



**Public Schools of North Carolina**  
State Board of Education  
Department of Public Instruction

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# **Report to the North Carolina State Chief Information Officer**

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NC Department of Public Instruction  
Information Technology Plan for FY2019-2021  
*G.S. §143B-1330*

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**Date Due: November 30, 2018**

Report # 47

DPI Chronological Schedule, 2018-2019

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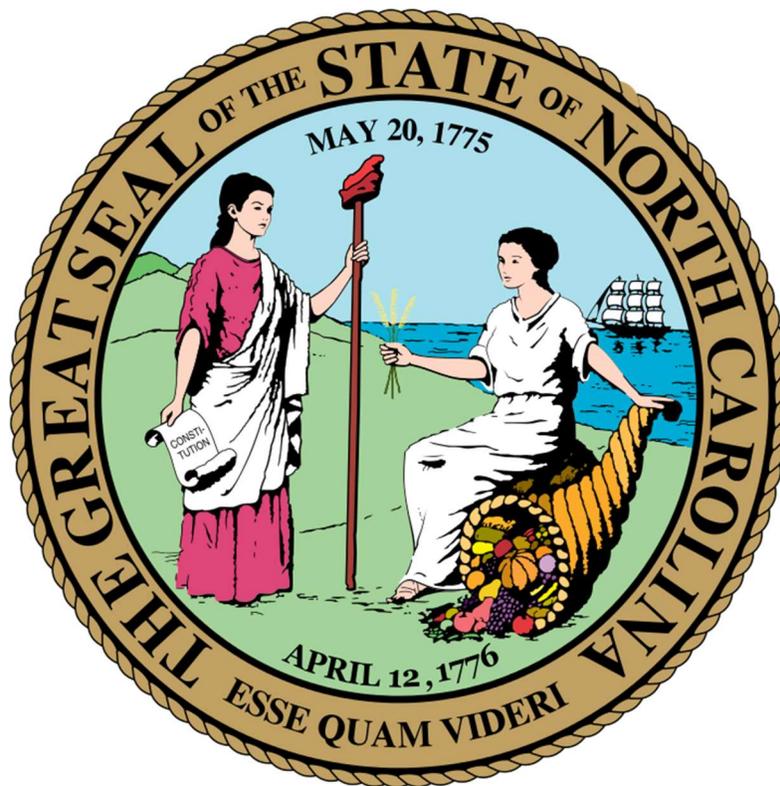
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**North Carolina Department of Public Instruction**

**INFORMATION TECHNOLOGY PLAN FY 2019 - 2021**



By

**Michael Nicolaides, CIO, Department of Public Instruction**

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# 1. Statewide Information Technology Goals

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Below are the statewide IT goals for the 2019-2021 biennium.

1. **Secure IT systems and infrastructure:** Provide a resilient infrastructure that mitigates risk, supports business continuity, provides security and privacy of the State's and citizens' data, and supports secure collaboration and information sharing.
2. **Deepen trusted partnerships:** Support and empower the business of State government by improving processes, enhancing cross-agency collaboration and cooperation, and establishing and managing IT standards.
3. **Improve the management and transparency of IT:** Better utilize the State's IT resources by increasing visibility into what the State has, what it costs, and how the State uses it.
4. **Modernize and centralize IT operations:** Modernize and centralize technology operations to effectively support a 21<sup>st</sup> century government.
5. **Empower our citizens through technology:** Provide transparent, easy-to-use, and customer-focused government and student services.
6. **Promote better decision-making through analytics:** Leverage the State's data to make more informed decisions, policies, and laws.

## 2. Department of Public Instruction Strategic Plan Executive Summary and Goals

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### Executive Summary

The implementation of this strategy will prepare the North Carolina Department of Public Instruction (NCDPI) to realize benefits from information technology innovations, increased capability, enhanced offerings of teaching and learning resources, and delivery of efficiencies in support of administrative functions. Many projects or initiatives play an important role in supporting the recruitment and retention of best-in-class educators, administrators, and agency staff, while providing the foundation for sustained statewide deployment of educational and administrative resources.

This strategy puts in place areas of program and specialized effort to enable all staff to communicate effectively, share information securely, and collaborate locally and statewide. Collaboration and partnership are central to the strategy as they enable the development of stronger services delivery platforms in support of end-to-end infrastructure and applications that respond effectively to an evolving technology landscape. They also increase engagement between NCDPI Technology Services staff, agency staff, and the broader educational provider network to ensure that services meet their needs; this is crucial to partnering with third parties for delivery of services and in integration of technology beyond agency boundaries.

Through an emphasis on technology availability and delivery, the strategy establishes a managed workload to drive modernization and core project completion to increase user and service experiences. The recent past has included new approaches to centralizing the state's technology infrastructure and shared and common services, and subsequent biennium planning periods must focus on procuring and managing to the best value possible for new and existing systems, increasing benefits through improving information quality and accessibility, and enabling better analytic decision making.

With a continued focus on efficiency, optimization of assets and workforce resources, and the adoption of best practices, this strategy aims to empower NCDPI Technology Services to innovate, enable the entire NC educational landscape to use systems effectively, and help students improve their digital literacy for discovering, evaluating, and creating an educational experience through technology.

In development of this plan, three core program areas with multiple projects or initiatives are the focus of this next, and subsequent, biennium planning cycles:

1. School Business Systems Modernization (SBMS)
  - a. Local Education Agency (LEA) Modernization
  - b. NCDPI Agency Modernization
  - c. Data Transparency
2. Digital Learning Initiative (DLI)
3. Technology Services Operations and Support
  - a. North Carolina Department of Information Technology (NCDIT) Consolidation
  - b. Technology Services Enterprise Applications
  - c. Technology Services Support

## IT Strategic Plan: Principles and Assumptions

The federated nature of the state's shared and common technology infrastructure and services offers advantages and strengths, and at the same time can introduce complexity and inefficiency; technological subsidiarity is a reality within the state's transition planning as understood in G.S. §143B-1325.(d). To implement an NCDPI Technology Services strategic plan for the state and in collaboration with NCDIT, a set of principles and assumptions are required to support a balance in transparency and understanding across the organization to promote common direction and alignment. The following principles and assumptions create awareness to providing technology services to the agency's educational community.

1. NCDPI Technology Services and NCDIT staff work in partnership as technology providers to ensure that delivery works as a strategic enabler for the agency and the state. This can only be achieved through transparent understanding of inter-agency functions that may benefit shared or common technology, and therefore require close collaboration of staff, business area subject matter experts, and technology specialists.
2. Centralized state and local agency technology should work in collaboration and take joint responsibility in services delivery to the broader educational community, facilitated by a shared or common (federated) and localized (subsidiary) end-to-end support process.
3. Supporting the agency's digital literacy strategy is a shared objective of all centralized and local services, and in collaboration with strategic partners such as the North Carolina State University Friday Institute for Educational Innovation (NCSU-FI) and MCNC in order to improve the overall student-outcomes experience with a modern approach to that end.
4. The plan aligns with and supports the agency's need to adopt digital technologies for teaching, student success, promotion of increased digital literacy, and effective stewardship of state resources.
5. Investments, benefits, and savings with state supported infrastructure and services are made transparent to encourage adoption and economies of scale across the agency and most importantly across the state's LEAs and Charter Schools.
6. Technology services are delivered in manner to maximize considerations towards a total cost of ownership, fit within current IT architectures, thoughts towards future architectural shifts where appropriate, assumed benefits to be realized, and value to citizens (parents, students, and educators).
7. Partnership in technology goes beyond the boundaries of the agency to include the State Board of Education, LEAs, Charter Schools, non-profit partners such as NCSU-FI and MCNC, Institutes of Higher Education, other state agencies such as the North Carolina Departments of Information Technology, Health and Human Services, Public Safety, and Transportation, Departments of Education in other states, vendors, and the public at large.
8. Technology practices, whether created locally in NCDPI or centrally within NCDIT that gain acceptance, have the potential to be promoted to statewide best-practices, with benefit to all agencies for sustainable adoption.

9. NCDPI information and data are treated as assets and governed appropriately, with processes to support, access, store, and conserve data. Governance, as applied to data, is not the function of any one group but requires a joint approach throughout the state.
10. NCDIT has clarity on process ownership and, where possible, adopts agreed and shared processes that can be supported by NCDPI Technology Services.

## Goals

The State Board of Education and NCDPI Strategic Plan<sup>1</sup> summary is presented in the table below.

Goals	Objectives
1. Every student in the NC Public School System graduates from high school prepared for work, further education, and citizenship	<ol style="list-style-type: none"> <li>1. Increase the cohort graduation rate</li> <li>2. Graduate students prepared for post-secondary education</li> <li>3. Graduate students pursuing a Career and Technical Education (CTE) Concentrators who earned a Silver or better on the ACT WorkKeys assessment</li> <li>4. Reduce the percentage of students needing remediation in post-secondary education</li> <li>5. Increase student performance on the state's End of Grade (EOG) and End of Course (EOC) Assessments</li> <li>6. Increase student performance on national assessments</li> </ol>
2. Every student has a personalized education	<ol style="list-style-type: none"> <li>1. Increase the number of students who graduate from high school with post-secondary credit</li> <li>2. Increase the number of students who have access to online courses</li> <li>3. Increase the number of schools designated as STEM- or Global Education-ready</li> <li>4. Increase the number of charter schools meeting academic, operational, and financial goals</li> </ol>
3. Every student, every day has excellent educators	<ol style="list-style-type: none"> <li>1. Develop and support highly effective teachers</li> <li>2. Develop and support highly effective principals</li> <li>3. Increase the number of principals graduating from quality traditional and alternative educator preparation programs</li> <li>4. Increase the access to effective and highly effective teachers for students in low-achieving and high-poverty schools relative to their higher-achieving and lower-poverty peers</li> </ol>
4. Every school district has up-to-date financial, business, and technology systems to serve its students, parents and educators	<ol style="list-style-type: none"> <li>1. Provide all schools with sufficient wireless coverage to support 1:1 computing initiatives</li> <li>2. Use Home Base as an essential resource for instructional delivery and communications with parents and students</li> <li>3. Use all State and federal funding according to State and federal laws and State Board of Education policies</li> </ol>
5. Every student is healthy, safe, and responsible	<ol style="list-style-type: none"> <li>1. Create and maintain safe and respectful school environments</li> <li>2. Promote healthy, active lifestyles for students</li> <li>3. Decrease the number of students who are chronically absent, dropout, or suspended out of school</li> <li>4. Decrease school violence and crime in schools</li> </ol>
6. Ensure equity of educational opportunity for all students	<ol style="list-style-type: none"> <li>1. Decrease the percentage of Low-Performing Schools and Low-Performing School Districts in the State</li> <li>2. Increase the percentage of students proficient in reading by the end of third grade</li> <li>3. Increase the percentage of grades 3-8 EOG (reading and math) and high school reading subgroup test scores meeting the ESSA Yearly Measures of Interim Progress</li> <li>4. Ensure equity in student achievement for student subgroups</li> </ol>

<sup>1</sup> <https://simbli.eboardsolutions.com/StrategicPlan/PlanDetail.aspx?S=10399&PID=481>

## Ernst and Young Assessment

The NCDPI Information Technology plan is also steered by recommendations from the [Ernst and Young \(EY\) NC DPI organizational assessment](#), as reported to the North Carolina General Assembly under “Independent Operational Assessment of the North Carolina Department of Public Instruction, Session Law 2017-57, Section 7.23L,” delivered as Report #76 on May 1, 2018.

