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

Report to the North Carolina General Assembly

School Technology Plans

SL 1997-443 (SB 353, Budget Bill), sec. 8.26(b)

SL 2009-451 (SB 201, Budget Bill), sec. 7.31 as amended by SL 2014-115, sec. 82

G.S. 115C-102.6B(b)

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Overview

North Carolina is making great strides with regards to technology planning. As a state we have embraced terminology i.e. digital learning and/or digital learning planning which emphasizes the focus on "learning" to ensure that students have digital age, personalized learning environments and are prepared for college and careers. This document and the supporting resources are intended to keep the General Assembly up-to-date of the State's digital learning efforts underway. The State's technology landscape has evolved significantly over the past two years. Due to changes in the federal e-Rate program in 2014 the requirement of districts to produce School Technology Plans has been removed, prompting NC to also remove this reporting requirement, which has definitely reduced the burden on districts to create separate Technology Plans. As we move forward, digital planning to support teaching and learning needs to be integrated in to district level strategic planning efforts so that its not an after thought but rather an integral part of educating our State's student as we enter the digital age.

Legislative focus and State Board of Education initiatives are currently driving innovation in education and the statewide transition to digital learning. In 2013 the General Assembly passed two key pieces of legislation that support digital learning and are integral to moving us forward as a state:

1. Session Law 2013-11 (HB 23): *"An act directing the State Board of Education to develop and implement digital teaching and learning standards for teachers and school administrators."* This bill also includes reevaluating and enhancing the requirements for renewal of teacher licenses to integrate digital teaching and learning, providing opportunities to modernize the licensure renewal process. Programs currently under investigation include a competency-based approach for teachers through piloting a badging or micro credentialing approach.

2. Session Law 2013-12 (HB 44): *"It is the intent of the General Assembly to transition from funding for textbooks, both traditional and digital, to funding for digital materials, including textbooks and instructional resources, to provide educational resources that remain current, aligned with curriculum, and effective for all learners by 2017."*

The digital transition defined in HB44 requires changes in instructional practices, new types of educational resources, changes in classroom and school management, revised school staffing models, enhanced school and district technology infrastructure, Internet connected devices for all students and teachers, and educator training and support tailored to specific district and charter deployments. Further, State and local funding and policy frameworks will need to be revised. In short, the digital transition requires comprehensive planning. To that end, Section 6.11(g) of S.L. 2013-3601 authorized the Department of Public Instruction to utilize one million dollars ($1,000,000) of appropriated funds for a plan to transition to a digital learning environment. Pursuant to §6.11.(g) of S.L. 2013-3601 and supporting S.L. 2013-12, the Department of Public Instruction has contracted with the Friday Institute at NC State University to develop the NC Digital Learning plan, in collaboration with policymakers, education leaders, practitioners, business leaders, and other partners across the State.

The NC Digital Learning Plan recognizes that the transition to digital and personalized learning is a massive undertaking that requires intense planning, preparation, and numerous stakeholders. The plan will address how to incorporate digital age learning into mainstream education, such as competency based education, personalized learning, anywhere/anytime learning, project-based

learning, student centered instruction, and more. The Plan will leverage the State's efforts to date and accelerate its progress by comprehensively addressing four essential components:

1. **Digital content** that fosters collaboration and is real world based.

2. Robust and reliable **technology infrastructure** and connectivity to every device, in every school and public library.

3. Increased **human capacity** of teachers and instructional leaders to shift the classroom model.

4. State and local **policies and funding** that enable and encourage digital learning.

The Digital Learning Plan effort in well under way in our state, with the final report scheduled to be released in August 2015. The following interim reports provide the context and further details about the Digital Learning Plan's progress and are submitted as the State School Technology Plan pursuant to § 115C-102.6B:

Digital Learning Plan Policy Brief #1 – June 2014 (Attachment 1)
This Policy Brief summarizes the rationale for the Digital Learning Plan, North Carolina's progress on the transition to digital learning, relevant recent Legislative and State Board of Education actions and the key elements of the K-12 digital learning transition.

NC Digital Learning Workplan – July 2014 (Attachment 2)
The Workplan outlines how the Friday Institute intends to move forward on the development of the NC Digital Learning Plan (NCDLP) pursuant to Section 6.11(g) of S.L. 2013-3601. The Work Plan supports the scope of work approved by the North Carolina State Board of Education in April 2014.

Digital Learning Plan Policy Brief #2 – January 2015 (Attachment 3)
This Policy Brief focuses on preliminary recommendations to inform State policy decisions. The recommendations provided in this document are intended to inform near-term actions by State policymakers to jump-start the statewide transition to digital learning, including recommendations for funding considerations during the 2015 legislative session.

In addition, *the Agency Information Technology Plan* (Attachment 4) pursuant to SL 2004-129 submitted in October 2014 provides further details and clarity on the various technology projects and work effort, all directed to enhancing classroom instruction and improving student performance and educational outcomes. A major portion of this plan covers the completion of remaining development work and the transition from implementation to support, maintenance and sustainability of key efforts e.g. Home Base.

These items collectively provide a comprehensive view of the State's Technology Planning efforts pursuant to § 115C-102.6B. This NC Digital Learning Plan will be based on rigorous field based research and in addition to the State Information Technology Plan, should be the guidance the state uses moving forward.

Attachment 1

NORTH CAROLINA

DIGITAL LEARNING PLAN

Policy Brief

June 2014

Prepared by the Friday Institute for Educational Innovation

THE WILLIAM & IDA FRIDAY INSTITUTE FOR EDUCATIONAL INNOVATION

NC STATE UNIVERSITY College of Education

OVERVIEW

North Carolina is committed to providing the personalized digital-age education K-12 students need to be successful in college, in careers, and as productive citizens. North Carolina has already made significant progress with statewide efforts, and many districts have digital learning initiatives well underway. However, much remains to be done to ensure that all students throughout the State have equitable access to high quality digital learning. Recent legislative actions that address preparing educators for digital learning, providing digital resources, and ensuring technology access across all schools, as well as the goals of the new State Board of Education Strategic Plan, are important steps in moving forward.

The Friday Institute for Educational Innovation at North Carolina State University, in collaboration with policymakers, education leaders, practitioners, business leaders and other partners from throughout the State, has been asked to develop the ***North Carolina Digital Learning Plan*** to continue and accelerate North Carolina's progress. This Policy Brief sets the stage for the overall effort.

TRANSITIONING TO DIGITAL-AGE EDUCATION

The transition to a digital-age education system that fully harnesses the power of modern technologies will impact all aspects of education, including the content students learn, the methods teachers use, where and when learning takes place, what resources are required, and how success is defined and measured. Systemic changes in K-12 education are required in order to effectively prepare students for college, careers, and civic life in this rapidly changing, interconnected, technology-driven world.

NORTH CAROLINA PROGRESS ON THE TRANSITION TO DIGITAL LEARNING

This transition has already begun in North Carolina at the State, district, and school levels. The School Connectivity and K-12 Cloud Computing initiatives place North Carolina at the national forefront in providing the robust broadband access and related software and services that are foundational to the transition. The North Carolina Virtual Public School has expanded curriculum offerings through virtual learning for students throughout the State. The Home Base system will continue to provide teachers, students, parents and administrators with real-time access to student data and teaching and learning resources. Many of the State's educators have already gained first-hand experience as digital-age learners in virtual and blended professional development programs. Most importantly, districts and schools throughout the State are deeply engaged in innovative local digital learning initiatives — including Mooresville Graded School District, which has become a national model.

The challenge moving forward is to pull these important initiatives together into a coherent long-term strategy that sets directions, supports innovation, provides resources, and removes barriers, so that the State's educators and students will benefit fully from digital content and tools.

LEGISLATIVE AND STATE BOARD OF EDUCATION ACTIONS

North Carolina legislators recently passed important pieces of legislation. SL2013-12 calls for the State to transition by 2017 from textbooks to digital materials that are effective for all learners, are aligned with the curriculum, and can be kept current. SL2013-11 and SL2013-226 call for the State Board of Education to develop and implement digital teaching and learning standards for teachers and school administrators by July 2017. Furthermore, the General Assembly and the State Board of Education agree on the need to create standards for wireless connectivity and broadband capacity for a digital learning environment and to develop recommendations for achieving the standard statewide.

In December 2013, the State Board of Education passed a requirement for every student to take at least one course online as a requirement for graduation. More recently, the April 2014 State Board of Education Strategic Plan further supports the legislature's directions by (1) calling for all schools to have sufficient wireless access to support digital learning initiatives; (2) increasing the number of teachers and students using digital learning tools; (3) using Home Base as an essential resources for instructional delivery, online testing, and communications with parents and students; and (4) personalizing education for every student. These legislative and State Board of Education actions are important steps in supporting all North Carolina public schools as they move forward with the transition to digital learning.

