to:
A.	Accelerate Consumer Focus	Embrace the consumerization of IT with a focus on the requirements of the consumer of technology
B.	Balance Innovation and Risk	Try newer technologies while managing enterprise risk
C.	Collaborate as One IT	Work as a team to accomplish our mission
D.	Deliver Effective Operations	Focus on achieving business outcomes through effective and efficient technology delivery

IT Guiding Principles

These guiding principles support the One IT mission.

	Guiding Principle	How we will use it:
1	Any Device, Anytime, Anywhere	Design solutions around the user's requirements with technology whenever, wherever and from any device
2	Try Before You Buy	Evaluate technology through actual use in the Innovation Center prior to investing in a particular solution
3	Pay For What We Use	Utilize consumption-based contracts and aggregate agreements
4	Digitize to Modernize	Focus solutions on digital content that can be managed, distributed and analyzed via modern electronic channels - including internet, social and mobile platforms
5	Cultivate IT Talent	Promote talent management and development for IT professionals
6	Incremental versus "Big Bang"	Develop and deliver solutions incrementally as opposed to large-scale, multi-year projects
7	Measure to Manage	Develop metrics-based management system to assess performance across the ecosystem

IT Management Structure

Governor McCrory introduced matrixed management as the enterprise-business operating model for the state to remove the historical boundaries between agencies. This model creates a culture where the cabinet agencies make decisions and operate as a unified executive management team. The following figure represents the Governor's Executive Leadership Team (ELT).

Figure 5 : Governor's Executive Leadership Team

EO30 defined a similar matrixed model for IT across Cabinet agencies, the One IT Executive Leadership Team. The following figure represents the One IT ELT.
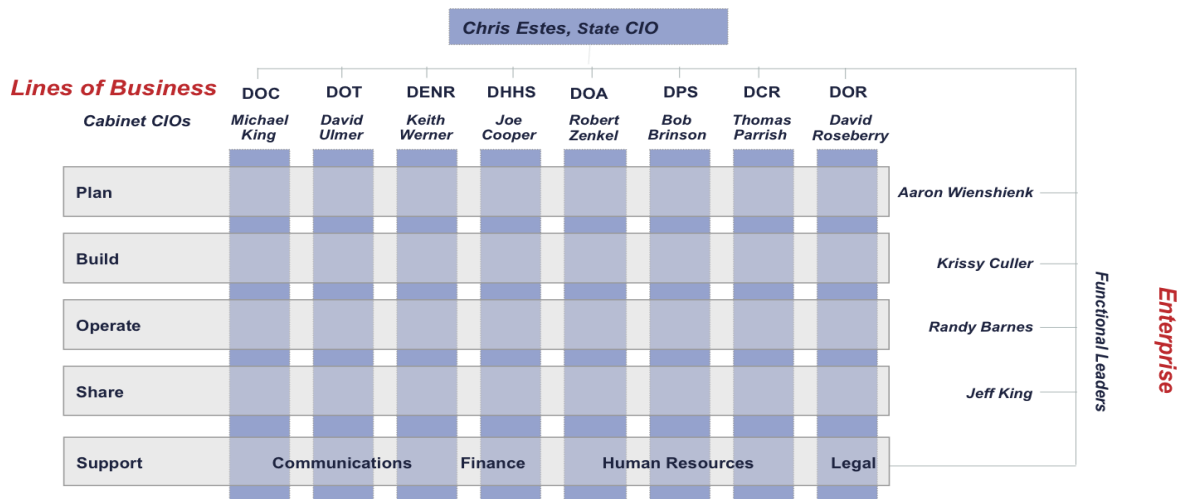
Figure 6 : One IT Executive Leadership Team

Complementing the operating model introduced by the Governor, the One IT ELT mirrors the Cabinet Agency ELT and elevates the relationship between IT and business to a sharing of strategic objectives that drive business outcomes. This model fosters collaboration and shared objectives between the Cabinet agencies and strengthens the alignment with the Enterprise IT functions across the cabinet agency business lines.

Figure 7 : One IT Operating Model

Matrix management is all about breaking down information silos and facilitating collaboration and sharing across agencies.

IT Organizational Capabilities

The following section describes five IT Organizational Capabilities that are foundational to fixing and modernizing IT. Rooted in collaboration and cooperation, these capabilities facilitate improved business outcomes, decreased risks, lower costs, and increased value for all state entities in the technology ecosystem.