This report contains specific recommendations for Information Technology (outlined in Appendix C) which are grouped into three broad themes:

1. Transform NC DPI into a collaborative, data-driven, student outcomes focused organization
  - a. Establish a central repository that sources, validates and maintains data (EY #1)
  - b. Bolster and embed analytics capability across key program offices (EY #2)
  - c. Improve the efficiency, governance, and transparency of contracting (EY #5)
2. Create a more integrated and streamlined system of support to LEAs
  - d. Reduce IT support response times to the field and improve resolutions experience (EY #9)
3. Redefine and restructure IT as a lean and agile organization designed to provide value-driven support
  - e. Centralize shadow IT and consolidate the IT organization (EY #10)
  - f. Repurpose IT by outsourcing common and low value functions and refocusing to advise and support business needs (EY #11)
  - g. Implement a vendor-first approach for application services and prioritize cloud hosting (EY #12)
  - h. Design and implement the future state application portfolio (rationalize/consolidate/upgrade) (EY #13)

### 3. Department of Public Instruction IT Plan Initiative Table

	IT Program, Project, or Initiative	New (Yes/No)	Description *Provide Justification in Section 4	Budget Requirement (\$)	Funding Mechanism	Supported Agency Goal	Supported Statewide IT Goal	Anticipated Completion Date
<b>School Business Systems Modernization Program</b>								
<b>LEA Modernization</b>								
1	(LEAM_1) LEA Stabilization	No	Stabilize the LEA platforms by moving them to the SAS EdCloud, removing the risk of the end of life and out of support AS400 on premise hardware from failure	\$12.4M (\$3.1/yr) \$3.1M encumbered for 2018-2020, additional funds will be in 2018 Budget Request	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	4  EY#11,12,13	1,2,3,4	2026
2	(LEAM_2) LEA Modernization the LEA financial and HR (ERP) systems to SaaS	Yes	Move all LEAs to a SaaS financial and HR platform connected to DPI via an integration bus with data being propagated as governed by the newly expanded UERS to the state education ODS.	\$4.1M encumbered for 2018-2020, additional funds (~\$166M will be in 2018 Budget Request)	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	4  EY#11,12,13	1,2,3,4,5,6	2026
<b>Agency Modernization</b>								
3	(AM_1) Agency Systems Stabilization	No	Stabilize the DPI IT platforms by moving them to the SAS EdCloud and DPI data centers, removing the risk of the end of life and out of support AS400 and on-premise hardware from failure.	\$300,000	Legislation S.L. 2017-57 Section 7.16	4  EY#11,12,13	1,2,3,4	2019

	IT Program, Project, or Initiative	New (Yes/No)	Description *Provide Justification in Section 4	Budget Requirement (\$)	Funding Mechanism	Supported Agency Goal	Supported Statewide IT Goal	Anticipated Completion Date
4	(AM_2) NCDPI Financial Systems Modernization	No	Upgrade DPI financial systems to align with the DIT new ERP financial system and eliminate home-grown and unsupportable platforms.	\$2.8M	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	4  EY#11,12,13	1,2,3,4	2022
5	(AM_3) Licensure Systems Modernization	No	Upgrade the current licensure system to be better prepared to accept new legislative changes and decouple salary calculation to drive to a standard vendor software offering.	\$TBD currently funded via Agency	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	4  EY#11,12,13	1,3,4	2021
6	(AM_4) Grants Management System Modernization	Yes	Upgrade current grant system to add the CTE and EC grants into CCIP system. Strategically, we will move the system to DIT in phase two.	Phase1: \$200,00 Phase 2: TBD	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	4  EY#11,12,13	1,2,3,4,6	2019 Phase 1  2021 Phase 2
7	(AM_5) Applicant Tracking Systems Modernization	Yes	Deploy UERS for ATS and build out statewide job board to link all ATS instances and provide a single view of the state's teacher recruitment needs.	\$758,000	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	3,4  EY#11,12,13	1,2,3,4,5,6	2020

	IT Program, Project, or Initiative	New (Yes/No)	Description *Provide Justification in Section 4	Budget Requirement (\$)	Funding Mechanism	Supported Agency Goal	Supported Statewide IT Goal	Anticipated Completion Date
8	(AM_6) Teacher Recruitment Project	Yes	Establishment and deployment of Teach4NC, a program to attract, capture, cultivate and convert potential teachers into the NC teaching profession through advertising campaigns, mentoring, scholarships, improved licensure process and a statewide job board.	\$350,000	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	3,4  EY#11,12,13	1,2,3,4,5,6	2020
9	(AM_7) Educator Preparedness Project	Yes	Project to determine the required data to meet the new legislation (G.S. § 115C-269.35. Accountability for educator preparation program) and build out the UERS specification and collect and host the data in the state's education ODS and longitudinal data warehouses.	\$TBD currently funded via Grant	Gates Foundation Grant  2018 Expansion Budget Senate Legislation (TBD)	3,4  EY#11, 12,13	1,2,3,4,5,6	2020
<b>Data Transparency</b>								
10	(DT_1) Data Transparency Dashboards	No	Implement a data transparency data warehouse and dashboard as per N.C.S.L. 2017-57, Section 7.16 section (ii) - provide for a common reporting system and analytics system.	\$3.4M for 2019-2020  Additional \$7M (\$1.4/yr) will be in 2018 Budget Request	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	4  EY#1,2,11,12,13	1,2,3,4,5,6	2019
11	(DT_2) Common Education Data Analysis and Reporting System (CEDARS) Expansion	No	Extend the state's educational longitudinal data warehouse schema to house all state education data including	\$30,000 for 2019	Legislation S.L. 2017-57 Section 7.16	4  EY#1,2,11,12,13	1,2,3,4,5,6	2019

	IT Program, Project, or Initiative	New (Yes/No)	Description *Provide Justification in Section 4	Budget Requirement (\$)	Funding Mechanism	Supported Agency Goal	Supported Statewide IT Goal	Anticipated Completion Date
			financial data and support expanded UERS Specification.		2018 Expansion Budget Senate Legislation (TBD)			
12	(DT_3) Statewide Education Operational Data Store (SEODS)	No	Integrate existing public-school data into a centralized operational data store (ODS) and reporting data warehouse to provide enhanced public and private reporting to provide more detailed and user-friendly information about public school financial transactions.	\$ included in Project #10	Legislation S.L. 2017-57 Section 7.16  2018 Expansion Budget Senate Legislation (TBD)	4  EY#1,2,11,12,13	1,2,3,4,5,6	2019
<b>Digital Learning Initiative</b>								
13	Digital Supplemental Math	Yes	Cooperative purchasing of an online digital supplemental math solution.	\$500,000.00 for purchasing licenses for a pilot program.  \$0 convenience contract also established.	Purchase of licenses for educational content for a pilot using Digital Learning Initiative funding (appropriated). Local contracts may be funded at the discretion of the LEA/Charter.	2,4,6  EY#12,13		Jun. 2020
14	Home Base Portal	Yes	A portal to provide a single location for increased Home Base recognition and usability,	\$907k	Funded by the Digital Learning	4  EY#12,13	2,5	Dec. 2018

	IT Program, Project, or Initiative	New (Yes/No)	Description *Provide Justification in Section 4	Budget Requirement (\$)	Funding Mechanism	Supported Agency Goal	Supported Statewide IT Goal	Anticipated Completion Date
			and to facilitate the potential for increased data integration across the full suite of applications.		Initiative appropriations.			
15	K-8 Digital Literacy	Yes	Cooperative purchasing of an online digital literacy solution.	\$0 convenience contract established for LEAs and Charters; allotments used to offset the costs of economically distress counties.	Allotments to economically distressed LEAs and Charters funded by the Digital Learning Initiative.	1,2,4,6 EY#12,13	2,5	June 2020
16	Open Education Resources	Yes	Adoption of open license educational resources for educator preparedness for digital learning, providing digital resources, and ensuring technology access across all schools.	\$2.3M	S.L. 2013-11, S.L. 2013-12, and S.L. 2013-226, Sec 5.(c)	1,2,4,6 EY#12,13	5	Jun. 2021
<b>Technology Services Operations and Support</b>								
<b>NCDIT Consolidation</b>								
17	Data Center Consolidation	Yes	Consolidation of data center and other shared and common infrastructure services to NCDIT.	TBD	S.L. 2018-97, 143b-1325.(d)	4 EY# 5,9,10,11, 12	1,2,3,4	Jun. 2019
18	Application and Services Transition	Yes	Transfer shared and common applications and services that are currently managed by NCDPI to NCDIT.	TBD	S.L. 2018-97, 143b-1325.(d)	4 EY# 1,5,9,10,11, 12	1,2,3,4	Jun. 2021

	IT Program, Project, or Initiative	New (Yes/No)	Description *Provide Justification in Section 4	Budget Requirement (\$)	Funding Mechanism	Supported Agency Goal	Supported Statewide IT Goal	Anticipated Completion Date
19	Technology Contract Transition	Yes	Transfer of operations and maintenance related contracts directly linked to infrastructure and applications.	TBD	S.L. 2018-97, 143b-1325.(d)	4 EY# 5,9,10,11, 12	1,2,3,4	Jun. 2019
20	Human Capital Transition	Yes	Transfer of NCDPI Technology Services personnel directly related to infrastructure, applications, services, and support areas moved to NCDIT.	TBD	S.L. 2018-97, 143b-1325.(d)	4 EY# 5,9,10,11, 12	1,2,3,4	Jun. 2019
<b>Enterprise Applications</b>								
21	Student Anonymous Safety Tip	Yes	Mobile application allowing students/citizens to report tips around potential student/school safety.	\$5M	S.L. 2018-5, Section 7.26	4,5 EY#12,13	5	Jul. 2019
22	ECATS	Yes	Online management of all required state and federal reporting for special education students.	\$3.2 million	Federal Funding-IDEA VI-B Grant	1,2,4,6 EY#12,13	4,6	Sep. 2019
23	K-3 Formative Assessment	No	SBE shall ensure every kindergarten student has an entry assessment within 60 days of enrollment.	\$8.9M	Initially funded through Race to the Top federal grant, now via G.S. §115C-83.5 and 174.11	1,2,4,6 EY#12,13	1,5,6	Oct. 2019
24	Office of Charter Schools – Web-based Records and Data Management system (WRDM)	Yes	Online submission and management of Charter School applications and reporting	\$400k	S.L. 2017-57, Part VII, Section 7.17	4 EY#12,13	2,5	Jun. 2019
25	Read to Achieve	No	To ensure that every student reads	\$8.3M	Section 7A.1 of S.L. 2012 -142	1,2,4,6 EY#12,13	5,6	Jun. 2019

	IT Program, Project, or Initiative	New (Yes/No)	Description *Provide Justification in Section 4	Budget Requirement (\$)	Funding Mechanism	Supported Agency Goal	Supported Statewide IT Goal	Anticipated Completion Date	
	<b>Support Services</b>								
26	School Connectivity Initiative	No	Expand the School Connectivity Initiative to include regional advisory and consultative services, training for LEA and Charter School staff, and two staff members to monitor compliance.	\$400k, plus \$1.5M recurring via expansion budget request	S.L. 2017-57, Section 7.23A.(b), and expansion budget request	4,6 EY#12,13	1, 4	Jun. 2020	
27	Remedy to ServiceNow Migration	Yes	Migration to ServiceNow as determined by NCDIT as the new statewide information technology service management (ITSM) platform.	Funded by DIT	TBD	4	2,3,4	Apr. 2019	
28	Tier 1 Level IT Support to Vendors	Yes	Improve customer resolution experience and reduce IT support response times by reworking future IT contracts with vendors to enable LEAs and charter schools to submit incident and request tickets directly with the vendor.	TBD	TBD	4 EY#9,10,11	2,4	TBD	
29	Cybersecurity Program	Yes	To expand cybersecurity and risk management within the school connectivity initiative expansion.	\$200k, plus \$1.5M recurring via expansion budget request	S.L. 2017-57, Section 7.23A.(b), and expansion budget request	4,5 EY#12,13	1, 2	Jun. 2019	

## 4. Department of Public Instruction IT Program, Project, or Initiative Justifications

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### School Business Systems Modernization Program

School Business System Modernization (SBSM) is a comprehensive program to update Local Education Authorities (LEA) and NC Department of Public Instruction (NCDPI) core financial, human resources (HR), ancillary systems and applications, and reporting systems that were initiated and funded by the legislature. It is run out of the Office of the State Superintendent of Public Instruction under the direction of the SBSM Program Manager. Session Law 2017-57 Section 7.16, et seq. states the intention of the General Assembly to fund a multiphase, multiyear project by legislating that NCDPI shall:

- Implement the Plan recommended by the NC State Board of Education (SBE);
- Issue a request for (RFP) proposal for a Software as a Service (SaaS) Enterprise Resource Planning (ERP) platform; and,
- Appropriate \$29M for the 2107-19 biennium with a commitment to fund the program over the next five years.