DEVELOPING THE NORTH CAROLINA DIGITAL LEARNING PLAN

To implement these legislative requirements and elements of the State Board's Strategic Plan, North Carolina has contracted with the Friday Institute for Educational Innovation at North Carolina State University to develop the ***North Carolina Digital Learning Plan***. The charge to the Friday Institute is comprehensive, as the contract scope of work specifies:

> The digital transition defined in SL2013-12 will require changes in instructional practices, new types of educational resources, changes in classroom and school management, revised school staffing models, enhanced school and district technology infrastructure, Internet connected devices for all students and teachers, and educator training and support tailored to specific district and charter deployments. Further, State and local funding and policy frameworks will need to be revised. In short, the digital transition will require comprehensive planning.

To respond to the charge, the NC Digital Learning Plan will address the following major questions:

1. What exemplary approaches and lessons learned from local school districts' digital learning initiatives should North Carolina build upon?
2. How will North Carolina transition from funding for textbooks to funding for digital materials that are aligned with curriculum, remain current, and are effective for all learners?
3. How will existing systems, such as Home Base, the North Carolina Virtual Public School, Public Libraries, and the K-12 Cloud support the transition to digital resources and digital learning?
4. How will North Carolina ensure that all public schools and community anchor institutions have the technology, service, and support infrastructure needed to sustain robust digital learning?
5. How will North Carolina enhance or build the capacity of all its teachers, school leaders, and district leaders to fully utilize digital resources and meet the new digital learning standards?
6. How do State and local education policies and processes need to be updated and revised to further digital learning?
7. How can North Carolina best support current and future local digital learning transitions in districts throughout the State?
8. How does the digital learning transition impact school budgets and how can the digital learning transition be funded?
9. How will the K-12 digital learning transition impact post-secondary teaching and learning in North Carolina?

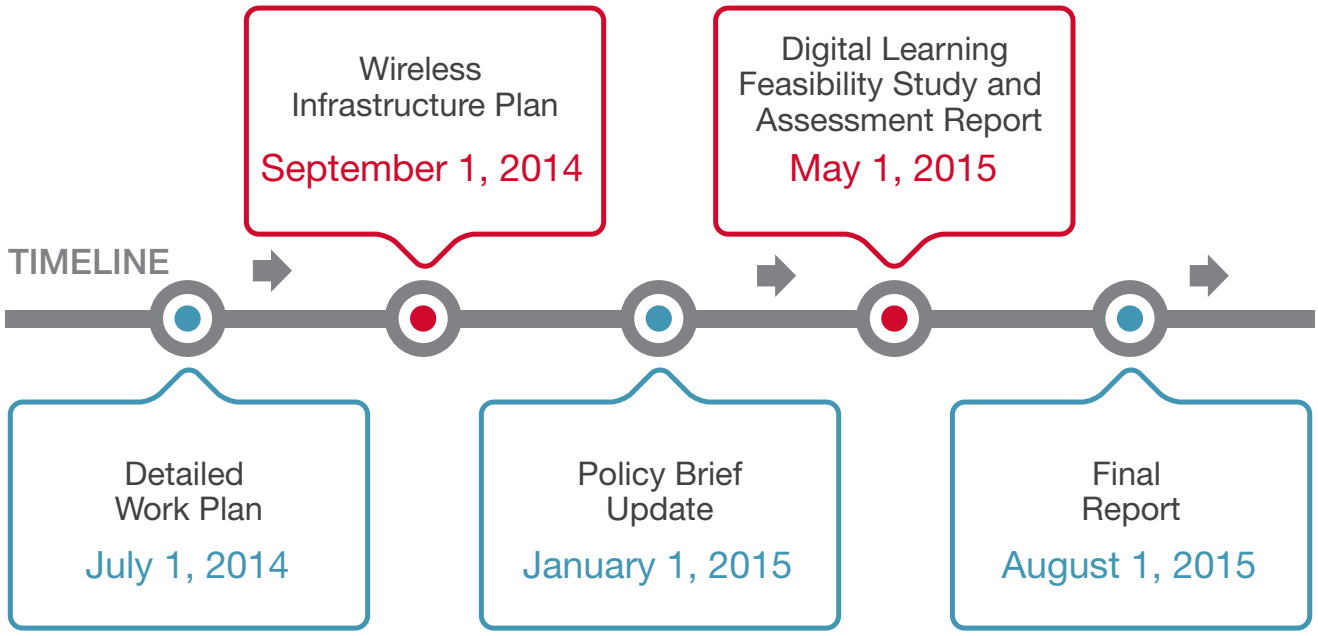
ELEMENTS OF THE K-12 DIGITAL LEARNING TRANSITION

Our work will be informed by K-12 digital learning transitions already underway in schools and districts across North Carolina and beyond, with the ***North Carolina Digital Learning Plan*** designed to support and enhance local initiatives. While schools and districts are taking different approaches and moving at different paces in this transition, a number of common themes have emerged that help clarify what this change to *digital-age* education looks like for our students, parents, educators and schools.

Traditional Instructional Model	Digital-Age Learning Model
Advancement based primarily on time spent in class.	Advancement based on demonstrated **mastery** of the content and **competency** in applying what has been learned.
Fixed places and times for learning within school buildings.	**Anywhere and anytime learning,** inside and outside of schools, 24/7, with most learning blending face-to-face and online activities.
One-size-fits-all instruction and instructional resources.	**Personalized learning** and flexible resources optimized for each student.
Teacher-centered instruction, with teachers as expert disseminators of content to classes of students.	**Student-centered instruction,** combining large group, small group and individualized learning, with teachers serving as facilitators and coaches.
Printed, static text, often out-of-date, as the dominant content medium for educational resources.	**Digital content** providing interactive, flexible and easily updated educational resources.
End-of-course standardized assessments of learning, primarily for accountability.	**Assessments integrated into learning activities** to provide ongoing information about students' achievement that can be used to improve teaching and learning.
Limited information available to parents via periodic report cards and teacher meetings.	**Parent portals** provide 24/7 access to their children's assignments, grades, and records, as well as a means to communicate with teachers and administrators.
Academics addressed in isolation, with schooling separated from informal learning experiences outside of school.	**Project-based** and community-based learning activities connecting to students' lives outside of school.

NEXT STEPS

The Friday Institute is developing a work plan that expands on the core questions and elements of the digital learning transition, defines the deliverables, and outlines the approach to this planning project. This work plan will be available on July 1, 2014, and will specify the organizational structure, oversight, advisory board, and stakeholder engagement processes for the project. The additional deliverables included in the scope of work are shown in the table below:



This policy brief, future deliverables and other information relevant to the NC Digital Learning Plan will be available at http://ncdlplan.fi.ncsu.edu. Inquiries and recommendations about the plan can be submitted to the Friday Institute by email to ncdlplan@fi.ncsu.edu.

Attachment 2

NORTH CAROLINA DIGITAL LEARNING PLAN

Work Plan

July 2014

Prepared by the Friday Institute for Educational Innovation

THE WILLIAM & IDA FRIDAY INSTITUTE FOR EDUCATIONAL INNOVATION

NC STATE UNIVERSITY College of Education

Introduction

This report outlines the Friday Institute's work plan for the development of the North Carolina Digital Learning Plan (NCDLP) pursuant to Section 6.11(g) of S.L. 2013-3601. The plan supports the scope of work approved by the North Carolina State Board of Education in April 2014. This report builds upon the Digital Learning Plan Policy Brief, submitted on June 1, 2014, which sets the stage for the overall planning effort. The *Policy Brief* summarizes the rationale for the plan, North Carolina's progress on the transition to digital learning, relevant recent Legislative and State Board of Education actions and the key elements of the K-12 digital learning transition. It also includes the following set of questions that the NCDLP will address:

1. What exemplary approaches and lessons learned from local school districts' digital learning initiatives should North Carolina build upon?
2. How will North Carolina transition from funding for textbooks to funding for digital materials that are aligned with curriculum, remain current, and are effective for all learners?
3. How will existing systems, such as Home Base and the North Carolina Virtual Public School, support the transition to digital resources and digital learning?
4. How will North Carolina ensure that every public school has the technology, service, and support infrastructure needed to sustain robust digital learning?
5. How will North Carolina build or enhance the capacity of all its teachers, school leaders, and district leaders, to fully utilize digital resources and meet the new digital learning standards?
6. How do State and local education policies and processes need to be updated and revised to further digital learning?
7. How can North Carolina best support current and future local digital learning transitions in districts throughout the State?
8. How does the digital learning transition impact school budgets and how can the digital learning transition be funded?
9. How will the K-12 digital learning transition impact post-secondary teaching and learning in North Carolina?

This *Work Plan* describes the organization, governance, and tasks to address these questions. It also provides recommendations to further the digital learning transition throughout North Carolina's K-12 public and charter schools.

Future deliverables include a stand-alone *Wireless Infrastructure Plan*, an updated *Policy Brief*, a *Digital Learning Feasibility Study and Assessment Report*, and a *Final Report*; each of which are described below and the schedule for each is shown in Figure 1.