Collaborative IT Governance

The IT Governance Institute's definition of IT Governance is: *"… leadership, organizational structures and processes to ensure that the organization's IT sustains and extends the organization's strategies and objectives."* Historically, in the context of the information technology across the state, governance has been viewed as a compliance function, focused on policing and punitive actions. The One IT governance model is founded upon a collaborative decision and accountability framework to support the shared mission and goals and enable organizational and cultural change. Processes are focused on establishing and maintaining alignment against strategic business objectives across the enterprise. True business value is realized when the unique needs of the business are joined with the enterprise economies of scale. A matrixed engagement model enables value realization at these intersection points.

> If management is about running the business, governance is about seeing that it is running properly.

The SCIO and One IT ELT will continue to define and refine a unified governance approach for IT activities. These governance models will be founded upon cross-agency and/or cross-functional collaborative committees to establish standards and processes that ensure the effective and efficient use of IT. These collaborative committees are expected to include:

- **Executive Leadership Team (ELT)** – as previously described, the One IT ELT provides executive guidance for IT across business lines and enterprise functions.
- **Senior Leadership Team (SLT)** – functional teams that guide decisions in their respective subject areas to maintain alignment of goals and objectives between the teams and the enterprise.
- **Cross-Agency Teams** – cross-agency teams formed for collaborative governance purpose such as centers of expertise, security, and architecture review.
- **Steering Committees** – cross-agency stakeholders to provide guidance and direction for a specific project or a program.

- **Centers of Expertise (CoE)** - a group of resources with specific knowledge in a particular business technology or enterprise area collaborating as a team to develop solutions that support critical enterprise functions and operations.

Strategic Planning and Architecture

Strategic Planning is the process of defining an organization's direction and allocating resources to support that direction. To support this process, the General Assembly passed legislation in 2004 that included defining a formal IT planning approach aligned with the biennial budget cycles and Statewide IT Plan. This legislation provides an outline of an approach to strategic planning. A perpetual planning process can accommodate the rapidly changing needs of the business. In a perpetual planning process, IT plans are consistently revisited to ensure continued alignment with business line and enterprise objectives. Effective planning transforms IT planning from a milestone-based activity to a business enabling capability to drive outcomes and realize defined objectives.

Limited integrated processes do not currently support an effective perpetual planning practice. Funding challenges have required that available funds be allocated to operational requirements, resulting in a reactive model that may actually cost more to operate in the long run. Across the state there is a lack of agreement as to what determines the value of an IT initiative and how to measure that value.

> Demand planning and management remains a key challenge for many IT organizations. The accelerating pace of change in business priorities and technology advancement will further increase uncertainties - Gartner

Enterprise Architecture (EA) is the practice of realizing the business strategy through the effective planning and integration of technology with business processes. A mature EA practice can improve the outcomes associated with business and technology projects. Sustainable planning, complemented by a strong EA practice, ensures business and IT strategies are properly aligned, enabling agencies to make better decisions and operate more efficiently.

To realize the value of strategic planning, the SCIO has developed a collaborative approach to improving the current practice. Executing this approach requires a unified vision across the agencies and support functions, additional resources and additional software tools. The IT Reserve Fund, discussed further in this plan, provides for the first phase of these requirements: hiring professionals focused on strategic planning and enterprise architecture capabilities. The planning team brokers partnerships with business and IT leaders across the enterprise to develop IT strategic plans aligned with business priorities and objectives. The group will also conduct ongoing market and industry research to understand and appropriately guide the enterprise to respond to external business and technology drivers.

The Enterprise Architecture team will translate business vision and strategy into effective enterprise change by creating, communicating, and improving the models that describe the technology and processes that operate the business, current state and future. The expected outcome is to solve for the business needs, not create models.

IT Program and Project Management

The North Carolina General Assembly passed legislation in 2004 that assigned oversight of large IT projects to the State CIO (SB991). An Enterprise Project Management Office (EPMO) organization and formalized project methodology was developed and implemented to support this mandate to govern the management, monitoring, and assessment of enterprise IT programs and projects.

The current EPMO and established process continues to oversee all state IT projects, but essentially leverages a "one-size fits all" model. This approach has been marginally effective in identifying and controlling project risks. A new approach to Program and Project Management is being designed to increase collaboration with agencies across the project management lifecycle. This improved process focuses heavily on business outcomes, quality assurance, and financial accountability to provide required oversight. The end-to-end coordination through these areas will allow for aligned processes and practices that will guide and manage a project from initiation through implementation.

