

# Reducing IT Duplication



## Report to the Joint Legislative Oversight Committee on Information Technology

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# Contents

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- Legislative Request .....1
- Report Focus .....1
- Introduction .....1
- Attacking duplication on multiple fronts .....3
- Policy Considerations.....3
- Funding .....3
- Governance.....4
- Roadmap.....4
- Short term.....4
- Middle term .....5
- Long term.....5
- Issues & Cost.....5
- Next Steps.....6
- Appendices** .....7
- Appendix A – Legislation.....7
- Appendix B -- Duplication Findings.....8
- Appendix C – New Projects since October 1, 2011.....10

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## Legislative Request

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This report is submitted pursuant to Section 7.9(a) of Session Law 2013-360, which directed the State Chief Information Officer (SCIO) “to develop a plan and adopt measures to prevent the duplication of information technology capabilities and resources across state agencies.”

The full text of the legislation can be found in Appendix A.

### Report Focus

This report divides the challenge of reducing technology duplication into two parts. The first is the duplication of common or similar information technologies across state agencies. Any discussion of reducing duplication should also explore the root causes – the state’s federated appropriations model, the distributed IT governance approach and the way state agencies are charged for IT services.

Pursuant to the legislation, this report also includes:

- (1) A review of current and future information technology projects to determine if similar capabilities exist in planned, ongoing, or completed information technology projects, or if there are existing capabilities in the form of services or applications offered by another state agency.
- (2) Identification of current instances of duplication and efforts underway to develop and implement plans to address these instances across agencies.

## Introduction

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There are two main components of IT duplication in state government: Basic infrastructure, such as networks and data centers, and the computer applications that agencies use in providing services to citizens and in daily operations.

As a general rule, reducing duplication is less challenging and less risky in the infrastructure—the plumbing and wiring of information technology. But the reward is also low. The return on investment increases in applications, which ride on the infrastructure. The risk and difficulties also increase, in part because agencies have different requirements and statutory mandates.

For example, many state agencies issue licenses and permits, making that area a ripe target for any efforts to reduce duplication. But each agency that issues licenses and permits must follow its state law and rules for requirements.



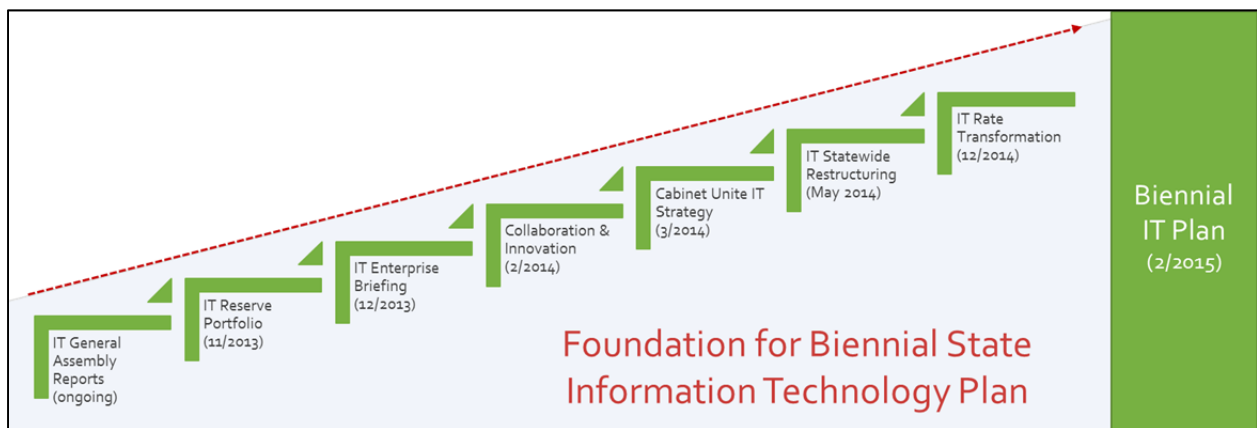
North Carolina has made some gains across state government in both infrastructure and applications. As a result of an infrastructure consolidation effort, the Office of Information Technology Services provides services such as help desk support to 14 state agencies.