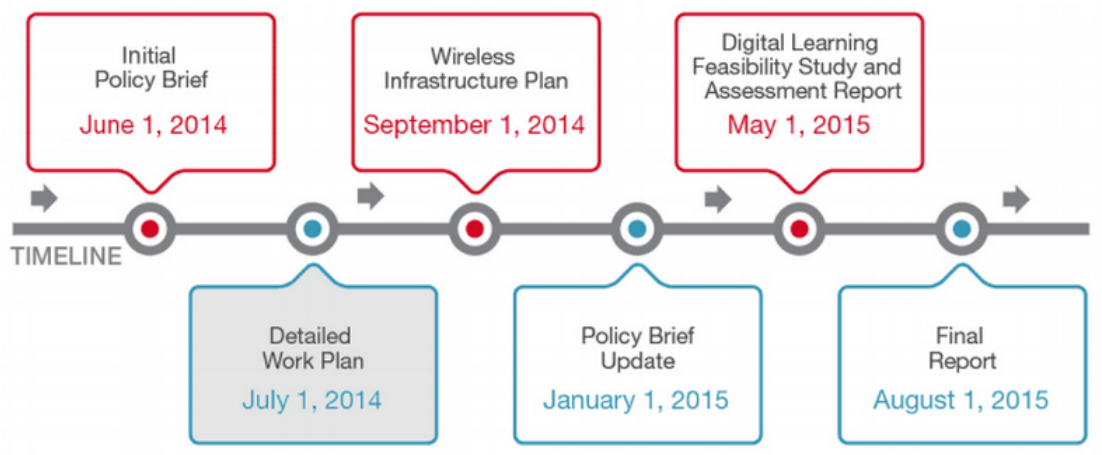


Figure 1: Deliverables Timeline

Wireless Infrastructure Plan

The *Wireless Infrastructure Plan*, due September 1, 2014, will address cost, deployment, and usage models for school wireless networks, considering the various digital learning technology options. The plan will be developed in response to and in accordance with emerging changes to the federal E-Rate program that directly relates to providing school level discounts for wireless infrastructure deployments. Based upon our extensive prior work in the School Connectivity and K-12 Cloud initiatives, we expect to recommend a statewide consortia approach. The *Wireless Infrastructure Plan* will be incorporated into the final digital learning plan.

Policy Brief Update

The *Policy Brief Update,* due January 1, 2015, will summarize initial digital learning plan findings and recommendations for policy makers. To the extent possible at that stage of the project, the update will provide specific recommendations for consideration by the General Assembly during the 2015 long session. These policy and funding recommendations will comprise a subset of recommendations that will be included in the final digital learning plan.

Digital Learning Feasibility Study and Assessment Report

The *Digital Learning Feasibility Study and Assessment Report*, due May 1, 2015, is the core deliverable of the digital learning work. The feasibility study and assessment report will address the nine questions spelled out in the Policy Brief. It will define a North Carolina digital learning framework, summarize current assets and capabilities, and provide recommendations for the State's roles in supporting districts and schools implement effective digital learning programs.

Final Report

The *Final Report*, due August 1, 2015, combines all of the deliverable documents along with supporting data and materials. The *Final Report* will also include sample transition plans for five to seven districts that are representative of a continuum of possible transition trajectories. Finally, this report will incorporate next steps based on actions taken by the General Assembly and State Board of Education prior to the completion of the report.

Building on North Carolina's Momentum

The digital learning plan both impacts and will be impacted by a number of emerging and developing laws, initiatives, and programs. We summarize the major ones below.

Legislation

Digital learning legislation enacted during the 2013-14 biennium is primarily based on recommendations outlined in the December 2012 Final Report of the *Legislative Research Commission's Committee on Digital Learning Environments in Public Schools*, chaired by Senator Dan Soucek and Representative Craig Horn.

Session Law 2013-12 outlines the intention of the General Assembly to transition from funding textbooks to funding digital learning materials in public schools. Session Law 2013-11 directs the State Board of Education to implement digital teaching and learning standards. Session Law 2013-3601 Section 6.11(g) allocates lottery funds to public schools via grants and includes the provision that is the basis for the digital learning plan.

Home Base

The NC Department of Public Instruction's *Home Base* comprises a suite of applications that are foundational to a digital learning environment. The following platforms comprise the Home Base system:

- **Pearson PowerSchool** is the student information system (SIS) that replaces NCWISE. North Carolina is unique for having a single SIS used by all Local Education Agencies (LEAs) and charter schools. Having a single SIS application simplifies feeding roster data into Learning Management Systems (LMS) and other online assessment platforms. LEAs and charter schools are required to use this system to report their data.
- **Pearson TestNAV** is a high stakes online assessment platform. North Carolina delivers curriculum aligned assessments online using a tool known as NCTest, developed by the North Carolina State University Center for Urban Affairs and Community Services under the technical outreach to public schools contract. The relationship between TestNAV, NCTest, and the emerging Smarter Balanced Assessment Consortium platform is still developing. LEAs and charter schools must use the TextNAV system once implemented.
- **Pearson Schoolnet** is a software system that helps teachers and administrators with curriculum management, classroom and benchmark assessment management, and data visualization of key performance indicators. In order to

develop content on Schoolnet, the Governor's Teacher Network, as well as district teams, are creating and curating materials to be loaded into the application. These lessons, along with curated resources and other instructional materials are being made available to teachers in Schoolnet. Use of this system is optional for LEAs and charter schools.

- **Pearson OpenClass** is a free cloud-based learning management system that districts, schools, and individual teachers may use to manage a class online. OpenClass includes social networking and collaboration tools, a grade book, tools to share and develop content, and integration with Google Apps.
- **True North Logic Educator Evaluation system** provides an online tool and workflow engine supporting evaluation of teachers and principals. It replaces the prior McREL system. LEAs and charter schools must use this system.
- **True North Logic Professional Learning System** is a software platform that provides a course catalog of professional development content and allows teachers to register for professional development, evaluate courses, view transcripts and schedules, and to perform other related learning management capabilities. Use of this system is optional for LEAs and charter schools.

Existing appropriations for the Uniform Education Reporting System sustain each of the systems mentioned above. The initial Home Base rollout also includes a collection of content with subscriptions that costs $6 million per year. North Carolina's Department of Public Instruction (NCDPI) is seeking an appropriation to sustain this content, but, in the event that no State funding is available, has also defined a plan for LEAs to opt-in to components of Home Base. The NCDLP content and funding and policy teams will maintain synchronization with NCDPI on Home Base content integration and sustainability matters.

School Connectivity and E-Rate

The School Connectivity Initiative (SCI) provides for a statewide education network that connects all public schools to the Internet with reliable high-speed connections. SCI does *not* provide funding for internal school connections, so many schools do not yet have adequate wireless infrastructure to provide reliable access throughout the building. There is a lot of federal activity level targeting school connectivity, including a focus on providing funding for school WiFi deployments. The Federal Communications Commission (FCC) has announced its intention to double broadband funding in 2014 within the E-Rate program and to modernize the program as part of its E-Rate 2.0 push in 2015. The E-Rate modernization work supports President Obama's ConnectED initiative, which was first announced in Mooresville, NC in 2013. The FCC will likely vote on and announce an initial cadre of new administrative and eligibility rules during summer 2014. These new rules will likely include details related to E-Rate support for internal school connections – with a substantial focus on wireless.

This rule making will impact timing and sustainability of North Carolina efforts to support digital learning at the classroom level. North Carolina may have an opportunity to secure one-time funding to kick-start an organized statewide deployment of wireless infrastructure in schools in 2014. In addition to being ready to submit a proposal once the

opportunity becomes better defined, North Carolina leaders must create a sustainability model that addresses operational support and funding beyond any one-time investment. The office of the Governor, the Friday Institute, MCNC, and the office of the Lieutenant Governor have all been engaged in conversations with the FCC Commissioners and staff to address these issues. The NCDLP technology infrastructure planning is synchronized with these existing efforts.

NC Education Cloud – Shared Services

The NC Education Cloud program (hereafter "cloud") is funded via $34M from North Carolina's $400M Race to the Top grant. Cloud funding is assessed against the LEA portion of the grant and as such is focused on providing services and infrastructure that directly benefits LEAs and charter schools. The cloud work includes:

1. Statewide identity and access management services (IAMS) that automates the creation of user accounts for students, parents, educators, and guests. Further IAMS allows districts to automatically associate those accounts with applications hosted in the cloud.
2. A hosting service in place of the IBM AS/400 platform that most LEAs historically deployed to support finance, payroll, and HR applications, resulting in significant cost savings.
3. A learning object repository (LOR) based on an expansion of the Community College System LOR that allows for the vetting, labeling, aligning, and publishing of K12 content resources in a way that makes it more efficient for LEAs and charter schools to manage online content delivery using multiple learning management applications without having to custom integrate the content with each different application (e.g., Moodle, Blackboard, Edmodo, Haiku, etc.)
4. Convenience contracts for mobile device management (MDM) and LMS applications. MDM platforms allow districts to manage laptops, tablets, smart phones, and related mobile devices in an organized way – including installing common software, tracking of devices, and managing compliance with federal privacy and child protection laws. LMS applications serve as the core platform in a digital learning environment. The LMS connects classes with students, teachers, parents, and content.