There are five related practice areas in this new process and engagement model:

	Practice Area	Planned Improvements / Approach
1.	EPMO	• Establish meaningful metrics, quality assurance standards and improve financial management • Complete planning before base lining costs and hiring vendors • Improve the definition of milestones, gates and reviewers • Require independent review for larger projects • Leverage lessons learned from high-risk programs and apply across other programs and procurements • Apply modern tools to improve project management at the agency level and oversight at the EPMO level
2.	Project Management Office (PMO)	• Collaborate among agency project management resources to develop best practices, share techniques and tools, standards, and education • Establish a strategy and plan for maturing project management processes and agency PMO capabilities • Work collaboratively with agency and external subject matter experts to develop a more flexible project methodology that properly balances risks and rewards with required business outcomes

	Practice Area	Planned Improvements / Approach
3.	Requirements Analysis	• Establish capability that is focused exclusively on improving the collection, documentation, and analysis of business requirements for IT projects • Develop enterprise standards for defining project scope, capturing project requirements, and analyzing alternatives • Collaborate with agencies to develop practices, standard artifacts and templates for gathering business requirements • Provide direct assistance to agencies to help improve requirements gathering techniques, educate, and increase quality of documentation
4.	Strategic Sourcing	• Streamline IT procurement processes and standardize templates • Evaluate tools to enable better analysis, review, tracking, and rationalization of IT contracts across the state • Align templates and processes across procurement and with other project management processes
5.	Solutions Architecture	• Establish a team of Solution Architects to improve standards development and reuse of solutions • Collaborate with agency stakeholders to design and implement technology solutions defined by business requirements and aligned with enterprise architecture and security standards • Assign solution architects directly to project teams to share accountability with agencies in the development of solutions that are aligned with the enterprise architecture and statewide security policies. • Assist with aligning planning and procurement processes with a goal to leverage and improve reusability of current solutions

Innovation

Broadly speaking, IT modernization can be defined as moving from something old to something new in the technology environment. Many organizations have focused on lowering expenses, i.e. maintaining versus innovating, but this can reduce the business agility required to meet the expectations of modern consumers. Like strategic planning, IT modernization is not a one-time event, but is dynamic and ongoing. A robust IT modernization program pulls together the enterprise and creates a culture of innovation that drives change across the enterprise.

The Innovation portfolio is a venue to share ideas, collaborate, expand thinking and evaluate possible solutions in a real world environment. The Innovation Center (iCenter) provides this venue for collaboration and a "try before you buy" approach.

The iCenter is a working lab where state employees, students, and industry work to test technologies before the state invests in them. The iCenter provides a venue for performing proof-of-concept engagements to evaluate technology solutions and understanding the organizational impacts associated with that technology.

The iCenter is also collaborating with private sector partners and will tap into their knowledge of best practices in technology and change management. Educational institutions are being engaged to leverage their expertise, broaden agency capabilities, provide hands-on experience for students, and create a pipeline of talent for the next generation workforce. Communications with other states that are creating similar centers have been established in order to share and learn from one another.

These efforts, and the cultural change that accompanies them, create an innovation engine for state IT. An innovation engine is a sustainable and repeatable process that enables state employees to innovate across the enterprise. It includes components such as legal engagement, procurement process, project process, thematic priorities and engagement models. The iCenter innovation engine is a key component to modernizing IT.

> Innovative breakthroughs happen at the intersection of diverse disciplines and fields. - Dyer, Gregersen and Christensen, The Innovator's DNA

Talent Development and Management

The disruptive forces in technology and the demands of the modern IT organization require a transformation in the way the IT workforce is developed and sustained. As IT moves from a backroom service provider to a driver of effective and efficient business operations, the relationships between IT and business roles should be well defined and understood.

To align IT skills with the needs of business, IT departments need a coordinated workforce development plan. Without a properly skilled workforce in place, the transformation initiative will not deliver results. Consistency in IT talent management practices, competitive compensation, and the ability to provide a career path for IT professionals are key tenets to attracting, developing and retaining skilled and committed individuals in today's IT marketplace. The need for workforce development is reflected in the One IT Guiding Principle – Cultivate IT Talent.