Progress also is being made in shared applications. Current or proposed shared applications in the Executive Branch include:

- HR/Payroll System (BEACON), maintained by the Office of State Controller
- More than 50,000 state employees use an email and archiving service provided by ITS. Efforts to increase that number with a cloud-based approach are discussed later in this report.
- e-Recruit, sponsored by Office of State Human Resources (OSHR), is a cloud-based service for recruitment of state employees.
- E-learning, also sponsored by OSHR, is a cloud-based online training system.
- Systems for grants management and vehicle management, which are discussed in a separate report.

The administration is acting on several fronts to address IT governance. Executive Order No. 30, signed by Governor Pat McCrory in November 2013, directs Cabinet agencies to work more closely to eliminate silos and reduce duplication and incompatible systems.

The State CIO is using the Executive Order as a stepping stone in a long-range plan to fix and modernize IT in state government. Other steps include an IT Reserve Fund that the General Assembly appropriated to begin the work, an overall review by the State CIO of IT operations, including statutory exceptions from unified governance, and a complete transformation of ITS rates. The stepping stones are shown below.



Reducing and eliminating duplication is a major goal in the effort.



## Attacking duplication on multiple fronts

Reducing and preventing duplication in IT requires a broad-based approach, and a number of initiatives by the Office of the State CIO will place more emphasis on that goal. Those include:

- Revamping the project approval process to engage the State CIO's staff earlier in the planning for IT projects. That will provide more opportunities for the State CIO to designate a lead agency for duplicative IT requests.
- Recruiting experienced requirements analysts to work with agencies and suggest shared approaches.
- Emphasizing Centers of Excellence, where one agency serves as the lead in managing applications spread across several agencies.
- Aligning Cabinet agencies under a matrix management to encourage collaboration.
- Modernizing shared services by moving to virtual and cloud technology.
- Enhancing vendor, contract and procurement management.

## Policy Considerations

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As mentioned previously, addressing the root cause of duplication may require structural changes in the way IT is funded and managed. These are both rooted in law, so statutory changes may be needed.

### Funding

The Office of Information Technology Services, which provides IT services to state and local governments and other public entities, is largely funded by receipts. Operating much like a non-profit corporation, the agency calculates its costs of delivering services, including overhead and administrative costs, and generates rates for its services. ITS rates are approved by the Office of Budget and Management.

ITS then bills customers for their IT services, and the customers pay the bills using General Fund appropriations and other funds.

Much of IT infrastructure could be considered a cost of doing business, just as electricity and water are basic costs. ITS could provide some of its services via an agency subscription model and not a rate. A subscription model, with funds appropriated to ITS on behalf of an agency for providing basic IT services, would reduce the administrative burden on both ITS and agencies.

ITS is developing a subscription model, which would require approval by the State Budget Office and the General Assembly.



In parallel, ITS is hiring a third-party vendor to study its current rate methodology and possible options with a subscription model, and has acquired software to make ITS budgeting and billing more transparent.

These initiatives will address only a small part of the state's IT spending. The bigger funding picture will be considered in a number of efforts, including an IT restructuring plan the State CIO will present in the spring of 2014.

## Governance

Under current law, the State CIO has no authority over roughly one-half of the \$1.4 billion spent annually on IT in state government because the court system, the UNC General Administration and campuses and the General Assembly are exempt from Article 3D of Chapter 147 of the General Statutes. Any attempts to reduce duplication must be carried out separately in those entities.

In addition, state government is federated. In the Executive Branch, the State CIO reviews agency IT expansion budget requests, and has some authority over security, procurement and IT projects. Aside from those areas, the CIO has little or no formal authority over agency IT operations.