The cloud work helps set the stage for digital learning through shared infrastructure services, like IAMS and LOR, and by helping to establish cost effective solutions for learning management and mobile device management platforms.

The North Carolina Virtual Public School

Since 2007 the North Carolina Virtual Public School (NCVPS) has delivered teacher-led online courses to North Carolina high school students. The NCVPS offers a catalog of over 150 courses and serves 50,000 students across all 115 LEAs. The NCVPS team manages course delivery via LMSs and has operationalized the selection, creation, and management of online content. NCVPS content, process, and operating model will inform digital learning content and pedagogical elements of the digital learning plan.

Golden Leaf Foundation and Race to the Top Funding for Local Initiatives

Since 2007, The Golden Leaf Foundation (GLF) has awarded grants for digital learning initiatives to 36 local education agencies in North Carolina. Additionally, GLF has given grants to the New Schools Project, The Friday Institute, and UNC Greensboro to support the initiatives in recipients' schools. GLF's investment in K-12 digital learning initiatives totals more than $26.7 million. Golden Leaf Foundation grants to the Friday Institute have supported the development of a *digital learning readiness rubric* for use by LEA grantees, professional development, technical assistance, and program evaluation services. In addition, about $100 million of the Race to the Top funding that went to local districts and charter schools has been spent on wireless infrastructure, device, and related professional development.

Project Organization and Governance

The overall project organization and governance structure is shown in Figure 2. The plan for leadership, management, advisory groups and oversight, is described below. The Work Teams at the Friday Institute are described in the following section.

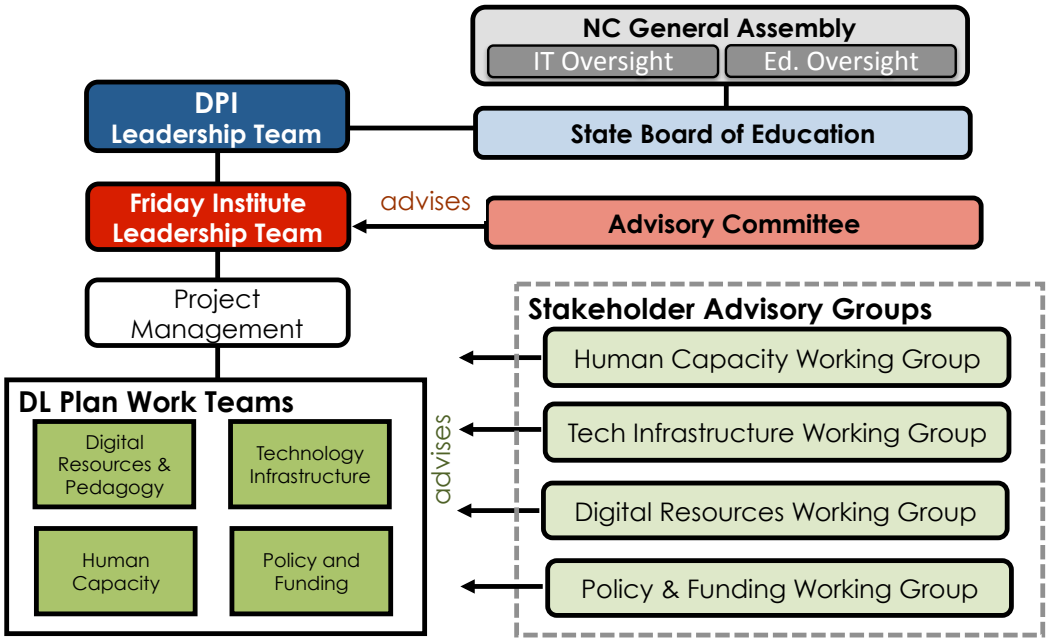


Figure 2: North Carolina Digital Learning Plan Organization and Governance

Friday Institute Leadership Team

The Friday Institute Leadership Team for the NCDLP is comprised of the following four people. Each brings extensive relevant experience and expertise in areas central to the planning effort:

- Glenn Kleiman, Executive Director
- Mary Ann Wolf, Director of Digital Learning Programs
- Jeni Corn, Director of Evaluation Programs
- Phil Emer, Director of Technology Planning and Policy

This Leadership Team is responsible for project planning, implementation, and management. This team will set directions and supervise multiple Work Teams that are each responsible for specific areas of work, as described below. Most importantly, the Leadership Team is responsible for coordinating and synthesizing the efforts of the Work Teams to produce a coherent, systematic plan that addresses all the elements required to foster successful digital learning transitions in K-12 schools Statewide.

The project will also benefit from the expertise of two groups of consultants who will support our work. One group consists of national leaders in digital learning who bring lessons learned from work in other states and from research. The second group consists of North Carolina education leaders who bring deep knowledge of the State and LEAs. The Leadership Team is in process of identifying and making arrangements with the consultants in each group.

Project Management

Jeni Corn will serve as the Project Director responsible for day-to-day project management. She is supported by Lauren Bryant and Jordan DeWitt and advised by Glenn Kleiman, Executive Director of the Friday Institute.

The Project Management group is responsible for the following:

- Overall planning and monitoring of the work;
- Assigning staff and consultants to Work Teams and tasks;
- Coordination with NCDPI, the State Board of Education, the Offices of the Governor and Lt. Governor, and relevant Legislative Committees;
- Planning presentations and responding to requests about the project;
- Communications with advisors and stakeholders;
- Coordinating the overall data collection and analyses;
- Coordination with LEAs and charter schools to ensure that requests for information are handled efficiently.

Advisory Groups

An Advisory Board comprised of North Carolina education, government and business leaders will help guide the work of the Leadership Team by reviewing plans, findings and recommendations. In consultation with NCDPI leadership, the Friday Institute has identified 24 individuals who will be invited to serve on this Board, seeking to represent all major stakeholder groups. Invitations will be sent early in July. The Board will meet quarterly beginning in September 2014, with each meeting planned for three hours. Members will be able to participate either in person or via video or audio conferencing to enable participation by members from throughout the State..

Each of the four Work Teams (described below) will have its own Stakeholder Advisory group, consisting of selected individuals representing LEAs, IHEs, NCDPI, and other relevant organizations. The Stakeholder Advisory groups will review the Work Team plans, findings, and recommendations. Each Work Team will establish the schedule for the meetings of these groups in accordance with their work plans and schedules.

Oversight

The North Carolina State Board of Education provides overarching governance and oversight of the digital learning plan work.[1] The NCDPI leadership team provides direct oversight for the work, with the following people having primary responsibility:

Philip Price, Chief Financial Officer
Tracy Weeks, Chief Academic and Digital Learning Officer
Michael Nicolaides, Chief Information Officer

The Friday Institute Leadership Team will be in frequent communication with the NCDPI team and will report to the State Board of Education whenever requested. The Leadership Team will also work with NCDPI and the State Board to provide updates to the Joint Legislative Education Oversight Committee, the Joint Legislative Information Technology Oversight Committee of the NC General Assembly, the Office of the Governor, and the Office of the Lt. Governor.

Friday Institute Work Teams

The work has been divided among four major Work Teams, each focusing on specific components of the overall plan and on specific major questions from the Policy Brief. Figure 3 shows the Work Teams and summarizes the major areas of work for each.