The SBSM program is broke into three workstreams with a Program Management Office (PgMO) added to oversee planning and execution:

- LEA Modernization;
- Agency Modernization; and,
- Data Transparency.

### LEA Modernization

The LEA modernization workstream is focused on the replacement of obsolete LEA mainframe and core financial systems originally deployed in the 1980s. To accommodate new state and federal requirements, numerous applications using myriad technologies have been built to supplement the core financial systems, resulting in dozens of applications that now need to be supported, maintained, and hosted. The solution is to modernize data management and reporting environments to enable consolidation of reporting applications, including the retiring of legacy applications, aged processes, and peripheral support systems.

The SBSM PgMO developed an ERP RFP in collaboration with the NCSU-FI and numerous NCDPI and local stakeholders. The RFP incorporates specifications provided by LEA finance officers and human resource directors. The PgMO is in communication with the appropriate areas in the NC Department of Information Technology (NCDIT) regarding this RFP, and NCDIT will conduct the formal approval process once feedback from key LEAs has been incorporated into it. There are two main projects in this workstream:

- LEAM\_1. LEA Stabilization; and,
- LEAM\_2. Modernize the LEA financial and HR (ERP) systems to SaaS.

#### 1) LEAM\_1. LEA Stabilization

- a) Justification: Many LEAs host their financial and human resource operations either on-premise, on an out-of-support AS400, or both. Since modernization of every LEA is necessary to create a network-wide stable platform capable of being operational over a five to eight-year period, all must be assessed.
  - b) Measures: The SBSM PgMO has established the following key performance indicators (KPIs) to measure progress towards goal:
    - i) # of LEAs that have opted in for service;
    - ii) # of LEAs with backup tapes at SAS; and,
    - iii) # of LEAs hosted at SAS.
- 2) LEAM\_2. Modernize the LEA financial and HR (ERP) systems to SaaS
- i) Justification: Move all LEAs to a SaaS financial and HR platforms connected to NCDPI via an integration bus with data propagated by the newly expanded Uniform Education Reporting Standard (UERS) to the State Education Operational Data Store (SEODS). Currently only financial data is specified in UERS and collected via a comma separated variable (.csv) file format.
  - ii) Measures: This rollout will be phased over the next five years and will be measured by the SBSM PgMO and the selected ERP providers.
    - (1) Pilots Complete;
    - (2) Data Migration;
    - (3) ERP System Available; and,
    - (4) ERP System interface to SEODS.

### Agency Modernization

The agency modernization workstream is a human capital management (HCM) Initiative which includes the entire LEA employment cycle from applicant tracking through hiring, evaluation, professional development, and license renewal. A broader HCM solution will be considered to include similar functionality for non-licensed positions.

Modern ERP and reporting systems must link to the NC licensure environment. Licensure status and years of service directly affect salary as reflected in the salary schedule for certified positions, e.g., teachers, principals, and school psychologists. In a modern environment, an ERP platform would interact with the licensure system via current Internet protocols to verify years of service before issuing a paycheck. Related reporting systems would interact with the licensure system through standards-based interfaces and protocols. There are seven major projects in this workstream:

- AM\_1. Agency Systems Stabilization;
- AM\_2. NCDPI Financial Systems Modernization;
- AM\_3. Licensure Systems Modernization;
- AM\_4. Grants Management System Modernization;
- AM\_5. Applicant Tracking Systems Modernization;

- AM\_6. Teacher Recruitment Project; and,
- AM\_7. Educator Preparedness Project.

### 3) AM\_1. Agency Systems Stabilization

NCDPI education platforms will be stabilized by moving them to the SAS education cloud (NCEdCloud) and NCDIT data centers to remove the risk of end-of-life and out-of-support AS400s and on-premise system failures.

- Justification: Many of the financial and human resource systems are not supported due to installed software versions, end-of-life product, or reductions in NCDPI workforce. General statute §143B-1325 requires portions of agency technology and services effort migrate to NCDIT.
- Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - # of systems by platform to be relocated; and,
  - # of systems migrated.

### 4) AM\_2. NCDPI Financial Systems Modernization

NCDPI financial systems will be upgraded to align with the new NCDIT ERP financial system to eliminate inter-system incompatibilities.

- Justification: Many of the state’s financial systems have become too proprietary, are multiple versions behind current release levels, or are no longer supported. NCDIT recently selected a new ERP financial system which NCDPI intends to utilize.
- Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - Pilot complete; and,
  - Production cutover.

### 5) AM\_3. Licensure Systems Modernization

The current licensure system will be upgraded with industry standard software to become better positioned for legislative changes and the decoupling of customized salary calculations.

- Justification: The current licensure system is highly customized and several releases behind the current version. Additionally, there are some customizations currently located in licensure for salary audit which need to be decoupled.
- Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - Licensure upgrade to current release; and,
  - Financial systems decoupled.

### 6) AM\_4. Grants Management System Modernization

The current grant system will be changed to add the Career and Technical Education (CTE) and Exceptional Child (EC) grants into the Comprehensive Continuous Improvement Plan (CCIP) system. Strategically, we will move the system to NCDIT in the second of two phases.

- Justification: The current grant system only covers CCIP; other grant systems are custom or at previous release levels. General statute §143B-1325 requires select agency technology efforts to migrate to

NCDIT, and the SBSM PgMO is currently developing a plan to utilize the existing NCDIT/NCDOT grant system long term.

- b) Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - i) CTE operations within grant system;
  - ii) EC operations within grant system; and,
  - iii) NCDIT grant hosting complete.

#### 7) AM\_5. Applicant Tracking Systems Modernization

UERS changes will deploy with an Applicant Tracking System (ATS) and build a statewide job board that links all instances to provide a single view of teacher recruitment needs.

- a) Justification: Currently, the state and LEAs use a plethora of ATSs creating a barrier to potential teacher recruitment, further exasperating educator shortages. This project will develop a data standard for UERS, a centralized data store in SEODS, and a virtual statewide educator job board.
- b) Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - i) UERS specification complete (draft currently available);
  - ii) SEODS operation (currently in testing); and,
  - iii) Statewide educator job board operational.

#### 8) AM\_6. Teacher Recruitment Project

A TeachNC program to attract, capture, cultivate and convert potential teachers into state teaching professionals through ad campaigns, mentoring, scholarships, improved licensure process and a statewide educator job board (refer to AM\_5) will be created and deployed.

- a) Justification: North Carolina currently is struggling with a lack of qualified teachers. Three areas of focus will address recruitment: first, there is an inadequate supply of educator talent and interest in teaching; second, NC educator-related agencies and programs lack alignment in how they recruit, prepare (refer to AM\_7), license (refer to AM\_3), deploy, and support effective teachers; and third, the educator experience is improving, but the public and potential recruits are not aware and therefore may not engage.
- b) Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - i) End-to-end statewide campaign complete;
  - ii) Media placements (including TV, radio, digital and social media, and Google ads) complete; and,
  - iii) TeachNC website and a digital recruiting platform operational.

#### 9) AM\_7. Educator Preparedness Project

Educator preparedness will determine the required data to meet G.S. §115C-269.35 and build out the UERS specification to collect and host data in SEODS and the state's longitudinal data system.

- a) Justification: North Carolina educators are always striving to improve the quality of teacher preparation. Two primary events have come together to provide an opportunity to focus on improving data available

to accomplish this: first, G.S. §115C-269.35 mandates improvement, and second, the Bill & Melinda Gates Foundation in conjunction with NCDPI, Ed-Fi, and UPD Consulting are working on a standard, and eventually the extensions for UERS and SEODS.

- b) Measures: The SBSM PMO has established the following KPIs to measure progress towards goal:
- i) Standard complete;
  - ii) UERS extended; and,
  - iii) SEODS expansion complete.

## Data Transparency

The data transparency workstream is a joint program between NCDPI and the Government Data Analytics Center (GDAC) to ensure internal and external stakeholders have access to data and reports via state-of-the-art systems. The major objectives are to enable near real-time educator visibility and control and provide data management and advanced analytics for decision support. Educator visibility and control currently calculates and reports on related data that is stitched together using at least three disparate sources: payroll code data, licensure data, and course code data. While there is no single authoritative source for educator records, a modern system will provide robust employee controls to allow public schools to manage a single-view of positions through allotment, budget, payroll, applicant tracking, onboarding, and human resource management. Position data will roll up to NCDPI data systems to then provide enhanced reporting capabilities on licensed and unlicensed roles. Contemporary reports and dashboards will present timely views that include certified position counts, payroll summaries, contract days, and more.

Data management and advanced analytics for decision support is cumbersome and even thwarted by independent silos of data. The combination of siloed data and aged business processes established decades ago prevent answers to different sets of questions on varying timescale, further hindered by business systems already at the end of their lifecycle. A modern data management environment will provide automated access to current data. Advanced analytics will be applied to data on a continuous basis to help the state, districts, and individual schools improve decision-making in support of school operations and educational systems. There are three major projects in this workstream:

- DT\_1. Data Transparency Dashboards;
- DT\_2. Common Education Data Analysis and Reporting System (CEDARS) Expansion; and,
- DT\_3. Statewide Education Operational Data Store.

### 10) DT\_1. Data Transparency Dashboards

Implement a transparent data warehouse with dashboard reporting and analytic capabilities as described in NC Session Law 2017-57, Section 7.16 et seq.

- a) Justification: There is no centralized storage of the NC K-12 education data. Session Law 2017-57, Section 7.16 mandates that NCDPI build and deploy dashboards in conjunction with NCDIT and GDAC.
- b) Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
- i) Dashboard 1 complete (March 2018)
  - ii) Dashboard 2 (currently in testing)

- iii) Dashboard 3 upon Go-Live

#### 11) DT\_2. CEDARS Expansion

Extend the state’s educational longitudinal data warehouse schema to house all education data, including financial data, to adhere to the expanded UERS specification.

- a) Justification: CEDARS longitudinal data system does not handle financial data in the existing schema. This project expands the schema so that we can house the newly incorporated financial data (refer to DT\_1).
- b) Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - i) Software licensing procured (in-progress)
  - ii) Extended schema in place
  - iii) Data interface between SEODS and CEDARS operational

#### 12) DT\_3. Statewide Education Operational Data Store (SEODS)

Integrate existing public education data with dashboard reporting and analytic capabilities to provide enhanced reporting and more detailed information regarding school financial transactions through collaboration with NCDIT and the Government Data Analytics Center (GDAC).

- a) Justification: Currently, there is no centralized storage of the NC K-12 education data. Session Law 2017-57, Section 7.16 mandates that NCDPI build and deploy dashboards in conjunction with NCDOT and GDAC, and the design and build of SEODS will accomplish this.
- b) Measures: The SBSM PgMO has established the following KPIs to measure progress towards goal:
  - i) Pilot online (currently in testing)
  - ii) SEODS architecture and design complete
  - iii) SEODS operational
  - iv) Data interface between SEODS to CEDARS operational

### Digital Learning Initiative (DLI)

#### 13) DLI Digital Supplemental Math Curriculum

- a) Justification: Session Law 2016-94, Section 8.23.(2) requires the SBE shall collaborate with the NCSU-FI to progressively manage cooperative educational purchasing. A convenience contract will be provided for an optional digital supplemental math curriculum to students, teachers, and parents. Specifically, this resource will offer: parents with children in math courses critical digital support to be able to better assist with homework (via access to a parent portal); students with engaging, rigorous, adaptive, personalized, and motivational content as well as access to certified math teachers; teachers robust analytics, customizable lesson plans, live support, and on-demand coaching.
- b) Measures:
  - i) Increased student math achievement;
  - ii) Increased graduation rates; and,

iii) Increased student preparedness for post-secondary education and careers.