To informally address this issue, the administration has adopted a matrix management model, with the State CIO having a larger role in Cabinet IT decisions and agency CIOs reporting indirectly to the State CIO. This will encourage cooperation and collaboration and give the State CIO greater input into agency IT plans and programs. The management approach has been formalized in Executive Order No. 30, signed by Governor Pat McCrory in November 2013.

As mentioned previously, legislation passed by the General Assembly in 2013 directs the State CIO to present a restructuring plan by May 2014 after a review of the state's IT operations, including the exclusions discussed above.

Longer term efforts are discussed in the Roadmap section below.

## Roadmap

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Reducing IT duplication will require a broad-based strategy. Here are some of the major efforts.

### Short term

- Use Enterprise Architecture, the merger of business processes and IT, to build a model of generally acceptable and less acceptable platforms and solutions, and link this acceptable product/solutions list to the procurement/RFP process. This will increase standardization across state agencies.
- Continue consolidating servers, as outlined in a separate report prepared for the Joint Legislative Oversight Committee on Information Technology.
- Continue planning to consolidate databases across all 58 community colleges.





- Replace aging desktops and laptops by transitioning to Office 365 and a hosted virtual desktop (HVD) model, which moves state data from individual machines to protected servers in the data center.
- Better utilize the State CIO's current authority to review of expansion budget requests, approve and monitor IT projects and procure information technology to reduce duplication.
- Utilize the authority granted under Section 7.9(a) of Session Law 2013-360 to designate a lead agency when multiple agencies require the same, or substantially similar, capabilities.
- Continue and build upon matrix management in Cabinet agencies to help identify potential duplication earlier and provide a mechanism for agencies to work together.
- Establish Centers of Excellence to spread expertise across agencies.
- Examine statewide enterprise contracts and consolidate where necessary.
- Examine and re-establish Enterprise License consolidations efforts with large partner enterprises.

### Middle term

- Build upon the Center of Excellence led by DOT in grants and vehicle management and identify other areas to leverage existing investments and capabilities for Enterprise Resource Planning. DOT is currently adding the Department of Administration and the Department of Public Safety to the grants and vehicle management systems.
- Identify ways to reduce or eliminate duplication in the State CIO's review of the state's overall IT operations (Section 7.4(c) of Session Law 2013-360).
- Use remediation funds in the IT Reserve Fund to begin eliminate some duplication in wiring closets and other infrastructure.

### Long term

- Continue to seek opportunities to engage in multi-state initiatives especially in the area of large, complex federally funded projects/programs. Women, Infants, Children (WIC)-Crossroads and Southeast Consortium Unemployment Benefits Initiative (SCUBI) are examples of such initiatives today. Multistate consortiums further reduce duplication by leveraging the common rules of federal programs.
- Continue to improve procurement and contracting by establishing a Sourcing Management Organization to help determine where and under what conditions applications should be sourced. This will help reduce the number and kind of contracts and establish a statewide governance model for sourced solutions.

## Issues & Cost

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- Economies of scale. Properly implemented, reducing duplicate information technology should result in significant and recurring hard dollar savings to the state. The economies of scale apply; clearly doing a system fewer times to be used by many will be significantly less expensive than repeatedly building, implementing and maintaining the same or similar system many times.



- Economies of Skills. An aggregation or consolidation of technologies has its own benefit. Equally important is the creation of a common set of skills to support the solution. The state should consider a Center of Excellence model, where a common office provides the highly-skilled workforce and knowledge needed for complex applications.
- One Size May Not Fit All. A centralized common service must still be capable of catering to the diverse requirements of individual state agencies. One size of service/solution is not likely to meet every need, and the recommendation is that a small number of targeted variations be offered—the “bronze-silver-gold-platinum” model -- with each tier made available at a different price point.
- Value proposition
  - *Technology Infrastructure*: Technologies associated with technical infrastructure should only be duplicated in cases of unusual or extreme business requirements. The funding for infrastructure consolidation is a one-time conversion to account for under-investment as described in the INSA study.
  - *Software and applications*: Applications that are the same or similar will have to undergo an assessment to determine the level of duplication, cost and effort to convert. This assessment phase is crucial in determining whether or not the application is in fact a duplication of an existing system. A comprehensive application assessment will also provide insight into nature of each application and the urgency for remediation.