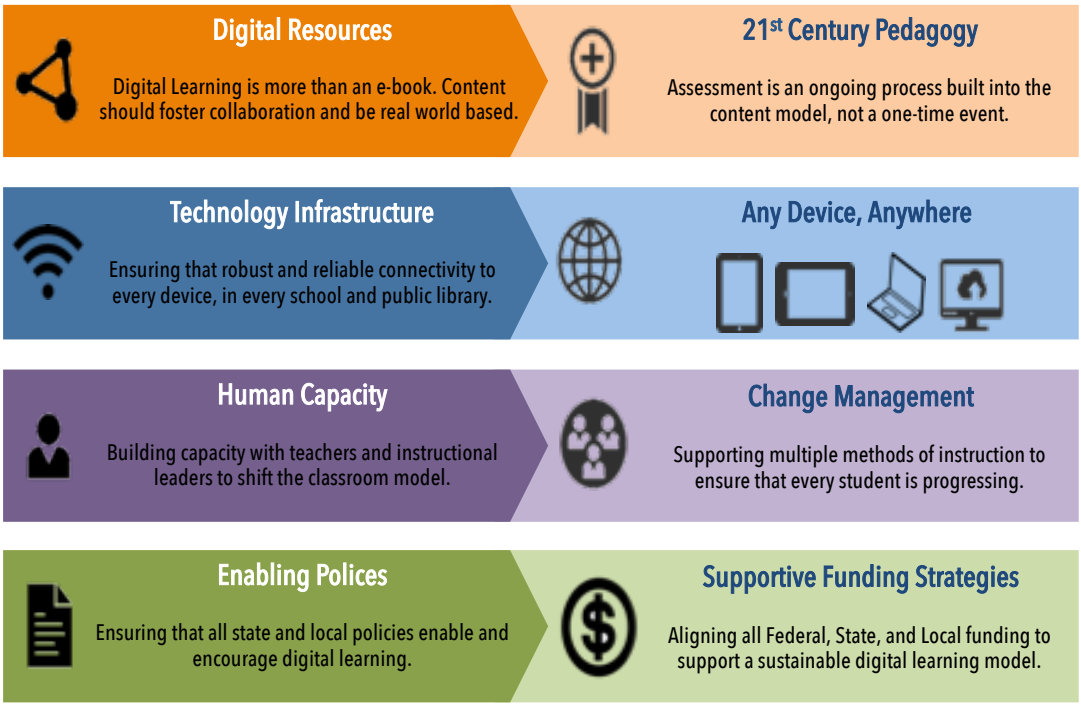


Figure 3: Work Teams

[1] The Office of State Budget Management and the Enterprise Project Management Office of the NC State CIO also provide operational oversight per NC statute.

Each Work Team has a Coordinator and team members who will be responsible for gathering and synthesizing relevant information, all with deep expertise in the relevant areas. Each also has a designated member of the Leadership Team to provide advice and to make sure the work is well coordinated with that of the other Teams. The Work Teams, coordinators, and leadership team advisors are shown below, along with the major questions each Team will address.

Two of the nine questions from the Policy Brief are global and will be addressed by each the working groups from the perspective of the individual group's focus area:

- *What exemplary approaches and lessons learned from local school districts' digital learning initiatives should North Carolina build upon?*
- *How can North Carolina best support current and future local digital learning transitions in districts throughout the State?*

The remainder of the core questions and supporting work will be performed across the four Work Teams as summarized below, with the Team Coordinator and Advisor listed after each Team title.

Digital Resources and Pedagogy: Mark Samberg, Glenn Kleiman

As districts and charter schools throughout North Carolina move towards digitally enabled learning environments and new curriculum standards, many are already using digital resources to replace textbooks. Schools across the State are exploring new models for the use and distribution of content. For example, some LEAs and consortia have paid master teachers to create course materials aligned to the curriculum, using available digital resources. Others have purchased content packages to replace traditional textbooks, either online courseware or digital alternatives to traditional textbooks. The Governor's Teacher Network is also developing content for statewide use. North Carolina educators are using the SchoolNet component of Home Base and the North Carolina Learning Object Repository to support digital content development.

In addition, the transition to digitally enabled learning has facilitated the development of new models of instruction across the State. The key issues to be addressed relative to pedagogy include: the need to personalize learning; competency and mastery based coursework; self-paced, blended and flipped instructional practices; and addressing student learning differences within the classroom. The Digital Content and Pedagogy Team will also examine formative and summative assessment related to content.

This Team will develop recommendations in response to the following central questions from the Policy Brief:

- *How will North Carolina transition from funding for textbooks to funding for digital materials that are aligned with curriculum, remain current, and are effective for all learners?*
- *How will existing systems, such as Home Base and the NC Virtual Public School, support the transition to digital resources and digital learning?*

To address these questions, the activities of this Work Team will include the following:

- Collecting information about the digital resources being purchased or developed by NC LEAs and charter schools and their effectiveness in furthering students' learning.
- Developing recommendations for curating, licensing, publishing, aligning, and procuring digital instructional resources, including open education resources, locally created content, shared content, subscription-based solutions, and virtual courses.
- Developing recommendations for metadata and tagging, Application Programming Interface (API) and data integration standards, learner dashboards, data interoperability and data exchanges, privacy, and other technical requirements.
- Developing recommendations for the integration of formative assessments, learning analytics, and student data dashboards into the learning resources.
- Developing recommendations for the instructional practices, structures and supports required for the effective use of digital education resources.
- Analyzing the costs of alternative approaches to digital resources.

Human Capacity and Change Management, Neill Kimrey, Mary Ann Wolf

Human Capacity plays an essential role in being able to implement digital learning, as systems, software, and policies will not translate into effective teaching and learning without it. This Work Team will develop a comprehensive plan for developing human capacity in the classroom, at the school administration level, within the central office, at NCDPI, and across education service and support organizations. This work will build upon research that defines effective practices in adult professional learning, the process of change in K-12 schools and other organizations, and the culture of schools that effectively implement digital learning initiatives. This Team will also develop recommendations for change management, since the transition to digital learning requires changes in roles, processes, and expectations - and, in broad terms, the culture of teaching and learning.

This Team will develop recommendations in response to the following central questions from the Policy Brief:

- *How will North Carolina build or enhance the capacity of all its teachers, school leaders, and district leaders, to fully utilize digital resources and meet the new digital learning standards?*
- *How will the K-12 digital learning transition impact post-secondary teaching and learning in North Carolina?*

To address these questions, the activities of this Work Team will include the following:

- Research models of how states, districts, and schools have helped to build human capacity for the effective implementation of digital learning.

- Research effective practices for organizational and cultural changes in K-12 schools to support the transition to digital learning.
- Analyze the current status of roles and capacities to support digital learning in North Carolina schools.
- Articulate research-based approaches to providing effective, job-embedded professional development for teachers, administrators, pre-service education faculty and professional development providers, State staff, and others to implement and sustain digital learning.
- Develop recommendations for standards related to digital learning for teachers, administrators and faculty.
- Document potential strategies, policies, and costs associated with the human capacity component of digital learning.

Technology Infrastructure, Ray Zeisz, Phil Emer

While much of the NCDLP will focus on content, personalized learning, and human capacity, a digital learning initiative cannot succeed without a robust, extensible, and reliable network. Connectivity at the classroom level, community access, identity and access management, mobile device management, data integration, and other integration mechanisms are part of this work.

The Technology Infrastructure Work Team has already begun to engage with LEAs, DPI, ITS, wireless equipment vendors, and NC State University in order to develop a comprehensive model of the network, best practices, lessons learned, and strategies for success. The resulting analysis will enable LEAs to make informed decisions and help foster success and equity.

This Work Team will develop recommendations in response to the following central question from the Policy Brief:

- *How will North Carolina ensure that every public school has the technology, service, and support infrastructure needed to sustain robust digital learning?*

To address this question, the activities of this Work Team will include the following:

- Understand the current network designs, capabilities, and costs of networks to LEAs and charter schools.
- Develop criteria for a school network that effectively supports digital learning.
- Analyze the current total cost of ownership for network connectivity, and extrapolate, based on high-density student device deployment, the future cost to provide infrastructure capable of supporting digital learning at scale.
- Investigate the various technologies available for classroom connectivity, including wired infrastructure, client devices and wireless access points.
- Investigate away-from-school access options, to ensure the maximum opportunity for students to complete homework and study while not in the school building.

- Develop standards and best practices for LEAs and schools to adopt with regard to WiFi product selection, network architecture, student device selection and Internet connectivity.
- Development recommendations for charter schools networking infrastructures, which involves special challenges since these schools often assume the responsibilities of an LEA for connectivity and E-Rate.
- Make recommendations for proving out-of-school access to students who are underserved or unable to afford access at home.
- Develop an idealized network model that can support digital learning for the next 10 years.

Policy and Funding, Trip Stallings, Phil Emer

The goal of the Policy and Funding Team is to provide grounded recommendations to the other Teams with respect to policy and funding changes that will likely be required in order to implement their proposed plan—both for the initial start-up phase and across the longer developmental and implementation phases.

The Policy and Funding Team will focus on two areas: (a) funding feasibility and sources (federal, State, and local), and (b) policy roadblocks and gaps. The first phase of the work will include: (a) understanding the landscape of relevant federal, State, and local rules and regulations related to critical components of the plan (e.g., digital content, privacy of personal data, etc.); and then (b) identifying pending and existing statutes and policies that might impede the implementation of the plan. The second phase will be to prioritize, develop, and propose changes or additions to State and local statutes and policies that can help improve the implementation of the plan. This Work Team will obtain advice from NCDPI Financial and Business Services, the NC Office of State Budget and Management, Legislative Research, and other State entities that can provide relevant information.