With strategic IT planning as a key focus area, workforce planning will be an integral part of the process. All agencies, including ITS, should continue to collaborate with the Office of the State Human Resources (OSHR) on the development of human resources practices surrounding employee compensation and a comprehensive talent management system.

The One IT organization is teaming with higher education organizations to provide students with internship opportunities and to develop the next generation of information technology leaders. The IT workforce plan should leverage these opportunities to create a pipeline of talented students who are well-versed in new technologies as well as hard-to-find legacy skills.

> I believe the real difference between success and failure in a corporation can be very often traced to the question of how well the organization brings out the great energies and talents of its people. — Thomas J. Watson, Jr.

IT Business Capabilities

A Business Capability is the ability to perform or achieve certain actions or outcomes through a set of controllable and measurable processes and services. The five previously described Organizational Capabilities facilitate and support the consistent delivery of desired business outcomes across organizational boundaries. The following section describes six common IT Business Capabilities that are being pursued across agency business-lines to modernize technology delivery and citizen interactions.

Digital Focus

Digital interactions include products, services and transactions delivered through digital channels, such as websites, social media, information exchange and mobile applications. These experiences comprise several disciplines including web design, interaction design, and information architecture and user experience. A uniform and common web and mobile experience across agencies, provides a consistent user experience and a consistent expectation of that experience. In order to build interactions that exceed customer expectations, an enterprise digital strategy must understand these disciplines and incorporate them into the design, development and delivery of products and services across the various channels, web and beyond.

Though state agencies have distinct business functions, they share several common components that can be used and reused across agency applications and systems. Using industry best practices, it is possible to streamline development efforts, eliminate redundancies, and deploy effective applications in considerably less time across the enterprise.

> Consistency is one of the most powerful usability principles: when things always behave the same, users don't have to worry about what will happen. Instead, they know what will happen, based on earlier experience. — Jakob Nielsen, User Experience Expert

Big Data and Analytics

State government is responsible for a wide variety of programs and services that both produce and require massive amounts of data. Buried in these vast mountains of data are new information, facts, relationships, and insights that were previously unavailable due to constraints in existing technologies. The increasing availability of revolutionary analytical methods, technologies, and tools allows extraordinary amounts of new information to be effectively captured, managed, and analyzed in a way that can radically improve cybersecurity, crime prevention, revenue management, healthcare, education, and more.

The North Carolina Government Data Analytics Center (GDAC) is just beginning to explore the power and value of big data. The GDAC was established to manage, govern, secure, and discover value in

government data. As the program moves to the SCIO in July 2014 it will become a focal point of big data initiatives across all state agencies. The GDAC views data as a strategic asset that can be used to advance data initiatives and ultimately achieve better business outcomes.

As the value of the GDAC is leveraged more effectively and capabilities mature, it will develop new approaches, methods, and processes that further unlock the power and value of big data. To realize the full potential of this data, it requires the state to change the way data is managed and governed. A formalized master data management plan, increased collaboration, new technical capabilities, and elimination of artificial boundaries will enable improved analytics, increased security, reduced data duplication, greater efficiencies and clearer business insights to help make informed decisions regarding operations and policy.

> Master data management (MDM) is a technology-enabled business discipline in which business and information technology (IT) must work together to ensure the uniformity, accuracy, stewardship, semantic consistency, and accountability of an enterprise's official, shared master data assets. - Gartner

Enterprise Resource Planning (ERP)

To deliver effective operations, the state must automate and standardize many day-to-day processes and leverage information to make data-driven decisions. In addition, the broader initiative to fix and modernize IT requires streamlining various back-end systems, integrating data from various systems, and eliminating duplicate data and duplicative processes. An Enterprise Resource Planning (ERP) system addresses these needs and provides a solid foundation for a unified approach to managing the business of government as a single enterprise.

The benefits of an ERP system are well-known in the industry; however few agencies currently use a modern ERP system. The State of North Carolina has already made an investment in an ERP system, which is used for specific business functions by the Department of Transportation and by the Office of the State Controller. The majority of state agencies use independent legacy systems or a series of highly manual processes to handle back office functions.