#### 14) DLI Home Base Portal

a) Justification: Session Law 2016-94, Section 8.23 stipulates the SBE shall collaborate with the NCSU-FI to continue implementing Digital Learning Plan within NC public schools. One of the NCSU-FI recommendations was the implementation of a portal to provide a single location for increased Home Base recognition and usability, and to facilitate the potential for increased data integration across the full suite of applications. The Home Base Portal project will provide a single place to login and access Home Base applications, user documentation, training, and other related information.

b) Measures:

- i) Consistent branding, language, and visual content throughout a Home Base portal to facilitate explanation and understanding of the goals of the system;
- ii) A single, secure web-based location for Home Base and all related applications;
- iii) Increased awareness and support for Home Base among state and local policymakers and practitioners across the state;
- iv) Expanded use of the Home Base suite of applications; and,
- v) The implementation of standardized and repeatable messaging methods for communicating system wide updates and changes to all stakeholder groups.

#### 15) DLI K-8 Digital Literacy Curriculum

a) Justification: Session Law 2017-57, Section 7.23K.(b) requires the NCDPI, in collaboration with numerous state stakeholders, to progressively manage cooperative educational purchasing. A convenience contract will be provided to strengthen digital literacy instruction in kindergarten through eighth grade in local school administrative units determined to be the most economically distressed counties by the Department of Commerce. A digital literacy curriculum provider(s) will be procured to offer a solution for these local school administrative units that may be leveraged locally. The solution will offer: student ability to enhance their digital literacy skills; teachers the ability to assess digital literacy growth; English language learners and students with special needs the resources they need to excel in digital literacy.

b) Measures:

- i) Increased student access to critical content, resources, assessments, and lessons that will deepens their learning and understanding of core digital literacy skills and competencies;
- ii) Increased educator access to digital tools and resources that enhance, differentiate, analyze, and integrate digital literacy curriculum within their lessons;
- iii) Decreased educator time spent developing digital literacy lessons; and,
- iv) Increased student preparedness for digital-age post-secondary education and careers.

#### 16) DLI Digital Content – Open Educational Resources (OER)

a) Justification: Session Laws 2013-11, 2013-12, and 2013-226, Section 5.(c) require the implementation and adoption of educator preparedness for digital learning, providing digital resources, and ensuring

technology access across all schools. North Carolina is committed to transitioning to the use of high-quality, openly licensed educational resources in schools across the state that are interactive, flexible and easily updated. OER is built upon a core set of NC Digital Learning Plan guiding principles that include focus on teaching and learning, enabled and enhanced by technology, and leveraging existing innovations, expertise, and resources from throughout the state while building upon national and international models and research.

b) Measures:

- i) Number and percentage of educators trained in use of OER resources; and,
- ii) Teacher participation in OER development or refinement.

## Technology Services Operations and Support

### NCDIT Consolidation

#### 17) Data Center Consolidation

a) Justification: NCDPI intends to consolidate common functions that are already performed at NCDIT to avoid duplicating the same functions within the agency. Currently, DPI houses its own data center which will transition to either NCDIT or hosted vendor services. The consolidation of the NCDPI data center was recommended as a part of the Ernst and Young report and planning for this project was reported to the General Assembly in October 2018, per G.S. §143B-1325.(d). Through this optimization effort, NCDPI can focus on our mission to support school districts, parents, and teachers, and to improve education for public school students.

b) Measures:

- i) Reduce of the number of servers maintained in the NCDPI data center; and,
- ii) Consolidate staff supporting the NCDPI data center with NCDIT to eliminate duplication of common services.
- iii) Migration of legacy phone system to modernized IP-based NCDIT provided platform

#### 18) Application and Service Transition

a) Justification: Transfer shared and common applications and services that are currently managed by NCDPI to NCDIT as part of G.S. §143b-1325.(d) and the Ernst & Young report. Through this optimization effort, NCDPI can focus on our mission to support school districts, parents, and teachers, and to improve education for public school students.

b) Measures:

- i) A catalog of NCDPI applications, based on inventory of software assets (proprietary or owned) with version level and support and maintenance information;
- ii) Candidate list of applications from the NCDPI catalog for consolidation as shared or common to enterprise services; and
- iii) Transition of applications from NCDPI to NCDIT with agreement to maintain service level and maintenance at no less than current version minus one (n-1).

## 19) Technology Contract Transition

- a) Justification: Transfer of operations and maintenance related contracts directly linked to infrastructure and applications to achieve greater purchasing power and economies of scale through larger NCDIT statewide procurement agreements.
- b) Measures:
  - i) Authorized list of technology related personnel, software, hardware, and services contracts to remain at NCDPI;
  - ii) Transfer of shared or common technology personnel contracts from NCDPI to NCDIT; and,
  - iii) Amended and transferred shared or common software, hardware, and services contracts from NCDPI to NCDIT.

## 20) Human Capital Transition

- a) Justification: Transfer of NCDPI Technology Services personnel directly related to infrastructure, applications, services, and support areas that will be consolidated with NCDIT.
- b) Measures:
  - i) Reduced overhead in technology procurement and project management process; and
  - ii) Transition of shared or common procurement and project management services from NCDPI to NCDIT with agreement to maintain service level at same or lower cost.

## Enterprise Applications

### 21) Student Anonymous Safety Tip

- a) Justification: By July 1, 2019, the NCDPI must implement a statewide student anonymous safety tip application available to all schools serving grades six or higher in local school administrative units, charter schools, regional schools, and schools operated by the agency and the University of North Carolina, as required under G.S. §115C-105.51.
- b) Measures:
  - i) Deployment of the anonymous tip application;
  - ii) Establishment of after-hours tip monitoring and communication; and,
  - iii) Provide marketing and training materials to local application administrators and faculty to raise student awareness.

### 22) Every Child Accountability & Tracking System (ECATS)

- a) Justification: The NCDPI must implement a special education case management and data analysis system that will serve the agency and all current and future NC LEAs, charter schools, regional schools, educational services, and other public schools to meet federal regulations requiring the state to collect, maintain, and report data on exceptional children in support of Every Student Succeeds Act and Individuals with Disabilities Education Act (IDEA).
- b) Measures:

- i) Implementation of methods for the Exceptional Children division to extract data in formats required for reporting:
  - (1) To the Office of Special Education Programs;
  - (2) For the State Performance Plan; and,
  - (3) For the State Systemic Improvement Plan.
- ii) Deployment of web-based functionality for informational access and reporting to eliminate or minimize instances of paper use;
- iii) Enablement of every NC Pre K-12 public education system to implement and sustain all components of a Multi-Tiered System of Support, including the MTSS module of ECATS, to ensure college and career readiness for all students; and,
- iv) Provisioning of safe and secure electronic storage of documents.

### 23) K-3 Formative Assessment Process

- a) Justification: in accordance with G.S. §115C-83.5, the NCDPI shall, within 30 days of enrollment, perform a developmental screening of early language, literacy, and math skills, and within 60 days of enrollment, perform an entry assessment of every kindergartener.
- b) Measures: The K-3 formative assessment will inform learning and drive daily instruction that:
  - i) Implementation of a KEA assessment platform that supports all NC kindergarten teachers and administrators, that addresses five essential domains of school readiness: language and literacy development, cognition and general knowledge, approaches toward learning, physical well-being and motor development, and social and emotional development;
  - ii) Data visualization to support reporting requirements:
    - (1) For 100% of NC kindergarten teachers completing KEA assessment within 60 days;
    - (2) To inform on the percentage of NC kindergarteners prepared for kindergarten upon entry;
    - (3) To inform on the number of NC kindergarteners that fall within established ranges of the five essential domains of school readiness (listed in Measure 1); and,
  - iii) Provisioning of safe and secure electronic storage of documents.

### 24) OCS Web-Based Record and Data Management

- a) Justification: Session Law 2017-57, Part VII, Section 7.17 requires the procurement of a web-based records and data management system for the Office of Charter Schools (OCS) that will automate and streamline reporting and accountability requirements to comply with annual reporting obligations of charter schools.
- b) Measures:
  - i) Allow OCS to develop and assign submission types to manage compliance with applicable law, control document transparency reporting, and create and manage users and roles;

- ii) Enable the control of collections of documents to assist in core authorizing functions, including charter school application and charter school renewal processes;
- iii) Data visualization capabilities for academic, financial, and demographic information for either an individual school or a portfolio of charter schools; and,
- iv) Provisioning of safe and secure electronic storage of documents.

#### 25) Read to Achieve

- a) Justification: Session Law 2017-127 requires the SBE and local boards of education to develop tools assisting with identification and intervention of learning difficulties. By August 24, 2019, the project, through the Office of the State Superintendent (OSS), will provide a solution for universal screening, diagnostic assessment, and progress monitoring. North Carolina G.S. §115C-174.11 requires kindergarten through third grade students to be assessed with developmentally appropriate valid, reliable, formative, and diagnostic reading assessments. Further pursuant to state law, the solution must assess student progress, diagnose difficulties, inform instruction and remediation, and yield data that can be used with the Education Value-Added Assessment System.
- b) Measures:
  - i) G.S. §115C-83.10.(a), parts (1) through (6);
  - ii) A uniform reporting method established and adopted by all local boards of education, that enables the SBE to compile state-wide information; and,
  - iii) Implementation of diagnostic tools and screening instruments for the assessment of specific learning disabilities, to include dyslexia and dyscalculia, to provide intervention for learning difficulties.

#### Support Services

#### 26) School Connectivity Initiative

- a) Justification: Created by Session Law 2007-323 Section 7.28., the School Connectivity Initiative provides high quality Internet access, client network engineering, identity services, E-rate support, cybersecurity monitoring and funding that benefit all NC public schools. An additional \$1.5 Million for this initiative is being requested to expand the cybersecurity services being provided to include regional cyber security experts, training for LEA and Charter School staff and two full time staff to ensure that the student data is compliant with industry best-practices.
- b) Measures:
  - i) Regional cybersecurity experts are procured and deployed to consult with LEA and Charter Schools on best-practices and developed training materials;
  - ii) Cybersecurity training created, provided to, and adopted by LEA and Charter schools; and,
  - iii) NCDPI list of approved or standard-type industry best-practices, with LEA confirmation that student data is secure and compliant.

#### 27) Remedy to ServiceNow Migration

- a) Justification: NCDIT will migrate NC agencies currently under contract with them for the Remedy OnDemand IT Service Management (ITSM) ticketing system to the state of the art ServiceNow ITSM system on/before April 30, 2019. NCDPI currently utilizes Remedy OnDemand for incident management, change management, and a customer self-service web portal. Migrating to an Agile, cloud-based 21st century ITSM platform will simplify IT service delivery and improve the consumer-like service experience allowing NCDPI to move in line with ITIL version 3 framework and be poised for the 2019 release of version 4.
- b) Measures:
  - i) Remedy OnDemand replaced by ServiceNow.
  - ii) Utilization of new functionality, beyond base incident and change management modules: knowledge management, problem management, and asset management modules.
  - iii) NCDIT to provision for NCDPI:
    - (1) Training and documentation; and,
    - (2) Data migration from Remedy OnDemand to ServiceNow.

#### 28) Vendor-Supplied Tier-1 Support

- a) Justification: NCDPI currently provides Tier 1 level IT support to LEA and charter school customers for a variety of state provided applications, including Home Base systems. During a recent organizational assessment, Ernst and Young recommended NCDPI improve customer resolution experience and reduce IT support response times by reworking future IT contracts with vendors to enable LEAs and charter schools to submit incident and request tickets directly to the vendor.
- b) Measures:
  - i) Reduced time-to-resolution and improved customer satisfaction as self-service capabilities allow quicker resolution of non-critical issues;
  - ii) Reduced number of ticket escalations by providing LEA and charter school direct access to vendor provided support; and,
  - iii) Reduced investment required to right-size technology support workforce and infrastructure.