This Team will develop recommendations in response to the following central questions from the Policy Brief:

- *How do State and local education policies and processes need to be updated and revised to further digital learning?*
- *How does the digital learning transition impact school budgets and how can the digital learning transition be funded?*

To address these questions, the activities of this Work Team will include the following:
- *Determine whether there are any federal, State, State Board of Education, or local policy and/or statute barriers to accessing, purchasing, developing and incorporating digital content.*
- *Determine whether there are any federal, State, State Board of Education, or local policy and/or statute barriers using the data necessary for full operation of the various components of the plan.*
- *Determine what current or pending legislation supports or contradicts the plan*

and whether any current or pending legislation needs to be amended, stricken, or replaced.

- Gather lessons learned from other states about potential changes in statutes or policies that might help guide our work.
- Estimate costs of each of the plan's elements, and make recommendations for possible sources of funding for the costs.

Data Driven Approach

All of the Work Teams will apply a data driven approach to developing recommendations. The Teams will employ a needs assessment/asset inventory framework to help guide the data collection, organization, and analysis throughout the project. Based on the work of J. Altshuld[2], this approach provides a research-based, comprehensive framework to identify and prioritize needs and assets related to digital learning that will help guide strategic recommendations for the State. Members of the Friday Institute evaluation team have been assigned to each of the Work Teams as a way to facilitate intentional, systemic, cross-team data collection and analysis. Our approach for developing the NCDLP will take place in three phases: Phase 1, organize and interpret existing data sources; Phase 2, targeted data collection and analysis within the Work Teams; and Phase 3, synthesize findings into a useable format for education stakeholders and decision-makers. Local, State and national education stakeholders will be engaged in each phase of the development of the plan.

Phase 1 (Summer 2014) will use existing data to identify digital learning resources, strengths, assets, and needs, and will take place throughout Summer 2014 (see Table 1 for existing data sources and sample sizes). In addition to organizing and interpreting existing data, initial discussions and information gathering sessions with stakeholders in the field will also take place. The existing data and information gathering sessions will be synthesized to plan the work of Phase 2, the collection of new data organized around the four Work Teams.

During Phase 2 (Fall 2014-Winter 2015), the team will turn its attention to collecting new information based on gaps identified during Phase 1. This targeted data collection will include extended site visits within each region of the State, regional stakeholder input meetings, surveys and focus groups that will enable the four Work Teams to make deep dives into their respective areas. It is also during this phase that the team will begin prioritizing the needs that emerge from the data.

Phase 3 (February to August 2015). The Work Teams will prioritize emergent needs and will identify and explore potential solutions for those deemed highest-priority. This final phase culminates in the creation of recommendations about solutions to high-priority needs for the State.

[2] Altshuld, J. (2014), Bridging the gap between asset/capacity building and needs assessment. Los Angeles: Sage.

Throughout Phases 1 and 2, the team will collect and analyze both qualitative and quantitative data to assess LEA and school readiness for digital learning. Table 1 lists a sampling of likely sources for existing data. New data collection will include visits to exemplary schools and LEAs, engaging with private sector providers, and researching models of effective digital learning transitions.

Data Source	Collection Date	Sample Size
NC Teacher Working Conditions Survey	Spring 2014	93,178 teachers from 2,519 schools
School Technology Needs Assessment (STNA) Survey for Teachers	2013-14	11,402 teachers
School Technology Needs Assessment (STNA) Survey for Students	2013-14	22,902 students
NCDPI Annual Media and Technology Report	2013	All district tech directors with data from every school
Friday Institute STEM Surveys	2013-2014	528 teachers and 16,877 students
Speak-up Survey	2013	26,635 respondents from 40 districts, including students, teachers, parents, librarians, and administrators
NC Race to the Top Evaluation Omnibus Survey	2013-2014	13,889 teachers from a matrix sampling of representative schools across 97 districts
NC Race to the Top Evaluation Professional Development Coordinator	Fall 2013	85 district professional development coordinators from across the State
Race to the Top Cloud Computing Initiative Wireless & 1:1 Survey	May 2013	114 districts
Project 24 School or District Digital Learning Needs Assessment Survey	2013-14	129 North Carolina schools as part of a national survey

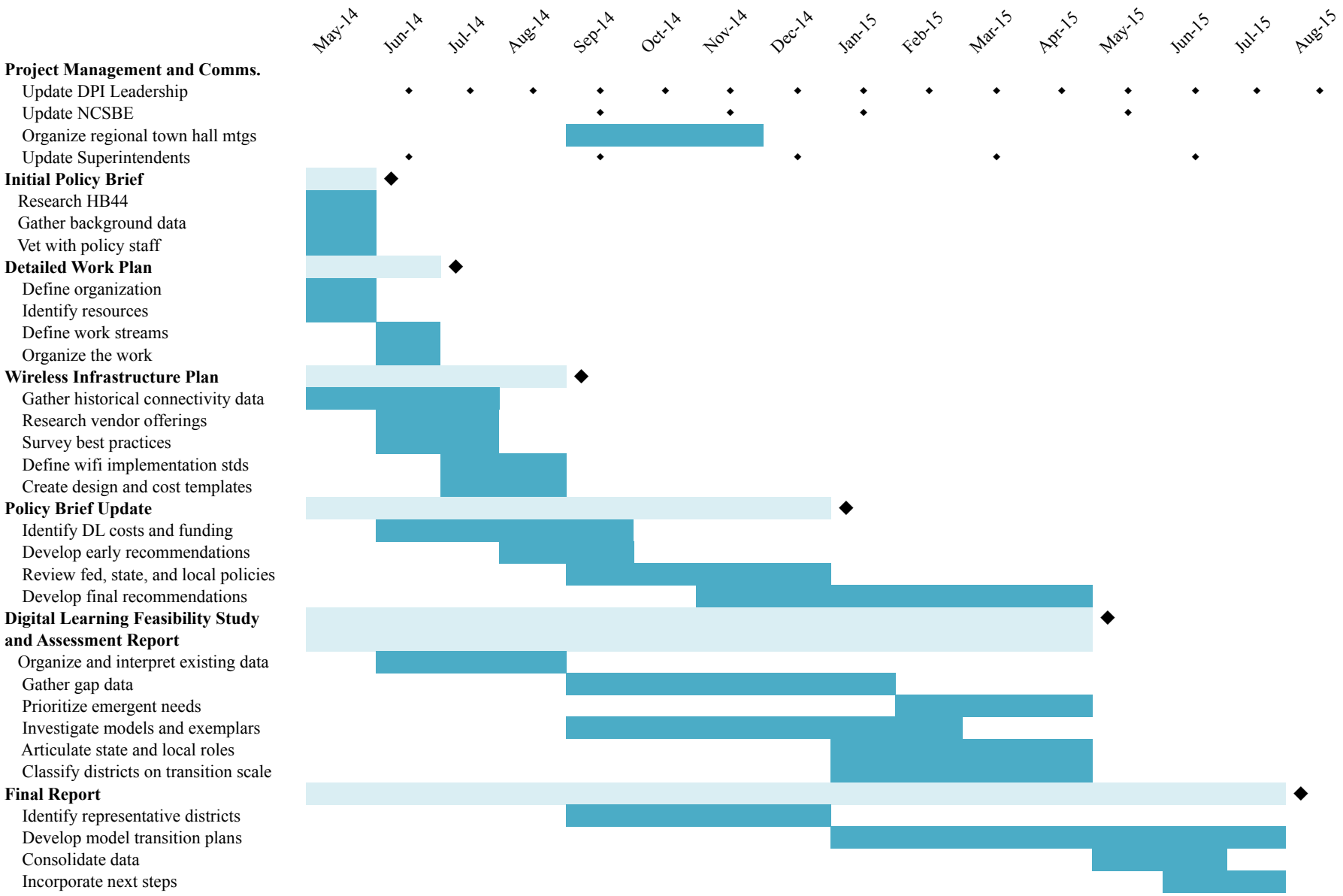
Table 1. Digital learning data sources from NC schools from the 2013-14

The team will use Qualtrics[3], a secure online survey system for online data collection that protects survey respondents' personal and identifying information. Focus groups will be recorded and transcribed to ensure accuracy; however, participants' personal, school, and LEA identifiers will not be used when reporting the data.

[3] http://oirp.ncsu.edu/srvy/qltrx

Timeline

The attached timeline shows the schedule for the major planned activities.