Options now exist that were not available only a few years ago when the monolithic ERP systems were the mainstay for enterprise solutions. The state faces an important decision regarding the path forward for an ERP solution that can be used across agencies. ERP implementations are complex, time-consuming and costly. The greatest challenges typically lie in the business change required, not the technology implementation. An ERP CoE that includes agencies with current ERP expertise has been established to evaluate the best path forward for deploying consistent operational practices across agencies.

Application and Service Modernization

Applications streamline business operations and citizen interactions and are the most consumer-facing component of IT. Many of the state's applications are aging and unable to support emerging business needs. In many cases there is insufficient trained staff to support these applications and vendor support is limited or has been discontinued. The result is that these applications are less flexible and cost more to operate than the new applications available in the market. The rise in cloud-based applications, availability of commercial off-the-shelf (COTS) products and availability of lower-cost hardware provide for better, more cost-effective alternatives.

This change in market and technology presents a compelling business case for modernizing applications. Most of the application modernization effort in North Carolina has been ad hoc, mainly driven by the need to modernize outdated or unsupported technology. The state requires an enterprise-level strategy to modernize the applications and preserve, extend, repurpose or replace each application to optimize the entire application portfolio.

The consumerization of information technology, including the growing number of employees performing state work on personal devices, is forcing IT to reconsider the methods by which business services are delivered to consumers. The methods to manage these enterprise services should align to a product life cycle that is focused on adapting quickly to create and offer new services and sunset unused or outdated services.

While it is important to properly plan for the proliferation of new computing device access methods, the technologies for delivering applications must also be considered. Application modernization, aligned with an application delivery strategy, will change the way the state packages, delivers, and maintains client services. These changes will improve the security of the applications and the associated data handling practices to improve the state's risk profile. These modern techniques allow for improved centralized management capabilities that improve support processes and can increase worker productivity. These modern application designs are also more agile in effectively meeting evolving business demands.

Risk Management and Security

The disruptive forces that drive changes in the evolving technology landscape require consistent assessment and modernization of risk management and security practices. Business and IT decisions need a higher risk management framework to inform decisions during the funding and prioritization process of IT initiatives. All technology pursuits require an evaluation of security considerations, including governance, risk evaluation, data protection, training, awareness programs, and budget and resource requirements. The One IT operating principle applies to security practices and the SCIO and ELT continue to refine security policies and practices to modernize IT.

IT Operations

As IT transforms from a technology-centered model to a business partner, operational approaches and practices must change as well. Shared IT services must be run like a true business, not just a cost center. This includes a greater emphasis on customer satisfaction, service flexibility, ease of interactions, and market-relevant costs.

The One IT organization must work together to deliver efficient and effective operations. This includes increased use of shared infrastructure, shared volume licensing models, enterprise services, and standard operating practices.

Effective, consumer-focused operations especially require a service delivery model that aligns with business strategies. Business technology, meaning IT applications and services that are specific to a line-of-business, require significant flexibility, or must be optimized to meet a narrow set of requirements, are best delivered from a point close to the business itself. Shared services work best in situations where we can achieve the greatest economies of scale through standardization.

The One IT organization will formulate strategies to differentiate business technology, shared service and CoE opportunities, and to establish and maintain standard technologies, processes, and procedures. Figure 8 provides an example of service model relationships in a typical enterprise environment.
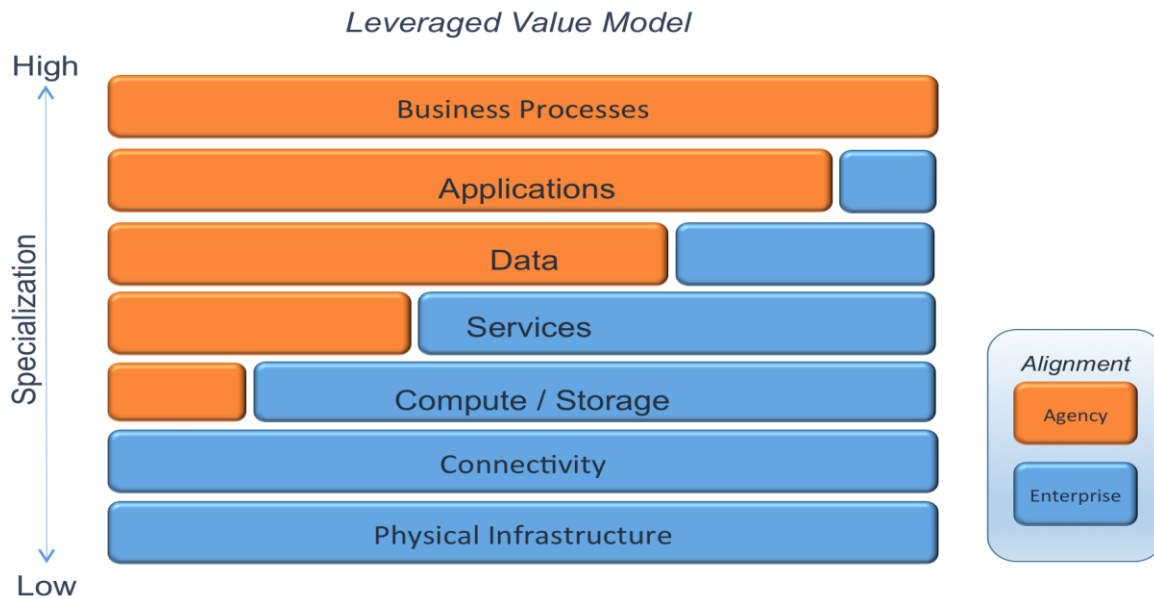