## Next Steps

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### Recommendations:

1. Address the funding and governance issues as discussed.
2. Alter and simplify ITS' services catalog.
3. Continue the efforts to reduce duplication in IT infrastructure consolidation. This will include data centers, networks and servers.
4. Continue to improve the business engagement and the project approval and oversight processes.
5. Perform a detailed agency applications review and assessment by third party.
6. Create enterprise level mandatory contracts for major state products and services.



## Appendices

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### Appendix A – Legislation

SECTION 7.9.(a) The Office of the State Chief Information Officer (CIO) shall develop a plan and adopt measures to prevent the duplication of information technology capabilities and resources across State agencies. When multiple agencies require the same, or substantially similar, information technology capabilities, the State CIO shall designate one State agency as the lead to coordinate and manage the capability for all State agencies, with the State CIO maintaining oversight of the effort. By October 1, 2013, the State CIO shall provide this plan to the Joint Legislative Oversight Committee on Information Technology and the Fiscal Research Division.

SECTION 7.9.(b) The Office of the State Chief Information Officer shall do all of the following to carry out the purposes of this section:

(1) Review all current and future information technology projects to determine whether the capabilities required for each project already exist in a planned, ongoing, or completed information technology project developed by another State agency. For projects where the capability already exists, the Office of the State CIO shall assist the agency with implementing the existing capability.

(2) Identify existing projects that can best support a specific information technology capability for multiple agencies and work to transition all agencies requiring the specific capability to the identified projects.

(3) When State agencies request approval for new projects, determine if the information technology project can be implemented using an existing application, or if the new project has the potential to support multiple agencies' requirements.

(4) Provide quarterly reports on progress toward eliminating duplication to the Joint Legislative Oversight Committee on Information Technology and the Fiscal Research Division.

(5) Ensure that contracts for information technology allow the addition of other agencies' requirements within the terms of the existing contracts.



## Appendix B -- Duplication Findings

The State CIO's staff reviewed all ongoing and proposed information technology projects to determine if similar capabilities existed in planned or ongoing information technology projects, or if existing services or applications provided the same capability. These findings are based on the review of all new IT projects submitted between October 1, 2011 and March 31, 2013. Also included are updates from the previous reporting periods.

Some of the key findings are as follows.

- 1) Of the 29 new projects submitted by agencies spanning the timeframe of October 1, 2011 thru March 31, 2013:
  - a. 15 were unique solutions and did not duplicate existing application or services
  - b. 1 projects leveraged a current enterprise solution
  - c. 8 projects are potential future enterprise solutions
  - d. 5 projects were reviewed as potential duplications
  - e. There were no projects under review until further research could be completed

Detailed information for the above can be found in the Appendix B (New Projects since October 1, 2011).

- 2) Follow up duplication information from previous time periods is reported as follows:
  - a. School Connectivity: NC Education Cloud Planning is still considering how and where to host the I-Series servers. This hosting of servers and infrastructure should be resolved in the Spring of 2012.
  - b. Department of Health and Human Services (DHHS) is required develop a plan to implement a single case management solution. This may impact the case management system currently being implemented for the Divisions of Blind, Hard of Hearing and Vocational Rehabilitation.

### Enterprise Solutions and Duplication Strategy

The following is a brief description of areas where an enterprise approach is, or could, reduce duplication and improve efficiency.