May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Jul-15
Aug-15
Project Management and Comms.
Update DPI Leadership
Update NCSBE
Organize regional town hall mtgs
Update Superintendents
Initial Policy Brief
Research HB44
Gather background data
Vet with policy staff
Detailed Work Plan
Define organization
Identify resources
Define work streams
Organize the work
Wireless Infrastructure Plan
Gather historical connectivity data
Research vendor offerings
Survey best practices
Define wifi implementation stds
Create design and cost templates
Policy Brief Update
Identify DL costs and funding
Develop early recommendations
Review fed, state, and local policies
Develop final recommendations
Digital Learning Feasibility Study and Assessment Report
Organize and interpret existing data
Gather gap data
Prioritize emergent needs
Investigate models and exemplars
Articulate state and local roles
Classify districts on transition scale
Final Report
Identify representative districts
Develop model transition plans
Consolidate data
Incorporate next steps

Attachment 3

NORTH CAROLINA

DIGITAL LEARNING PLAN

Preliminary Recommendations to Inform State Policy Decisions

January 2015

Prepared by the Friday Institute for Educational Innovation

THE WILLIAM & IDA FRIDAY INSTITUTE FOR EDUCATIONAL INNOVATION

NC STATE UNIVERSITY College of Education

OVERVIEW

The Friday Institute for Educational Innovation at North Carolina State University[1] is developing the *North Carolina Digital Learning Plan* to accelerate the State's progress in providing the personalized, digital-age education that K-12 students need to be successful in college, in careers, and as engaged citizens. The first *North Carolina Digital Learning Plan Policy Brief* from June 2014[2] summarizes the key elements of digital-age learning and describes the scope of the *Plan*:

> *The transition to a digital-age education system that fully harnesses the power of modern technologies will impact all aspects of education, including the content students learn, the methods teachers use, where and when learning takes place, what resources are required, and how success is defined and measured.*

The recommendations provided in this *Brief* are intended to inform near-term actions by State policymakers to jump-start the statewide transition to digital learning, including recommendations for funding considerations during the 2015 legislative session. The recommendations are ambitious, aiming to quickly build the statewide technology infrastructure, exemplary implementation models, leadership capacity, and support structures necessary for a successful transition to digital learning in all K-12 public schools throughout the State. The recommendations build upon analyses of relevant data and input from many stakeholders, including deep-dive visits to selected districts to gather information about their current status, goals, assets, and needs related to digital learning. The preliminary recommendations are informed by the following initial findings from our work:

1. Digital learning innovations are driven at the district level and will take different forms and proceed at different paces across districts. Different districts will need varying levels of guidance and support provided by State and regional organizations.
2. The roles of the State are to:
   - ✓ provide statewide infrastructure and resources;
   - ✓ leverage federal funding and economies of scale through statewide procurement;
   - ✓ provide models, guidance, and capacity-building programs to districts and regional support organizations; and
   - ✓ ensure equity of digital learning opportunities for all students.
3. Investments in infrastructure, digital content, and educator capacity development will be required. These will yield long-term returns on investments in terms of educational outcomes, increased graduation rates, and college and career readiness.

Future deliverables, including the *Feasibility Study and Assessment Report* and the final *Digital Learning Plan*, will contain additional legislative, policy, and programmatic recommendations through FY 2020, with detailed plans for the technology infrastructure, educator capacity, digital content, and support structures required for long-term success.

[1] The Friday Institute has ongoing involvement in multiple initiatives related to the *Digital Learning Plan*, with funding from the North Carolina Department of Public Instruction (NCDPI), the Golden LEAF Foundation, local education agencies (LEAs), and others; these include leading the School Connectivity and Education Cloud initiatives, partnering with NCPAPA on a professional learning program for principals, providing technical assistance and professional development to Golden LEAF grantees and other schools and districts, providing professional development about digital learning for NCDPI staff, and conducting evaluations of Race to the Top initiatives, NCVPS, and other programs.

[2] http://ncdlplan.fi.ncsu.edu/

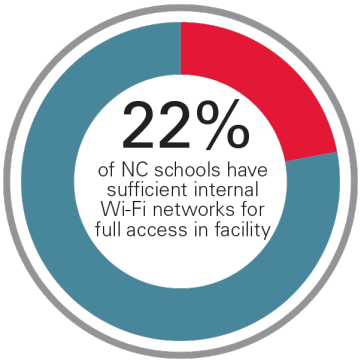
The recommendations are organized into categories that reflect components of the emerging *Digital Learning Plan*:

The recommendations are described briefly below and summarized in a final table. The Friday Institute is prepared to provide more details and to discuss modifications for each recommendation to help inform policy and funding decisions.

I. TECHNOLOGY INFRASTRUCTURE

Digital learning requires that all teachers and students have ready access to digital devices and reliable wireless connectivity. The following recommendations focus on extending the State's role in putting into place the networking infrastructure required to provide equitable connectivity to all K-12 public schools. Further recommendations about providing devices to all students and teachers will be addressed in the final *Digital Learning Plan*.

North Carolina already has made substantial progress in the area of technology infrastructure through the School Connectivity Initiative (SCI). SCI provides $19.9 million in annual appropriated State funds, which has leveraged $30 million annually in federal E-Rate funds. With this funding, North Carolina has successfully brought broadband connectivity to all K-12 public school buildings in the State; however, only 22% of the schools have sufficient internal Wi-Fi networks to provide the access needed throughout the building. That is, the situation in 78% of our schools is comparable to having electrical lines running to the building without sufficient internal wiring to power adequate lighting in all the rooms.[3]



Previously, E-Rate did not help address the internal networking needs in most schools. However, the modernized Federal Communications Commission (FCC) E-Rate program, announced in July 2014, extends the federal program to cover internal Wi-Fi connections in all public schools. By capitalizing on this program, North Carolina can provide equitable Internet access throughout all K-12 public schools and sustain and update existing networks, with State funds required for only a fraction of the total cost.

To move forward on providing all K-12 public schools with the networking infrastructure that is a critical foundation for the transition to a digital-age education system, we recommend the following to North Carolina's policymakers:

1. **Expand the School Connectivity Initiative to support internal Wi-Fi infrastructure.** This will require continuing the $20 million recurring annual funding to support high-speed Internet connectivity to school buildings and also will require adding $12 million annually for internal Wi-FI networks and supporting services. This $32 million total annual investment from the

[3] The detailed results from the May 2013 survey conducted by the Friday Institute are available at http://cloud.fi.ncsu.edu/status/Wireless%20Survey%20Findings.pdf

State will leverage approximately $62 million of E-Rate funding annually and provide up-to-date and sustainable networking for Internet access in all classrooms and workspaces in all K-12 public schools throughout North Carolina. The State contribution amounts to about $20 per student and staff, or about $12,700 per school,[4] to provide the access required for the full use of digital tools and resources.

As part of our work on the *Digital Learning Plan*, the Friday Institute has collected the necessary information from the State's local education agencies (LEAs) and completed the required analyses of schools' current networking statuses and needs to position North Carolina to move forward quickly in order to obtain and optimize the use of the E-Rate funds. In addition, North Carolina has received approval from the U.S. Department of Education to apply $5 million of Race to the Top funding to the State's share of the Wi-Fi costs, thereby reducing the State funds required for the first year.

2. **Establish a collaborative procurement service.** This service would function as a public school buyers' consortium for technology infrastructure, devices, content, and professional services, in order to capitalize on economies of scale and reduce burdens on individual LEAs. The procurement and contracting operations of the textbook warehouse provide an initial model for this service, with adaptations required for the transition to the purchasing necessary to support digital learning and to comply with FCC E-Rate regulations. We recommend that, during 2015-16, the State Board of Education oversee a study to develop a sustainable operating model for this collaborative procurement service.

3. **Support a multi-agency planning process for addressing broadband access in rural communities.** To begin to address the issue of equity of home access, we recommend leveraging the newly-formed North Carolina Connect initiative[5] in the Office of the State Chief Information Officer to engage multiple State agencies in the development of a plan to provide broadband Internet access to all homes and community organizations in rural areas. While this effort is essential for K-12 education, it is also essential to provide citizens access to online learning from the State's community colleges and universities, as well as access to other government resources and services.

II. MODEL DIGITAL LEARNING INNOVATIONS

North Carolina used competitive grants effectively to support schools' and LEAs' development of innovative digital learning approaches from 2003 to 2013.[6] In addition, many LEAs have initiated digital learning programs, aligned to local needs, with support from the Golden LEAF Foundation and other funders. Most recently, a Digital Learning Fund (PRC 30) was established in the 2013-2015 biennium budget for grants to LEAs to enhance instruction via professional learning opportunities focused on using digital technologies and acquiring quality digital content. However, this funding was discontinued for the 2014-15 school year.

The transition to digital-age education statewide can be accelerated by support for local digital learning innovations that develop, demonstrate, and disseminate exemplary practices that will inform future local and State digital learning decisions. Therefore, we recommend the following:

[4] Based on NCDPI Facts and Figures 2012-2013 (http://www.ncpublicschools.org/docs/fbs/resources/data/factsfigures/2012-13figures.pdf), which shows 1,443,998 students, 177,149 full-time personnel, and 2,526 schools.
[5] http://ncbroadband.gov/about/nc-connect
[6] http://www.ncwiseowl.org/impact/

1. **Establish a grant program to support the development and dissemination of innovative district digital learning models.** This program should support grants to districts for the development of innovative initiatives that exemplify elements of the digital-age learning model described in the prior *Policy Brief* (e.g., competency-based learning, personalized learning, anywhere anytime learning, assessments integrated into learning activities), along with innovative models of professional development, partnerships, strategic staffing, equity of access, and other exemplary approaches relevant to digital learning. Grant recipients should be able to request waivers of State policies that create barriers to their planned innovations. Recipients must agree to: (a) evaluate, document, and disseminate their approaches and results; (b) host visits by teams from other districts; (c) support partner districts in planning and implementing digital learning; and (d) share what they have learned during regional or State summits on digital learning.