Figure 8: Aligning Technology and Business Lines

IT Operations: Capability Initiatives

There are a number of specific initiatives for delivering new and enhanced IT business capabilities as follows:

	Initiative	Description
1.	Unify Directory Services	This initiative unifies agencies on the established statewide standard for directory services. Establish a directory structure with delegated administration for agency business needs.
2.	Identity and Access Management	The state's central identity and access management solution must be modernized to support multifactor authentication, provide single sign-on capabilities and meet emerging business needs of mobile and BYOD.
3.	Leverage Converged Technology Platforms (Hybrid Clouds)	Cloud-based hosting solutions help lower costs and improve service levels through automation of tasks that are otherwise performed inefficiently within and across traditional IT silos. A collaborative workgroup will be established to develop a hybrid cloud proof of concept project.
4.	Unified Communications and Collaboration	Unified Communications (UC) is the integration of real-time communication services (i.e. instant messaging, telephony, web/video conferencing, data sharing, collaboration tools) with non-real-time communication services (i.e. email/calendaring, voicemail, texting, fax). The current variability in deployed technologies reduces the interoperability of systems, increase complexity and result in less connected and less efficient operations. As the state focuses to fix and modernize individual UC components, it is important to formalize a strategy for integrating these capabilities in a cost effective manner over time. This includes all communication mediums, from email to personal productivity tools to call centers.
5.	Simplify Shared Service Offerings	Complexity in delivery of services increases cost, decreases efficiency and lowers customer satisfaction. A number of initiatives are underway to improve the way agencies obtain and consume services. Convergence of infrastructure technologies presents an opportunity to streamline delivery through self-provisioning, consolidation of multiple services into "bundles" and tiering of services to allow greater flexibility in matching the level of service provided to the customer/consumer need.

	Initiative	Description
6.	Commoditization of Enterprise Services	Many services are used by most or all agencies and lend themselves to greater efficiency and cost savings delivered through a shared service model. Help desk/call centers, email, voice mail, IVR systems and collaboration tools are examples of these types of services, among others. Currently, there are multiple platforms supported across agencies resulting in replication of infrastructure, software contracts and support personnel. Rationalization and establishment of a statewide standardized platform has the potential for cost reduction and simplification of the environment.
7.	Improve Financial and Operational Management	Focus on "running IT like a business", including new methods for capital funding and stronger financial processes to improve budgeting and cash flow management. One IT will collaborate to improve planning efforts for greater accuracy in forecasting demand, and provide more efficient means for the consumption of IT services. Technology improvements such as virtualization and extensibility of infrastructure will allow IT to support growth with lower investments in new capacity. The IT Rate Transformation report, to be delivered in Q4 2014, will address the unnecessary complexities and inefficiencies in determining rates and recovering costs for shared services.

IT Reserve Fund

A 2013 session law (SB 402) appropriated a reserve which provides funding to begin building and standardizing these foundational capabilities. It is managed via eleven separate programs and status is periodically reported on the State CIO web site (https://www.scio.nc.gov/).