#### 29) Cybersecurity Program

- a) Justification: Session Law 2017-57, Section 7.23A.(a) requires NCDPI, in collaboration with the NCSU-FI, to expand cybersecurity and risk management within the school connectivity initiative expansion.
- b) Measures:
  - i) Inventory of software version and patch levels across all systems complete;
  - ii) Funding plan submitted and approved to upgrade all systems to *n-1* software versions;
  - iii) Decommissioning plan submitted and approved for aged systems that are no longer viable for service;
  - iv) An approved continuous monitoring and risk assessment plan, with periodic update schedule to maintain currency;

- v) A procurement plan and implementation plan to establish regional security advisory and consulting services for the broader NCDPI educational network; and,
- vi) An approved educational and informational awareness plan for security services for school teachers, staff, and administrators.

## 5. Department of Public Instruction Enterprise IT Opportunities

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This section provides information about additional initiatives that NCDPI envisions, including possible joint funding opportunities. Several of these are not funded yet.

### 5.1. Potential Initiatives

- NCDPI IT procurement consolidation with NCDIT IT procurement.
  - There are potential process and operational improvements that can be gained from this.
- NCEdCloud Identity and Access Management (IAM) service consolidation with the new NCDIT initiative for a statewide Identity and Access Management Managed Service.
  - There is a potential for collaboration with NC DIT and other state agencies in this area.
- Next Generation Student Information System (SIS)
  - A new initiative to complete the requirements for a next-generation, comprehensive multi-module K12 statewide Student Information System. There is a great potential to collaborate in this initiative with several other state K12 Education CIOs through the Council of Chief State School Officers (CCSSO) CIO Network.
- NCDPI website migration to Digital Commons
  - NCDPI will join the NCDIT statewide digital commons platform for its public website.

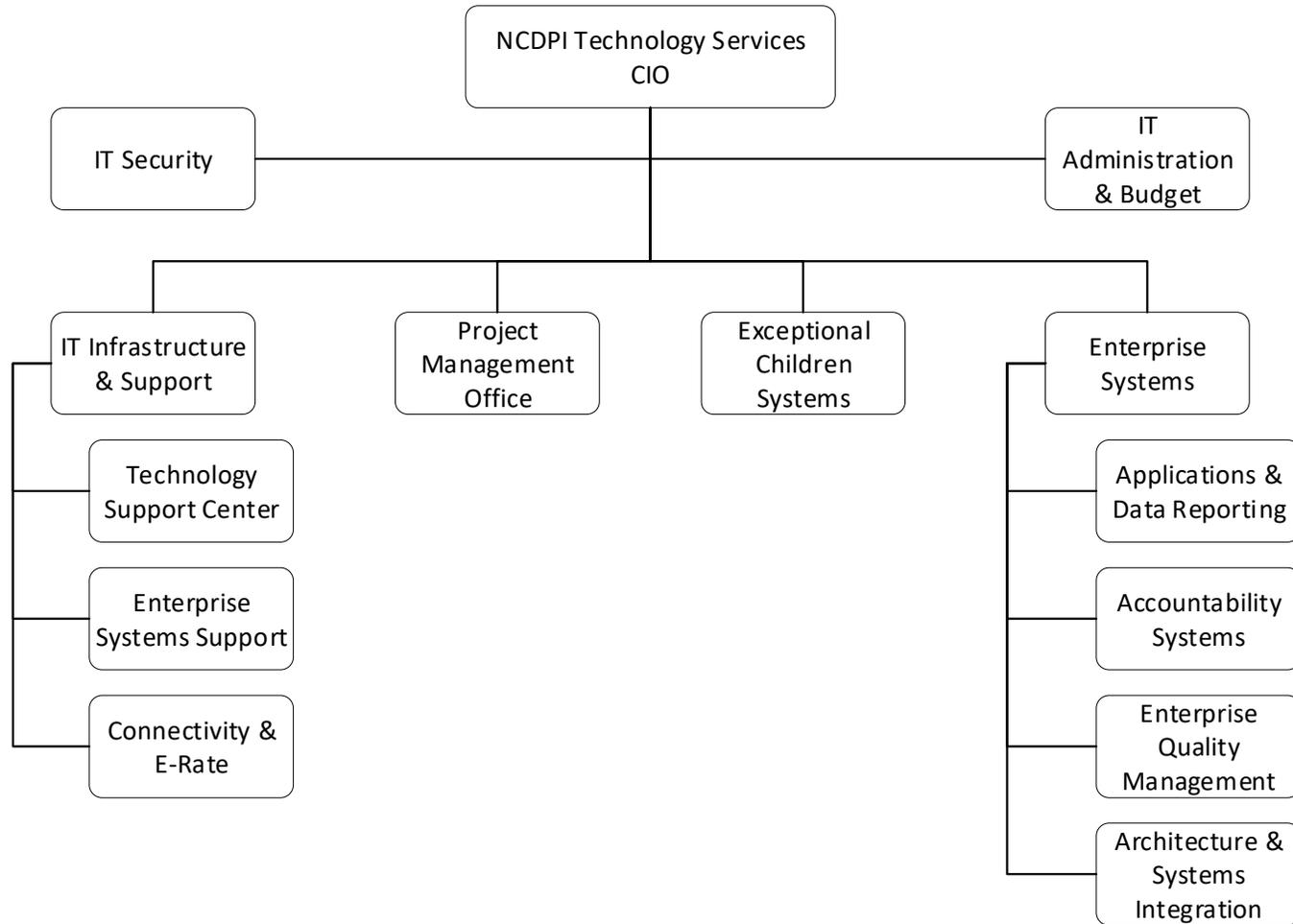
### 5.2. Collaborative Opportunities

- SBSM: Session Law 2016-94 Section 7.10 directs both NCDIT and the NC Community College System (NCCCS) to proceed with planning, design, and implementation of enterprise resource planning systems. NCCCS has issued an RFP to establish a contract with an “experienced functional, technical and strategic sourcing talent with proven planning and implementation for enterprise level ERP projects”<sup>5</sup>. While platform requirements for community college versus K-12 ERP environments vary widely, planning and implementation support for the community colleges program could inform public school business system modernization.
- SBSM: The initial target of NCDIT work in the ERP area is modernization of the North Carolina Accounting System (NCAS). Public school business system modernization program planning and implementation will include careful tracking of and integration with NCAS modernization work.
- Continue to work with Community College Systems, UNC System, Independent Colleges and Universities, NCDIT GDAC, Department of Health and Human Services, and Department of Commerce partners on the following initiatives:
  - UID System
  - NC School Works

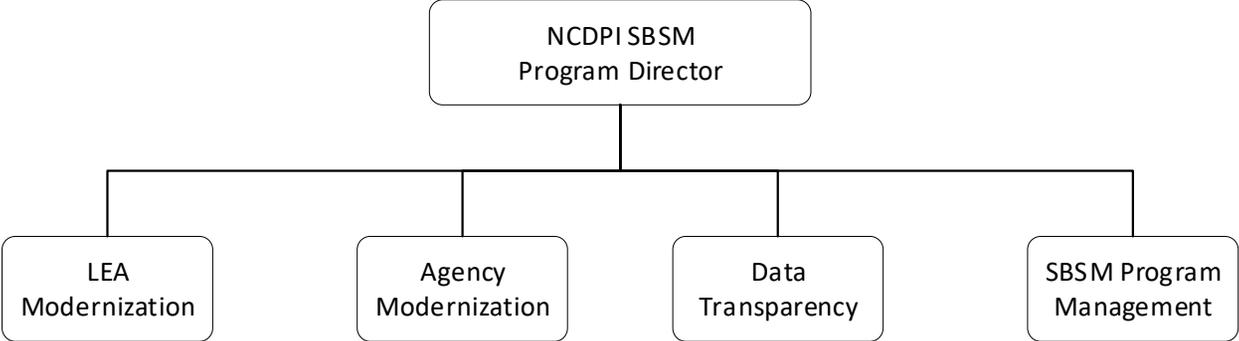
- Common Follow-Up
- Multiple Measures and College and Career Readiness
- Data integration and consolidated reporting
- Educational community of practice: There exists a collaboration between the CIOs of NCDPI, North Carolina Community Colleges System and UNC System.

# Appendix A: Department of Public Instruction IT Organizational Chart

## Technology Services Organization



School Business Systems Modernization (SBSM) Organization



## Appendix B: Department of Public Instruction IT Accomplishments and Progress Review

The table below provides updates on progress for the 2017-19 IT Plan initiatives and projects, noting whether they are completed, underway, in planning, or no longer relevant.

### FY17-19 New Initiatives or Projects

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
Child Nutrition Technology System (CNTS) 2016-17	Provide enhancements to CNTS to ensure compliance with Federal Regulations and facilitate annual maintenance within NCDPI Child Nutrition Services and Operational Accounting sections.  Software and enhancements are required to comply with a signed Federal-State agreement between USDA and NCDPI. > \$500K	Goals 4,5	Federally funded	Ongoing maintenance and support to a production application. On an annual basis, USDA disseminates new regulations that drive the federally funded school nutrition program. State education must adhere to regulations or risk withholding of federal funding not only to State agencies, but also to all schools.	Complete  Project closed	Sep 2017
Cyber Security Study	Department of Public Instruction (NCDPI) is conducting an online survey to study the current cybersecurity policies, procedures, and practices used by Local Education Agencies (LEAs) and charter schools.	Goal 4	State funded	Compliance with reporting mandated by General Assembly.	Study completed and submitted to General Assembly in Dec. 2016  Initial funding to implement study recommendations was appropriated for biennial planning years 2017-2019	Ongoing

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
Digital Learning Plan	SBE/NCDPI is collaborating with the NCSU-FI to continue the progress in implementing the Digital Learning Plan in North Carolina public schools. This new Program will be managed in Touchdown and will have several smaller subprojects beneath it. There are IT and non-IT elements. >\$500K	Goals 1-5	State Funded (through HB 1030)	<p>Coordinate implementation of professional learning programs that support teachers and school administrators in transitioning to digital age learning.</p> <p>Manage statewide cooperative purchasing of content, including statewide shared resources for teachers to use for lesson planning and formative student assessments.</p> <p>Develop infrastructure maintenance and support protocols.</p> <p>Modify and update State policies to provide the support and flexibility necessary for local digital learning innovation.</p> <p>Develop and maintain a continuous improvement process.</p>	<p>Various subprojects are currently underway beneath the DLI program these include:</p> <ul style="list-style-type: none"> <li>• DLI K-8 Digital Literacy Curriculum</li> <li>• DLI Digital Content – Open Education Resources</li> <li>• DLI Digital Supplemental Math Curriculum</li> <li>• DLI Home Base Portal</li> </ul> <p>One subproject is complete:</p> <ul style="list-style-type: none"> <li>• NCDPI Home Base Website Consolidation</li> </ul>	Various completion dates, lasting through 2021

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
				Create assessments for technological and pedagogic skills and identify best practices from those assessments.		
Self-Assessment of MTSS (SAM) Tool	This tool allows for the collection of self-assessments from schools and school districts with regards to the implementation of the multi-tiered system of support (MTSS) framework. <\$500K	Goals 1-5	State Funded	The Self-Assessment of MTSS Implementation (SAM) provides information to school teams on the components critical to building a strong and sustainable school improvement framework.	Complete Project closed	Jun 2017
Drupal Website (formerly “Agency Website and Business Process Improvement - Planning Project”)	Move NCDPI websites to Drupal content management system in a cloud-hosted environment to improve the user experience for our internal and external customers and to allow content owners to make edits and updates to their content with minimal assistance from the web team. < \$500K	Goals 1-5	State Funded (fund specifics TBD)	Provide secure, scalable, and easy to use and manage solution so that select staff can be given access to edit, add and delete content as necessary.  Meet state and federal accessibility laws for NCDPI’s public-facing website.  Ensure timely and accurate	Project postponed due to:  (1) lack of available funds; and,  (2) decision to join Drupal NCDIT Digital Commons platform	Dec 2019