- 1) Job Applicant Tracking consolidation improves agency back office processing of job applications (form PD-107) and allows citizens to easily apply for employment in the State of North Carolina. The Office of State Personnel (OSP) has implemented an online job application and e-recruitment system.
- 2) Grants Management Systems play a key role in many agencies that are responsible for managing grants to other entities such as local governments or instances where agencies receive grants and must properly document and identify the grant expenditures. The SAP grants



management platform operated and maintained by the Department of Transportation was identified as a viable candidate for a shared-services based Grants Management application. The criteria used to make this determination included the long-term viability of the solution, technical currency, supportability, scalability, sunk costs, feature/function set, security, and its ability to be configured, deployed, and utilized in a Software-as-a-Service (SaaS) business model serving many Executive Branch agencies. The State CIO, OSBM, and DOT are initiating a pilot project to demonstrate the SAP system's ability to meet business requirements of other agencies, identify risks and begin developing an implementation plan for phasing in all agency grant programs. Further planning of Grants management has been done and those plans are identified in this report.

- 3) Case Management is a key business process for Department of Health and Human Services (DHHS). Most of the services provided by DHHS involve a case worker working with a citizen to assess needs, determine program eligibility, share information, and coordinate services across various programs. Realizing an opportunity to share common business processes and improve efficiency and effectiveness of service delivery, in 2007 DHHS started case management consolidation program. The program is called North Carolina Families Accessing Services through Technology (NC FAST). The program consolidates DHHS's Case Management efforts and processes for the Division of Medical Assistance, Division of Child Development and Early Education, Division of Social Services, and the Division Aging and Adult Services. The program has identified 19 existing legacy systems to be replaced by the new Case Management system. The project started in August 2010 with six-phased implementation approach and expected completion by January 2014. Recently, House Bill 200, Section 6A.7 (b) directed DHHS to develop a plan to implement a single case management system throughout the Department.
  
- 4) The Office of State Personnel has implemented an IT project to consolidate the tracking and management of training records across state agencies. Department of Transportation has canceled their IT project for training records and will utilize the future enterprise solution provided by OSP.



Appendix C – New Projects since October 1, 2011

1. Unique Solutions with No Duplication

#	Project	Agency	Start Date	Project Description
1	Forest Service Aircraft Flight and Maintenance Tracking System	Agriculture	9/22/2011	NCDA&CS has been directed by the General Assembly to obtain a consolidated electronic management system, that integrates flight and maintenance records, tracks inventory, and tracks costs.
2	PPS/ASL Management and Tracking Portal System (PPS PowerBuilder Application Replacement)	DOT	9/26/2011	Replace legacy powerbuilder application with a new solution for the Private Protective Services/Alarm System Licensing division.
3	Pay Line Service Replacement (ITP.00216, DMV)	DOT	10/13/2011	Replace the current, manual pay line information request services for companies to obtain vehicle registration information, with an automated, customer-centric, accessible, “self-service” type of process.
4	DMV STARS/SADLS Replacement Strategy, Planning & Assessment (ITP.00220, DMV)	DOT	10/13/2011	Detailed Implementation Plan inclusive of a roadmap and a corresponding business process re-design approach for the replacement of the Division's mainframe-based state Titling and Registration System(STARS) and State Automated Driver License System(SADLS).
5	Health Benefit Exchange - RFP	DOI	10/18/2011	Produce an RFP that results in a contract for the building of the



## 1. Unique Solutions with No Duplication

#	Project	Agency	Start Date	Project Description
				Health Benefit Exchange for North Carolina.
6	Financial Accountability and Compliance Technology System (NC FACTS)	OSC	10/19/2011	The NC FACTS business goal is to develop an enterprise solution for the collection and integration of various state and non-state data sources which will be available to authorized resources to improve analytics, identification and reporting of actual or potential fraud, waste or improper payments.
7	Race To The Top - NC VPS Mobile Infrastructure and Virtual/Blended Courses-Pilot	DPI	11/9/2011	A Race-to-the-Top grant funded pilot project to build and test a technology infrastructure to deliver blended STEM courses in both a mobile and non-mobile method.
8	Positive Behavior Intervention and Support (PBIS)	DPI	11/9/2011	Develop a system that will allow teacher, principles and others to view the plans and results of various behavior techniques to help determine the most effective methods for each unique child or group of children.
9	911 Call Analysis Service (CAS)	ITS	11/9/2011	Provide 9-1-1 call statistics on an almost real-time basis for the primary Public Safety Answering Points (PSAP) calls received regarding PSAP operations and compliance with operating standards.