Program Name	Description
Prepare	A one-time engagement to focus the IT organization across the state. This deliverable is the Statewide IT Restructure Plan as illustrated in the stair steps to the 2015-2017 IT Plan.
Plan	An effort focused on increasing the staffing levels required to develop a sustainable planning and architecture practice.
Build	An effort focused on increasing the staffing levels required to develop a sustainable program delivery organization, including requirements analysts, program and project managers.
Operate	Establishes an organization focused on inter-agency collaboration and consistency of operations to drive efficiencies and break down silos.
Remediation	A focused initiative to address identified shortcomings in specific remote locations where technology is housed and operated.
Security	Provides additional tools and integrated capabilities to meet current needs and provide a foundation for the future.
Network Simplification	The state's current network design is highly complex based on the historical autonomy between agencies. This complexity is a limiting factor in delivering modern technology solutions and increases complexity and costs in running the state network. This initiative develops a plan to simplify the state's network design to enable greater efficiency and flexibility.
Desktop Remediation	A large number of personal computers across the state are running on an unsupported platform. This initiative fixes those devices while developing modern technology delivery models that will modernize the state's applications and deliver them to consumers in a more secure and efficient way.
Desktop Software Licenses	A large number of personal computers across the state are running an unsupported Microsoft Office desktop productivity suite. This initiative establishes a cloud-based, pay-as-you-go subscription model which reduces the risk of obsolescence while providing new capabilities in a more secure manner.
Customer Data	The state is in need of a comprehensive customer data strategy. Decisions regarding data privacy, security and management are currently made independently at each agency, resulting in inconsistencies and duplication of efforts.
Secure Sign On	The state's transformation to a consumer-centric model requires the removal of duplicative solutions for directory services where possible in order is to reduce complexity and cost. The state must also position itself for the next generation of secure sign-on solutions for citizens, businesses and state employees.

Summary and Next Steps

This Cabinet Unite IT Strategy identified five IT Organizational Capabilities that are required for fixing and modernizing IT:

1) Collaborative IT Governance
2) Strategic Planning and Architecture
3) IT Program and Project Management
4) Innovation
5) Talent Development and Management

Six IT Business Capabilities required for transforming the operating environment were determined as follows:

1) Digital Focus
2) Big Data and Analytics
3) Enterprise Resource Planning
4) Application and Service Modernization
5) Risk Management and Security
6) IT Operations

The IT Reserve Fund provides funding to begin addressing immediate needs. These capabilities will be further developed with the State IT Plan. The remaining steps to achieving the 2015 IT Plan include:

- Delivery of Statewide Restructuring Plan (May, 2014)
- Application Portfolio (APM) updates (Q3, 2014)
- Agency IT Plans (October, 2014)
- IT Rate Restructuring Plan (Q4, 2014)
- State IT Plan (February, 2015)

Appendix

Executive Order No. 30

State of North Carolina

PAT McCRORY

GOVERNOR

November 7, 2013

EXECUTIVE ORDER NO. 30

FIX AND MODERNIZE INFORMATION TECHNOLOGY GOVERNANCE IN CABINET AGENCIES BY COLLABORATING AS ONE IT

WHEREAS, state government purpose is to promote a stronger North Carolina that connects customers – citizens, business, education and government; and

WHEREAS, efficient and effective Information Technology (IT) will enhance customer service and streamline business operations; and

WHEREAS, the way the state has governed and managed IT historically is inefficient, based on too many silos, too much duplication, too many incompatible systems; and

WHEREAS, one mechanism for fixing and modernizing IT governance is to collaborate as ONE IT by further aligning the management and operations of the cabinet agency IT resources to improve efficiency.

NOW, THEREFORE, pursuant to the authority vested in me as Governor by the Constitution and laws of the State of North Carolina, **IT IS ORDERED:**

Section 1.   Cabinet Agencies.

This Executive Order shall apply to all state "Cabinet Agencies" and shall include all executive offices, boards, commissions, departments, divisions, councils, bureaus, and offices, now existing and hereafter established, which are supervised by, administratively housed in or which report to the cabinet agencies.

Section 2.   Cabinet Chief Information Officer.

By November 15, 2013, the Secretary/Director of each cabinet agency shall appoint a Cabinet Chief Information Officer ("CCIO"), or combine with another cabinet agency as agreed by the Secretary/Director, and State Chief Information Officer ("SCIO"). Each CCIO shall report to the Secretary/Director and/or the SCIO. Each CCIO will carry the title CIO (Agency)/Deputy State CIO and become members of the ONE IT Executive Leadership Team (ELT). All cabinet agency information technology personnel shall report to the CCIO or to his or her designee.