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
				communications and information; improve customer service; provide an easy-to-use environment; attract new and reinforce existing customers; and support business processes that decrease the cost of doing business.		
Enhanced Data Integration Consolidated Reporting (eDIRC)	Enhance the Statewide K12 Operational Data Store (SODS) Data Integration Mechanism. > \$500K	Goals 1-5	State Funded (Expansion Budget Request submitted previously)	Ensure all internal and external K12 stakeholders have access to accurate data and reports via state-of-the-art systems	Project cancelled due to: (1) lack of available funds; and, (2) shifting roles within organization	N/A  NOTE: School Business Systems Modernization will address consolidated reporting needs.
Enterprise Resource Planning (ERP)	School Business Modernization effort through partnership with NCSU-FI Institute and LEAs/Charters. >\$500K	Goal 4	State Funded (through HB 1030)	Flexible options for LEAs and charter schools to migrate toward and implement an ERP from among one or more awarded vendors  Support to convert from LEA or Charter current platform(s) to	Business systems modernization program established in fall of 2017	2026

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
				<p>the new awarded platform(s)</p> <p>For LEAs or charters not choosing to migrate to one of the awarded vendors (if multiple are selected), the State will work with their selected vendor to develop a plan/ schedule to comply with modernized UERS reporting requirements.</p> <p>Support for local system adjustments required to meet the modernized UERS requirements.</p>		
Home Base Enhancements	Identify requirements, prioritize enhancement requests, and deliver functional and operational improvements to the Home Base suite of applications and foundational technology necessary to support operations, expand capability and improve	Goals 1-5	State Funded (fund specifics TBD)	<p>Deliver functional enhancements based on prioritized needs.</p> <p>Improve stability, increase operability, and improve data integration.</p>	Project cancelled due to lack of available funds	N/A

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
	adoption. Develop supporting contract vehicles as appropriate.					
Unique ID (UID) Solicitation & Selection	Develop requirements, post RFP, competitively bid, evaluate, select and award a contract for the next generation Unique ID for K12 Education. > \$500K	Goal 4	State Funded (UERS funds)	Enhance the Unique ID solution to be more efficient	Project cancelled per NCDIT guidance	N/A
Cooperative Purchasing Agreements	Agreements created for Microsoft Licensing, Google Chromebook, and Network equipment.  More agreements will be established under the SBSM program.	Goal 4	\$0	Increased economies of scale with IT procurement activities.	This is an ongoing effort to ensure contracts are extended or rebid as necessary.	Ongoing
Change Review Board and Processes	Creation of an evaluation panel with members that make decisions for proposed software changes, as they understand their impact across numerous related systems.	Goal 4		Increased transparency in understanding change impact with broader communications of their impact.  Easier buy-in, consensus, and service management capability	Change Management has been implemented by establishing a change review board (CRB) and expanding the NCDPI ticketing system to include change tickets.	Jun 2019
Server and Infrastructure Management	Additional attention given to server infrastructure to retire or decommission	Goal 4		<ul style="list-style-type: none"> <li>Reduce security exposure and vulnerabilities</li> </ul>	Over 60 servers have been eliminated or upgraded.	Jul 2019

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
	aged devices, or to upgrade existing devices to necessary levels for proper system administration and support.			<ul style="list-style-type: none"> <li>• Remove unusable technology</li> <li>• Reduce systems administration overhead</li> <li>• Increased understanding of server operating capacities</li> </ul>		
Microsoft OneDrive	Cloud storage to enable collocation of files for retrieval or use from any Internet connected device.	Goal 4		<ul style="list-style-type: none"> <li>• Automatic backup of files stored in OneDrive</li> <li>• Access files from anywhere</li> <li>• Ease of switching between devices</li> <li>• Increased file share capabilities</li> <li>• No-cost access with Office 365</li> </ul>	OneDrive for Business has been configured on all windows devices and the use of SharePoint continues to grow.	Jan 2018

## FY17-19 Existing Initiatives or Projects

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
Audio/ Visual System Replacement	Procure and Install a new Audio/ Visual system for the State Board Room. Operational support initiative. < \$500K	Goal 4	State Funded (potential Expansion Budget Request)	Improved interaction with State Board membership and public attending meetings in-person (or viewing results real-time) through higher quality audio video and presentation equipment.	Complete Project Closed Note, video streaming was descoped, but new audio service was established	Apr 2018
Chrome OS Hardware Accessories and Services IFB	This is not a formal project, but an effort resulting in Cooperative Purchasing Agreements (CPA) between vendors and K12 Education where any school in North Carolina can take advantage of volume purchases of ChromeOS devices and services. < \$500K	Goal 4	NA - Internal staffing was used to develop the IFB and contracts.	While other state contract vehicles are available for K-12 Public Schools to procure devices that use Apple and Microsoft operating systems, this is the only statewide contract available for Chromebooks.  An informal study performed in 2016 found that more than half the K-12 Public Schools in North Carolina use Chromebooks for students in at least one grade level. This convenience contract	Procurement process completed	Apr 2017  Contracts executed and in midst of three-year term.

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
				vehicle results in providing that missing discounted purchase capability and benefit to all K12 Public Schools.		
District Infrastructure Upgrade Support	Ongoing support provided by the School Connectivity Team is helping LEAs and Charter schools to apply for over \$55 million in infrastructure upgrades. Operational support initiative > \$500K	Goal 4	Federal and State funded	School districts can leverage available funding more effectively to upgrade and improve infrastructure at the local level.	Received funding was distributed, as planned	Ongoing
eSIS to PowerSchool Conversion	Support for NCWISE (“eSIS”) reached end of life in September 2014. Adopting a new solution (PowerSchool) was more cost effective than upgrading. This new, highly integrated Student Information System (SIS) is a foundational component of Home Base. > \$500K	Goals 1-5	State funding primarily (only \$132K Federal)	This high benefit endeavor is wrapping up having achieved its purpose.  PowerSchool yields additional flexibility and adaptability as well as supporting statewide data collection and data exchange functions.  Many of the old “Apex” applications and Federal Clusters have since become part of PowerSchool,	Complete  Project closed  Note, initial deployment completed during prior biennium planning cycles, with final project documentation completed this cycle.	Jun 2017

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
				decreasing overall support requirements.		
Every Child Accountability & Tracking System (ECATS)	<p>Select and implement a Statewide Software as a Service Solution (SaaS) to address:</p> <p>Special Education case management and data analysis</p> <p>Medicaid</p> <p>Multi-Tiered Services of Support (MTSS).</p> <p>&gt; \$500K</p>	Goals 1-5	Federally Funded	The current application (CECAS) does not meet all functional business requirements. Prior to March 2016, there was no mandate for districts to use the NCDPI funded system (resulting in 29 school districts with separate systems). Technical architecture of the current application CECAS needs updating and is costly to maintain. ECATS is expected to address all of these problem areas. ECATS has been designated as a Uniform Education Reporting System (UERS) compliant system, being the official means by which data contained in the system is reported to the Department of Public Instruction. ECATS is a	Project implementation has been delayed	TBD – Reviewing schedule options with agency senior leadership

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
				data system that extends the student records currently in PowerSchool. This designation will facilitate a more efficient transition to the new system and eliminate difficulty in connecting data and information from PowerSchool to the new system.		
NCDPI Network Switch Upgrade	An operational support initiative to upgrade the NCDPI Education Building network switches is currently underway. < \$500K	Goal 4	State Funded	This upgrade will provide increased network speed and stability for all NCDPI hosted systems and devices.	Complete Project closed	Mar 2017
NC SchoolWorks P20W-SLDS	The NC SchoolWorks P-20W SLDS Project enables NCDPI to improve educational quality by working with partner agencies in workforce and higher education. This federated, or integrated, system will transparently integrate separate database systems into a single data resource. > \$500K	Goals 1-5	NC SchoolWorks P20W SLDS System is primarily funded by a Federal Grant.  Funding for internal State resources is also provided by NCDPI with contributions	This system will advance the state's substantial momentum toward a shared, integrated State Longitudinal Data System (SLDS), focusing on the data of students after graduation from high school. This system will enable North Carolina to better	Complete Project closed	May 2018

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
			<p>from the partner entities (NCCCS, NCICU, UNC, Commerce, GDAC and DHHS (ECIDS)).</p> <p>SAS provides external software development resources at no cost to the State.</p> <p>SAS hosting fees are incurred by GDAC (and part of GDAC's ongoing operational support model).</p>	<p>understand its educational system and to make better, more informed decisions.</p>		
Operational Support to Districts (Infrastructure)	<p>NCDPI provides SSL (Managed Public Key Infrastructure, MPKI) to internal and statewide educational supporting systems.</p> <p>We are also currently modernizing NCDPI Systems and</p>	Goal 4	State funded (internal staffing costs only)	<p>Compliance with State security requirements.</p> <p>Position the agency to better support school districts.</p>	Continue to provide support	Ongoing

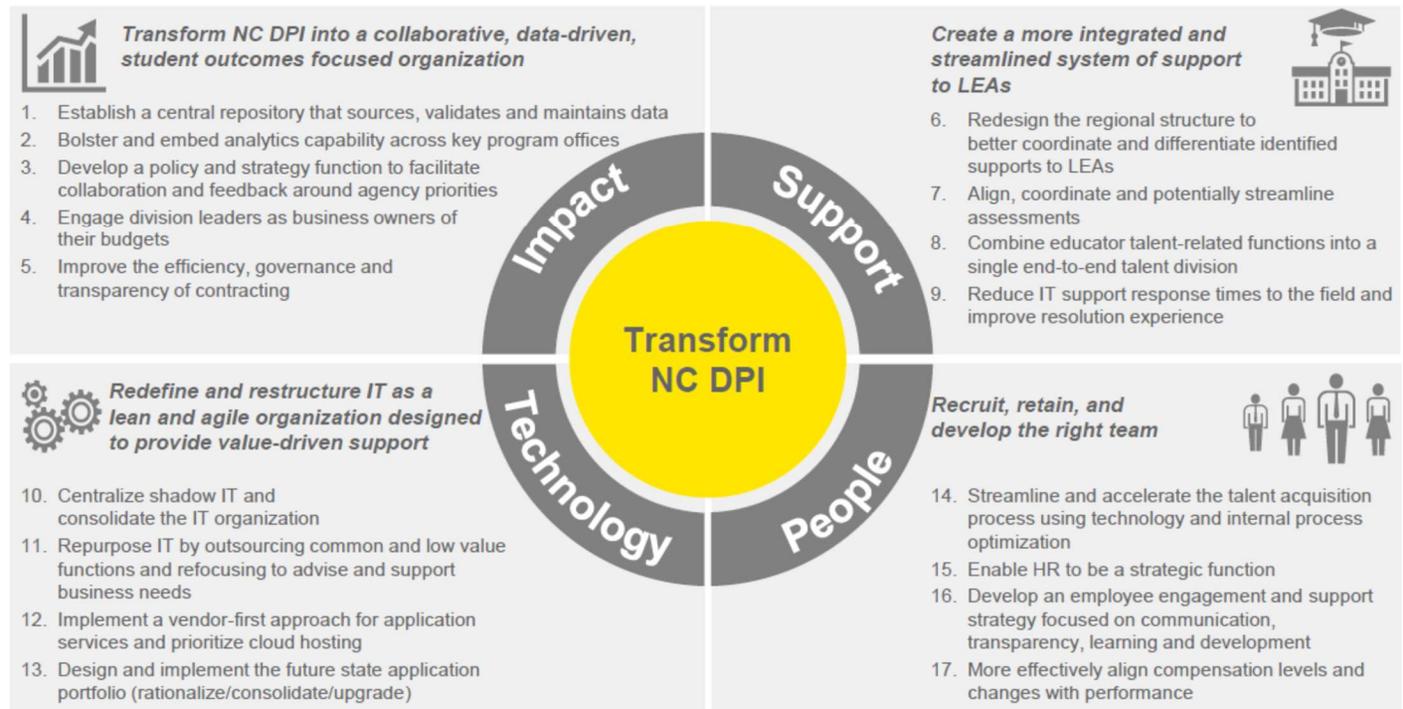
Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
	infrastructure in support of districts. < \$500K					
Read to Achieve Diagnostic Software as a Service (RtAD SaaS)	Reading assessment subscription service for teachers of every kindergarten through third grade (K-3) student to assess their students. The tool should provide instructional support to address oral language, phonological and phonemic awareness, phonics, vocabulary, fluency, and comprehension using developmentally appropriate practices. Ongoing account management, help desk support, bug fixing to be provided to ensure successful implementation and adoption. > \$500K	Goals 1,4	Funded by the State General Assembly under Excellent Public Schools Act Legislation	Meet legislated requirements for formative, diagnostic assessment per Read to Achieve legislation.  Position educators to diagnose difficulties, inform instruction and remediation.  Promoting young readers to become a lifetime reader based on developing a deep love of reading.	Complete  Project closed  NOTE: This was the first of three projects that mandate Read to Achieve procurement and implementation efforts	Project-1, completed successfully Jan 2018  Project-2, started and cancelled, Read to Achieve Diagnostics NextGen  Project-3, currently underway in Planning & Design
RttT: Cloud Enterprise Services (CES) – Applicant Tracking System	SaaS Applicant Tracking Service Implementation < \$500K	Goals 3,4	Race to the Top Grant – Now the sustainment and expansion cost is funded by the	Vendor managed SaaS Solution. Maximize LEA hiring efficacy by Enabling easy job posting, Reduced time to analyze prospective job candidates,	Continue to onboard districts and charter schools, currently at approx. 85% have opted in	Ongoing