## 1. Unique Solutions with No Duplication

#	Project	Agency	Start Date	Project Description
10	North Carolina State Directory of New Hire Procurement Project 2011	DHHS	12/23/2011	Solicit proposals from vendors to operate the New Hire Program in North Carolina and to obtain a service for employers to report new hires, evaluate the proposals and make a recommendation for award.
11	IT Intrusion Prevention System (IPS)	DOJ	12/28/2011	Acquire and implement an Intrusion Prevention System for the Data Center at DOJ.
12	Occupational Safety and Health, Compliance and Consultation Project	DOL	1/5/2012	Replace legacy and outdated hardware to capture, record and report all OSHA investigation-related information to the federal government.
13	Race to the Top - I-Series Migration	DPI	1/4/2012	Creation of an AS400 environment capable of a “build-as-you-grow” architecture that will enable the LEAs to migrate their existing environments into a physically and technically secure environment.
14	Modernized e-File Compliance Project	DOR	1/23/2012	The Modernized e-File program will transform the existing Fed-state Joint e-File submission process, and will allow the IRS and its state partners to electronically receive taxpayer transactions in an extensible mark-up language (“XML”) format.
15	Rome (ITP.00221, ETS)	DOT	2/10/2012	The Rome project creates a solution to take the NCDOT





### 1. Unique Solutions with No Duplication

#	Project	Agency	Start Date	Project Description
				<b>Linear Referencing System (LRS) and dependent business data to the next level in automation and functionality.</b>

### 2. Using Current Enterprise Solutions

#	Project	Agency	Start Date	Project Description
1	<b>UI Remote Services Reader boards</b>	ESC	2/6/2012	<b>The Reader Boards will display real time data for all Call Center Agents and Managers, which allows them to modify their behavior in order to achieve higher productivity and efficiency.</b>



### 3.0 Potential Future Enterprise Solutions

#	Project	Agency	Start Date	Project Description
1	Enterprise Learning Management System (LMS)	OSP	9/2/2011	Develop an enterprise wide Learning Management System to support agency and L&D initiatives, monitor, improve and have a single source for reporting on those activities.
2	Moodle Managed Services	NCCS	9/14/2011	Provide a full managed Moodle service that can be leveraged by the North Carolina Community Colleges System.
3	Project/Grants Management - Aviation (ITP.00219. BSIP)	DOT	9/28/2011	The NCDOT Division of Aviation needs a systematic way to advertise, receive, evaluate, manage and report on the Federal and state projects and grants NCDOT is responsible for managing.
4	Authentication (e-Signatures)	OSC	10/16/2011	Develop an enterprise authentication capability that will provide offerings that are secure, provide auditable evidence that appropriate processes have been followed, can be easily used by individuals for ad-hoc signing, and can be integrated with automated business processes.
5	Workflow Automation (e-Forms)	OSC	10/16/2011	Develop an enterprise workflow automation capability that will focus on eliminating paper forms and with the concurrent introduction of workflow



### 3.0 Potential Future Enterprise Solutions

#	Project	Agency	Start Date	Project Description
				automation.
6	DHHS DSOHF Automated Timekeeping in State Facilities	DHHS	3/13/2012	Procure an automated timekeeping system that provides detailed time of each facility to manage the overall operational fiscal budget.
7	SIP Network Services	ITS	3/27/2012	The goal of this project is to build the business and technical model for a SIP Trunk Service that will be primarily used by ITS enterprise voice services and a SIP services contract vehicle for non-Executive Branch Agencies, Local Governments, and Education.
8	Hosted Virtual Desktop	ITS	3/27/2012	Develop and implement a Hosted Virtual Desktop (HVD) service that cost effectively meets the needs of state Government, delivers a measurable return on investment, and is congruent with the state's approved enterprise client computing strategy.