Section 3.   ONE IT Executive Leadership Team.

By November 15, 2013, in the Office of Information Technology (OIT) the SCIO will establish ONE IT Executive Leadership Team (ELT). The ONE IT ELT will meet regularly to modernize IT operating model, enterprise architecture, innovation, shared services project management,

security, and vendor managemen, programs to enhance customer interactions and streamline business operations.

Section 4.   Collaboration & Innovation Plan.

By February 1, 2014, each CCIO shall submit to he Secretary/Director and the SCIO for review and approval a Collaboration & Innovation plan ("plan") demonstrating how the cabinet agency will, no later than July 1, 2014, support the most efficient operating model for the delivery of IT.

The plan should consider any related activities to the NC GEAR efforts; define a percentage of cost savings towards future innovation or any necessary one-time or ongoing Information Technology investment needed to realize such business cost savings or efficiencies. All new projects, if deemed appropriate by the ONE IT ELT, shall be tested in the Innovation Center to make sure IT purchases work before purchased.

Each plan shall address: (a) IT operational and project priorities that are consistent with the cabinet agency's strategic business goals, (b) IT budgets, (c) major IT procurements planned, (d) strategies for enhancing the efficiency, effectiveness and security of IT services, (e) IT staffing plans, and (f) Innovation activities and usage of Innovation Center.

Section 5.   Cabinet Unite IT Strategy.

By March 31, 2014, the SCIO, in conjunction with each CCIO, shall develop a Unite IT Strategy defining the of Information Technology and related Platforms Services for all cabinet agencies, except those services, if any, that cannot be united due to restrictions imposed by security, contracts, state or federal law. This Strategy will be presented to Cabinet Secretaries/Directors and the Governor by the SCIO.

Section 6.   Compliance Reviews.

Annually, beginning in March 2014, the SCIO and CCIO's shall, for the purpose of protecting programs, data and information technology, conduct compliance reviews across the cabinet agencies to ensure full compliance with statutes, regulations, policies, standards and contractual obligations related to information security and information technology and report annually on the results of such reviews to Cabinet Secretaries/Directors and the Governor by the SCIO.

Section 7.   Definitions.

As used in this Executive Order:

"Cabinet Agencies" include: Department of Transportation, Department of Health and Human Services, Department of Public Safety, Department of Environment and Natural Resource, Department of Revenue, Department of Commerce, Department of Administration, Department of Cultural Resources, Office of State Budget Office of Human Resources Office of Information Technology Services, and Governor's Office.

"Information Technology (IT)" means hardware, software, and telecommunications equipment, including but not limited to personal computers, mainframes, wide and local area networks (wired and wireless), broadband, servers, mobile or portable computers, peripheral equipment, telephones, wireless communications, handheld devices, public safety radio services, facsimile machines, technology facilities including but not limited to data centers, dedicated training facilities, switching facilities, and other relevant hardware and software items as well as personnel tasked with the planning, implementation, and support of technology including hosting or vendor managed as a service solutions;

"Platform Services" shall mean data and telecommunications networks, data center services, web site hosting and portal services, and shared enterprise services such as email, directory services, and authentications systems; and

"Innovation Center" is a shared facility provided by repurposing space in the Department of Environmental and Natural Resources. The activities within the center are supported through IT

operating cost and resources from the SCIO and CCIO initiatives. The Innovation Center aligns the voice of the customers – citizens, business, education, and government through collaboration; and

"Telecommunications" means any origination, transmission, emission, or reception of signs, signals, writings, images, and sounds or intelligence of any nature, by wire, radio, television, optical, or other electromagnetic systems.

Section 8.   Applicable Law.

Nothing in this Executive Order shall be construed to require action inconsistent with any applicable state or federal law.

Section 9.   Effective Immediate.

This Executive Order shall take effect immediately and shall continue in effect until amended, superseded or revoked by subsequent Executive Order.

IN WITNESS WHEREOF, I have hereunto signed my name and affixed the Great Seal of the State of North Carolina at the Capitol in the City of Raleigh, this seventh day of November, in the year of our Lord two thousand thirteen and of the Independence of the United States of America the two hundred and thirty-eighth.

Pat McCrory
Governor

ATTEST:

Elaine F. Marshall
Secretary of State