Initiative/ Project	Short Description (indicate if >\$500,000)	Related Goals and Objectives	Funding Mechanism	Anticipated Benefits	Progress Review	Anticipated Completion Date
			Exceptional Children grant.	Automation of recruiting functions including hiring and onboarding, Reduced job seeker burden by providing a user-friendly interface.		

Relevant pages below are extracted from the full [Ernst and Young \(EY\) NC DPI Organizational Assessment](#) report.

## Summary of recommendations

Within each of the themes, there are specific recommendations that can support the transformation of NC DPI



**A transformation management office should be created to support the effective implementation of these recommendations (Recommendation #18)**



# Impact: recommendation #1

More detail can be found on Appendix page 4

Establish a central repository that sources, validates, and maintains data

Detailed description		
<ul style="list-style-type: none"> <li>Eliminate duplicative efforts to source data from various places through a central repository managed by a Data Management and Reporting group (DMR) within IT Division</li> <li>The DMR could:               <ul style="list-style-type: none"> <li>Establish data governance and stewardship, and provide reporting services to the agency</li> <li>Include representatives from different offices (Finance, HR, Academic areas, etc.) as well as data architects, database developers, reporting developers, data managers, etc.</li> <li>Become the fundamental enabler for the sharing of data across functional areas and consistent reporting across the agency and the building block to developing future analytics capabilities. Functional and program areas would transmit and share data with the DMR so that other functions can quickly access data</li> </ul> </li> </ul>		
Context and rationale	Desired outcome	Key stakeholders impacted
<ul style="list-style-type: none"> <li>Different teams and applications across NC DPI obtain data from multiple sources independently and using inconsistent methods</li> <li>Additionally, the applications do not easily share data amongst themselves leading to diffuse data management responsibilities, data inconsistencies, and wasteful efforts to source data</li> <li>There doesn't exist a single group across NC DPI that is primarily responsible for consistently defining and managing data across the agency, and providing a single point of reference for where data lives at NC DPI</li> <li>There's a critical need to standardize data across NC DPI by removing duplicates, and validating to eliminate incorrect data from entering systems</li> </ul>	<ul style="list-style-type: none"> <li>Significant improvement in efficiency driven by an established central source for all data at NC DPI to eliminate duplicative efforts of drawing data from multiple sources</li> <li>A well-defined data management framework that addresses data governance, data quality, and data management and stewardship is established</li> <li>Centralized function that provides basic reporting services (scheduled reports) to the academic and administrative areas of the agency</li> <li>Closer collaboration between Technology Services (DMR group) and the other areas at NC DPI to establish data governance, set business rules for scheduled reporting, and help NC DPI draw insights from managed data</li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>School Business Systems Modernization (SBSM) Team</li> </ul> <p><b>Impacted stakeholders</b></p> <ul style="list-style-type: none"> <li>Enterprise Data Reporting group</li> <li>NC DPI Technology Services</li> <li>Academic program areas</li> <li>Finance</li> <li>HR</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management



# Impact: recommendation #2

## Bolster and embed analytics capability across key program offices

More detail can be found on Appendix page 5

Detailed description		
<ul style="list-style-type: none"> <li>▶ Build capacity and leverage reporting and visualization tools to improve the use of data to drive decisions within the department. To build capacity NC DPI could:               <ul style="list-style-type: none"> <li>▶ Align across academic areas on the most important outcomes and use that data to prioritize programmatic decisions and support to the field – including deprioritizing support to programs that are not driving intended outcomes (e.g., a common needs assessment across all program areas.)</li> <li>▶ Leverage data to understand the effectiveness of programs and use data to drive programmatic and policy decisions in the academic program areas (e.g., through a common needs assessment)</li> </ul> </li> <li>▶ Include data analysis skills (e.g., familiarity with Excel) as desired skills for new hires in academic areas</li> <li>▶ Over the long term, NC DPI could consider ways to leverage external analytics services (e.g., NC Government Data Analytics Center (GDAC)) to enable further efficiencies</li> </ul>		
Context and rationale	Desired outcome	Key stakeholders
<ul style="list-style-type: none"> <li>▶ NC DPI currently collects a significant amount of student, educator and finance data from LEAs</li> <li>▶ Individual offices such as Finance, School Research, Data and Reporting, Accountability, Integrated Academic and Behavioural Systems (IA&amp;BS), and Digital Teaching and Learning leverage this data to respond to requests from the General Assembly, provide regular reporting and shape their supports to the field</li> <li>▶ Academic areas collect data from LEAs but do not always prioritize the data that is most important or use the data to drive program and policy decisions</li> <li>▶ NC DPI does not have a consistent data-driven understanding if their programmatic work is driving towards outcomes</li> <li>▶ Creating a more deliberate focus on using data to drive decisions could help NC DPI identify opportunities for improvement and drive towards better outcomes</li> </ul>	<ul style="list-style-type: none"> <li>▶ NC DPI has an established culture of data-driven decision-making               <ul style="list-style-type: none"> <li>▶ Every academic office is able to identify the most important outcomes of their work and the data required to track outcomes</li> <li>▶ Common needs assessment across program areas focuses on the highest-priority outcomes</li> <li>▶ NC DPI focuses investment in programs that have data-driven evidence of success</li> <li>▶ Staff with analytical skills embedded within program areas</li> </ul> </li> <li>▶ Better tiering and usage of analytic tools and resources would free time of analysts within NC DPI to focus on the most strategic questions               <ul style="list-style-type: none"> <li>▶ Programmatic and support teams within Academics would leverage DMR for basic reporting</li> <li>▶ Increased availability and use of analytical tools (e.g., GDAC) would reduce the amount of time spent developing reports and visualizing data</li> </ul> </li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>▶ Academic program areas (identifying key outcomes and programmatic decisions)</li> <li>▶ Technology Services (DMR)</li> <li>▶ School Business Systems Modernization (SBSM)</li> </ul> <p><b>Impacted stakeholders</b></p> <ul style="list-style-type: none"> <li>▶ Human Resources (job descriptions/screening for analytic skills)</li> <li>▶ LEAs and schools</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management



# Impact: recommendation #5

Improve the efficiency, governance and transparency of contracting

More detail can be found on Appendix pages 8-9

Detailed description		
<ul style="list-style-type: none"> <li>▶ NC DPI could establish a streamlined governance framework to efficiently manage and simplify its contract management processes:                             <ul style="list-style-type: none"> <li>▶ Redesign the contract creation, review/approval, and execution processes:                                     <ul style="list-style-type: none"> <li>▶ Contract creation: Collaborate with state agencies to develop standard templates (e.g., RFPs) to expedite the contracting creation process</li> <li>▶ Contract approvals: Simplify and accelerate review and approval processes by reducing multiple handoffs and setting up a governance structure to approve contracts above established thresholds. This governance structure can identify optimal communication channels and cadences to expedite approvals</li> <li>▶ Fill vacancies within the Procurement and Contracts Section with candidates that have the necessary skills and knowledge in order to support the process redesign</li> </ul> </li> <li>▶ Establish contract monitoring and enforcement processes                                     <ul style="list-style-type: none"> <li>▶ NC DPI can proactively plan to renew or renegotiate contracts prior to their expiration resulting in operational efficiency</li> <li>▶ NC DPI can monitor the inventory of active contracts, and manage vendors more effectively to enforce adherence to established Key Performance Indicators (KPIs), metrics, and Service Level Agreements (SLAs)</li> </ul> </li> <li>▶ After the establishment of the governance framework and redesigned contract processes, identify and procure an end-to-end contract management solution that aligns with NC DPI application modernization and rationalization efforts. The process must be rationalized and properly designed prior to the implementation of a new system in order to enable a new system to support an effective business process</li> </ul> </li> </ul>		
Context and rationale	Desired outcome	Key stakeholders impacted
<ul style="list-style-type: none"> <li>▶ Interviews suggest the lack of a centralized contract management system has likely contributed to contract mismanagement (tracking, storage, etc.), confusion of contract ownership, and delays in contract approval</li> <li>▶ Contractors employed through task orders with Institutes of Higher Education (IHEs) and LEAs are inconsistently tracked or monitored</li> <li>▶ NC DPI interviewees mentioned they are unable to monitor contracts that are reaching the end of their terms because there is not a formal tracking system</li> <li>▶ NC DPI respondents expressed having experienced process delays due to multiple handoffs between the originator and approver</li> </ul>	<ul style="list-style-type: none"> <li>▶ Drastically reduce time from contract initiation to approval</li> <li>▶ Proactive monitoring and mitigation of risks related to expiration of contracts</li> <li>▶ Significantly improved process efficiency resulting from a shift to automated contract management</li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>▶ Finance- Procurement and Contracts Section</li> <li>▶ Technology Services</li> <li>▶ School Business Systems Modernization (SBSM) team</li> </ul> <p><b>Impacted Stakeholders</b></p> <ul style="list-style-type: none"> <li>▶ All divisions</li> <li>▶ Department of Information Technology (DIT)</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management



# Support: recommendation #9

More detail can be found on Appendix page 19

Reduce IT support response times to the field and improve resolution experience

Detailed description		
<ul style="list-style-type: none"> <li>▶ Reduce field dependence on NC DPI Technology Services and improve issue resolution experience to the field:               <ul style="list-style-type: none"> <li>▶ Build enhanced self-service troubleshooting capabilities for LEA support staff and vendors to create a more low-touch, technology enabled, and less people intensive model to support the field</li> <li>▶ Rework all future IT contracts with vendors to enable LEAs to file issue tickets directly with the vendor rather than having to work through NC DPI IT</li> </ul> </li> <li>▶ <i>Note: Building self service capabilities refers to creating automated basic troubleshooting capabilities, a knowledge-base of known fixes and a self-service portal for password resets, how-to requests, access provisioning or regaining privileges</i></li> </ul>		
Context and rationale	Desired outcome	Key stakeholders impacted
<ul style="list-style-type: none"> <li>▶ Although interviewees indicate efforts are consistently made to reduce resolution times, technology support to the LEAs continues to have relatively long resolution times due to limited bandwidth in the Technology Support group (constrained by inability to fill vacancies and inadequate staffing)</li> <li>▶ Interviews suggest NC DPI today creates a bottleneck for issue resolution for technology-related matters due to the way contracts were historically established with vendors which drives multiple escalations and handoffs for the LEAs to get to the appropriate point of contact with vendors</li> <li>▶ Analysis indicates almost all the functions performed by DPI's support personnel to troubleshoot issues for LEAs can be automated, facilitating self-service (and more rapid resolution) for LEAs</li> </ul>	<ul style="list-style-type: none"> <li>▶ Reduced workloads and issue tickets for the technology support staff at NC DPI</li> <li>▶ Long-term savings in operating costs from reduced tech support footprint</li> <li>▶ Increased LEA and district staff satisfaction due to significantly reduced time to resolution of technology issues</li> <li>▶ Clearly defined Technology Support process documentation that includes the owners, the timeframes, and key metrics of processes</li> <li>▶ Prioritized list of processes based on self-service and automation potential for processes that can replace human touchpoints with tools</li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>▶ NC DPI Technology Services (Technology Support Center)</li> <li>▶ LEA Technology Support Staff</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management



# Technology: recommendation #10

Centralize shadow IT and consolidate the IT organization

More detail can be found on Appendix page 20

Detailed description
<ul style="list-style-type: none"> <li>▶ In advance of reorganizing Technology Services, NC DPI could align embedded IT personnel and IT skillsets currently distributed across the business units under a single point of IT leadership (e.g., Data Managers in School Research, Tech Support analysts in NC Virtual Public School, Systems Specialists in Finance, and IT managers in Digital Teaching and Learning)</li> <li>▶ Within NC DPI Technology Services, management could consolidate common skillsets and similar roles within the same function to eliminate redundancies (e.g., Data Managers, Infrastructure and Systems Support)</li> </ul> <p><i>Note: Shadow IT excludes technology-related strategic initiatives that leverage already existing IT resources (e.g., SBSM)</i></p>

Context and rationale	Desired outcome	Key stakeholders impacted
<ul style="list-style-type: none"> <li>▶ Currently, discussions with NC DPI and analysis of internal data suggest shadow IT (embedded personnel in program areas that do not report to IT) accounts for approximately 44 FTEs that represent approximately \$3.8m annually. Interviews indicate this practice is creating redundancies in roles that already exist in IT today, but may not be effectively deployed in the current model, and leads to silos of business knowledge</li> <li>▶ These embedded resources have stepped in to perform key IT activities such as managing data, and interviews suggest they are developing applications using a low-code rapid development tool (APEX), and providing technology support, due to IT's inability to respond quickly and effectively to the agency's needs</li> <li>▶ However, interviews indicate decentralized IT has resulted in a proliferation of applications developed by individual areas, redundancy of capabilities, and ungoverned IT:             <ul style="list-style-type: none"> <li>▶ Technology Services is often tasked to solve issues for solutions they did not build</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Streamlined and empowered IT organization aligned to common goals, with a greater ability to enforce technology standards and appropriately monitor and support applications</li> <li>▶ Redefined and formalized IT processes and policies</li> <li>▶ Greater transparency of IT spending across NC DPI and reduction of duplicative work performed by multiple groups</li> <li>▶ Improved business knowledge sharing to mitigate the risks of turnover by critically skilled resources</li> <li>▶ Established base-line and foundation for the transformation of the IT organization</li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>▶ NC DPI Technology Services</li> </ul> <p><b>Impacted stakeholders</b></p> <ul style="list-style-type: none"> <li>▶ School Research, Data and Reporting</li> <li>▶ Academic program areas</li> <li>▶ Finance</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management



# Technology: Recommendation #11

More detail can be found on Appendix pages 21-23

Repurpose IT by outsourcing common and low value functions and refocusing to advise and support business needs

Detailed description		
<ul style="list-style-type: none"> <li>▶ NC DPI IT can shift common, low value functions (e.g., Infrastructure support, tech support, desktop support, architecture, etc.) by prioritizing moving functions to vendors (through the exception process, if costs are lower than Department of Information Technology), or centralizing at Department of Information Technology (DIT)</li> <li>▶ NC DPI could repurpose the Business Technology Division and establish an IT Business Relationship Management (BRM) function to advise the business on technology matters and provide timely support for technology needs from the business by acting as the liaison with Technology Services. The recommended new Business Technology Division would be solely responsible for:               <ul style="list-style-type: none"> <li>▶ Business relationship management</li> <li>▶ Business analysis (translating business requirements into IT specifications)</li> <li>▶ RFP development and vendor support</li> </ul> </li> </ul>		
Context and rationale	Desired outcome	Key stakeholders impacted
<ul style="list-style-type: none"> <li>▶ The current IT service model cannot be easily scaled and interviews suggest it would not sustainably address the needs of the agency going forward</li> <li>▶ As NC DPI looks to add more capabilities and require additional IT support, it may become increasingly challenging for Technology Services to support those requests, as they are already constrained by a lack of resources and challenged to retain and upskill IT talent</li> <li>▶ Interviews indicate there are critical capabilities that do not exist in Technology Services that must be added (e.g., Disaster Recovery) and capabilities that must be enhanced and optimized for greater efficiency (e.g., cybersecurity)</li> <li>▶ In North Carolina, many IT functions today are centralized at DIT, utilized across multiple agencies, and can be uniformly applied to NC DPI. Interviews indicate that DIT may not offer the most competitive market rates or most efficient IT services, and when that is the case, NC DPI should look to utilize the exception process to leverage suppliers or negotiate competitive rates with DIT</li> </ul>	<ul style="list-style-type: none"> <li>▶ Revamped, lean and agile IT organization that can focus on supporting and adding value to NC DPI and schools (and which is not focused on supporting common, low value functions)</li> <li>▶ Vendor-supported model for common IT services with greater financial transparency, increased reliability, agility, and scalability</li> <li>▶ Clear policies and pricing models to guide outsourcing decisions and vendor evaluation/management</li> <li>▶ Instant ability to ramp up or down IT services</li> <li>▶ Easy access to technical support and up-to-date technology</li> <li>▶ Strong agency-IT alignment through a dedicated BRM in the Business Tech Division that establishes Technology Services as a strategic partner to the business (implies new role)</li> <li>▶ Established prioritization processes to handle agency technology demands in a timely manner</li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>▶ NC DPI Technology Services</li> <li>▶ Department of Information Technology (DIT)</li> <li>▶ School Business Systems Modernization (SBSM)</li> </ul> <p><b>Impacted stakeholders</b></p> <ul style="list-style-type: none"> <li>▶ Academic program areas</li> <li>▶ Finance</li> <li>▶ HR</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management



# Technology: Recommendation #12

More detail can be found on Appendix page 24

Implement a vendor-first approach for application services and prioritize cloud hosting

Detailed description		
<ul style="list-style-type: none"> <li>▶ NC DPI could pursue a vendor-first approach for the development, hosting, and maintenance of all applications and hardware. The shift to a vendor-first approach, focusing on Commercial Off The Shelf (COTS) solutions, rather than developing custom applications or maintaining hardware in-house, would require the IT Business Relationship Managers to work closely with the functional and program areas to identify commercially available solutions and services               <ul style="list-style-type: none"> <li>▶ Going forward, a vendor-first approach would seek to eliminate the development of APEX applications, and any other applications developed in-house</li> </ul> </li> <li>▶ NC DPI could migrate to the cloud those applications and hardware that cannot be hosted at vendor sites by filing an exception request with DIT for permission to host on the cloud if competitive rates are not offered at Department of Information Technology (DIT)</li> </ul>		
Context and rationale	Desired outcome	Key stakeholders impacted
<ul style="list-style-type: none"> <li>▶ NC DPI IT faces rising costs to manage continuously ageing and unsupported hardware platforms (e.g., mainframes) every year</li> <li>▶ Interviews indicate basic but critical services like Disaster Recovery for applications in production do not currently exist</li> <li>▶ IT and the various embedded IT groups across NC DPI have created an expansive footprint of applications over the years that interviews suggest have led to challenges to deploy and support in production</li> <li>▶ NC DPI acknowledges outdated technology presents significant resource availability challenges, which in turn severely impacts timely response to critical production outages or issues, and presents an unscalable model for NC DPI IT</li> <li>▶ Interviews indicate that NC DPI understands the benefit of getting out of the business of hosting infrastructure and developing applications</li> </ul>	<ul style="list-style-type: none"> <li>▶ Upgrading, patching, monitoring and supporting servers are outsourced to vendors with specialized expertise and access to modern technology</li> <li>▶ Critical capabilities (e.g., Disaster Recovery) are covered by vendors</li> <li>▶ Vendor-first approach to leverage technical expertise, reliability, and efficiency of suppliers and commercially available products</li> <li>▶ Established roadmap for ongoing modernization as well as scheduled retirement of old or unsupported systems and applications</li> <li>▶ NC DPI resources able to shift focus to advising and supporting LEAs</li> <li>▶ Access to up-to-date technology the field and NC DPI employees</li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>▶ NC DPI Technology Services (Business Technology Division)</li> <li>▶ School Business Systems Modernization (SBSM)</li> </ul> <p><b>Impacted stakeholders</b></p> <ul style="list-style-type: none"> <li>▶ Academic program areas</li> <li>▶ Finance</li> <li>▶ HR</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management



# Technology: Recommendation #13

More detail can be found on Appendix pages 25-26

Design and implement the future state application portfolio

Detailed description		
<ul style="list-style-type: none"> <li>▶ NC DPI could perform an application rationalization effort to retire and decommission applications that are rarely used by NC DPI or the LEAs, share similar functionality, or are currently running on outdated technology (e.g., mainframes). An application rationalization exercise includes the following activities:               <ul style="list-style-type: none"> <li>▶ Gather a holistic view of functional and technical information applications, aligning them to NC DPI program and functional areas to understand how applications enable business functions and processes</li> <li>▶ Develop assessment criteria and weightage to assess and classify applications</li> <li>▶ Collaborate with DIT and establish target state business capability model in alignment with DIT's business architecture framework</li> <li>▶ Develop an application roadmap to keep, tolerate, freeze, replace, or retire an application</li> </ul> </li> <li>▶ NC DPI could replace/consolidate related but disparate applications with modern end-to-end consolidated equivalents (e.g., Finance suite that includes GL, AP/AR, Contract Management solution, etc.)</li> </ul>		
Context and rationale	Desired outcome	Key stakeholders impacted
<ul style="list-style-type: none"> <li>▶ Interviews suggest limited management of IT assets, strategic planning and road-mapping of asset lifecycles over the years has led to a proliferation of disparate applications and platforms across the agency</li> <li>▶ NC DPI continues to support mainframe applications increasing the costs and the resource intensity to support</li> <li>▶ Multiple areas at NC DPI (e.g., Finance teams) indicate they are currently not supported by modern end-to-end consolidated solutions resulting in the need for numerous siloed systems and manual processes to operate the agency</li> <li>▶ By rationalizing the existing set of applications and designing a future state application portfolio NC DPI could reduce the number of applications used to support the agency and the LEAs, free up resources to perform value adding functions through modern solutions, and identify areas that need to be enabled by technology (e.g., Contract Management)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Maximize DPI's investment in technology and applications</li> <li>▶ Eliminate or consolidate unnecessary or redundant applications</li> <li>▶ Significantly reduce manual tasks and processes</li> <li>▶ Reduce support costs through the retirement of outdated technology and legacy applications</li> <li>▶ Move towards more modern end-to-end solutions</li> <li>▶ Formalize application strategy and roadmap to manage IT assets going forward</li> </ul>	<p><b>Owner(s)</b></p> <ul style="list-style-type: none"> <li>▶ NC DPI Technology Services (Business Technology Division)</li> <li>▶ School Business Systems Modernization (SBSM)</li> </ul> <p><b>Impacted stakeholders</b></p> <ul style="list-style-type: none"> <li>▶ Academic program areas</li> <li>▶ Finance</li> <li>▶ HR</li> <li>▶ Department of Information Technology (DIT)</li> </ul>

Note: Key stakeholders impacted and external dependencies noted were all confirmed by NC DPI management  
 Source: EY interviews, internal documents, EY analysis and discussions with management