   We recommend that grants be awarded for a two-year period and range from $500,000 to $1.5 million per recipient (depending upon district size), with grant review criteria that encourage collaborations across districts, with charter schools, and with community colleges, universities, and other partners. A grant review committee should be convened by the North Carolina Department of Public Instruction (NCDPI) with representation from districts, institutions of higher education, and the private sector. We recommend $48 million of funding for this program over the two years of the biennial budget, with flexibility to allow grantees to continue use of the funding into a third year.

III. LOCAL EDUCATOR LEADERSHIP CAPACITY

The transition to digital learning requires that the State's K-12 education workforce—both teachers and administrators—update their knowledge and skills to lead, plan, manage, teach, evaluate, and communicate in digitally-aware ways. This process already is underway in North Carolina, but needs to be continued and expanded. For example, on the 2014 North Carolina Teacher Working Conditions survey, which was completed by 89% of the State's K-12 teachers, less than 30% of teachers in most LEAs reported that they had sufficient training to fully utilize instructional technology.[7]

Extensive research—in North Carolina and nationally—demonstrates that successful strategies for developing capacity for digital learning include:

- Professional learning that is embedded in the day-to-day work of educators, directly connected to their professional practices, personalized to meet their individual needs, and supported by local peer learning communities;
- District and school leaders who are prepared to foster these innovations and support this professional learning; and
- School-based digital learning coaches who can offer day-to-day, on-site support to teachers as they learn to incorporate new approaches and tools into their teaching.

[7] http://www.ncteachingconditions.org

Based on the State's needs, and on research on effective ways to address those needs, we recommend that the State:

1. **Support professional learning for educators who will lead digital learning initiatives and coach teachers.** This funding should continue established programs that have documented success and provide competitive grant opportunities for new initiatives—including public-private partnerships, regional consortia, district-university collaborations, and other models for addressing education workforce development needs. The funding should initially be focused on professional learning opportunities for district and school leaders and for personnel who work directly with teachers to support classroom implementation of digital learning; then, as these personnel become prepared to lead and support digital learning initiatives, the resources should be moved to preparing teachers. We recommend that $5 million—less than $50 per educator—be allocated annually to prepare the K-12 education workforce for the transition to digital learning.

IV. HIGH-QUALITY DIGITAL EDUCATION RESOURCES

Digital learning requires very different tools and resources than traditional learning. Curriculum resources are no longer static pages, but instead are interactive, multimedia learning experiences, in which formative assessments and alternative paths to learning can be embedded. Digital education resources are available from a variety of sources, and include products from commercial publishers, open education resources (OER) developed by numerous educators and organizations, and resources developed or compiled by teams from schools, districts, colleges, universities, and other organizations throughout the State. While a large number of digital resources already are available and many more are being developed, evaluating these multifaceted, hyperlinked, ever-changing digital resources is more complex than evaluating static, unchanging textbooks. To harness this vast array of resources, educators need systems to help them identify, evaluate, organize, modify, and distribute these resources, along with systems to provide the resources to their students, monitor students' work, and evaluate students' progress.

Supporting digital learning statewide requires that students, teachers, and administrators have access to online systems that address a variety of needs. Home Base is the set of systems designed to support digital teaching and learning in North Carolina's K-12 schools; it includes the PowerSchool student information system, Schoolnet student assessment system (which also enables educators to select and organize curriculum resources), OpenClass learning management system for providing online learning resources and interactions to students, and Truenorthlogic system to support the educator evaluation process and professional development. In addition, the State's Learning Objects Repository is used to collect and distribute curriculum resources, and NCTest provides the secure system needed for high-stakes testing. The State also licenses commercial educational content, and NCDPI staff select and vet online content to be made available through Home Base.

The initial implementation of Home Base yielded important lessons about its strengths and limitations for supporting the needs of North Carolina educators, parents, and students. Based upon lessons learned so far, we recommend that the State move forward as quickly as possible on the following:

1. **Continue to support Home Base while improving the curriculum and learning management components.** Home Base is successfully serving important functions, and its use will expand as educators become more familiar with its capabilities and certain technical issues are resolved; however, educators widely report that the curriculum and learning management components do not meet their needs as well as other existing systems. As a result, most districts have chosen to use other Learning Management Systems (LMS) rather

than the one that is provided in Home Base. In addition, the State is about to complete the procurement process for an Education Cloud LMS, which will be used for all the North Carolina Virtual Public School courses. This LMS will have more of the functions desired by North Carolina educators and will support course and classroom management in both fully online courses and blended courses (i.e., those that combine face-to-face and online learning). The specifications for this system include integration with the PowerSchool component of Home Base, the North Carolina Learning Objects Repository, and the identity management system developed for the State as part of the Education Cloud initiative, so it will smoothly connect with these systems. The Education Cloud LMS also will provide consistency with North Carolina Virtual Public School courses and meet the standards required for transferring courses across LMS systems. We recommend that the contract for this contemporary, cloud-hosted LMS be extended to make it available to all K-12 schools statewide. We estimate the annual cost of doing so will be about $6 million.

2. **Expand access to digital education resources, focusing first on open education resources developed in North Carolina.** The new LMS can be used to provide seamless access for teachers and students to resources already developed by State agencies (e.g., North Carolina Virtual Public School, North Carolina School of Science and Mathematics, LEARN NC at UNC-Chapel Hill, and North Carolina's public and charter schools, colleges, and universities). Updating these existing resources and making them available statewide through the new LMS will be an important step forward and a cost-effective way to leverage the prior investments in developing these materials.

   There are also open education resources developed by consortia of states and within individual states that can serve North Carolina's educators and students. In addition, purchasing or licensing some commercial resources—such as libraries of formative and benchmark assessment items—will be required to meet the needs of North Carolina schools.

   In order to ensure effective use of the funds allotted to the procurement of commercial educational materials, it is important that this spending be preceded by: (a) the implementation of the statewide LMS; (b) the development of the digital resources review and procurement processes described above; and (c) a statewide needs analysis to determine the specific resources that warrant making them available to all districts. We recommend that $10 million be allocated annually to making these resources available to all North Carolina educators and students.

3. **Begin the transition from a textbook adoption process to a digital educational resources adoption process.** To advance toward meeting the requirements of SL2013-12—which specifies that North Carolina schools primarily use digital resources that are effective for all learners by 2017—we recommend the following:

   a. **Rename PRC 130,** State Textbook Allotment, to Educational Resources Allotment, and continue the funding.

   b. **Change the adoption cycle requirements** to reflect that digital resources are frequently updated, interconnected with other resources, and may address multiple curriculum areas and grade levels bundled together; therefore, an ongoing and flexible review process needs to replace the traditional multi-year cycles for adopting curriculum for specific grade levels and content areas.

   c. **Form a working committee** that reports to the State Board of Education to develop standards for digital resources and the process for reviewing and vetting them; the work of this committee should specifically address the selection of digital content to be made

available statewide and ways to further the creation, sharing, and use of open education resources developed by North Carolina educators.

d. **Establish procedures and systems for content** to be purchased and provisioned through the purchasing consortium described in the Technology Infrastructure section (I), above.

V. REGIONAL AND STATE SUPPORT STRUCTURES

Supporting and sustaining the processes and programs recommended above, as well as future processes and programs, will require management structures and professional staff who can provide support services. Each district will require support for initiative planning, professional learning, curriculum, engineering, finance, legal (e.g., privacy and responsible use policies), and other aspects of the transition to digital learning. While some districts in the State may have the capacity to do all this on their own, many, especially small rural districts, do not. Furthermore, while some of these support requirements are best met statewide, many will best be met regionally to bring them closer to the schools and districts involved. To prepare to meet these needs, we recommend the following:

1. **Establish regional support organizations through a grant program.** The goal of this grant program is to harness the capacity to support K-12 digital learning that resides within school districts, colleges and universities, Regional Education Support Agencies (RESAs), and public and private organizations in each of the eight educational regions of the State. An opportunity to form regional partnerships with some resources for staffing is needed to establish the necessary supports throughout the State. Since this will take different forms in different places to best leverage regional assets, we recommend a competitive grant program to allow local groups to come together and propose how to best meet these needs within their own regions.

2. **Provide state-level management of centralized functions.** The General Assembly and State Board of Education should plan how the statewide purchasing, competitive grants, content selection, and other relevant functions at the state level will be managed. This can build upon existing structures within NCDPI, such as the Division of Digital Teaching and Learning, the regional instructional technology consultants, and the textbook warehouse procurement processes.

We recommend that $4 million be allocated to regional support ($0.5 million per region) and $1 million be allocated to statewide management of centralized functions annually.

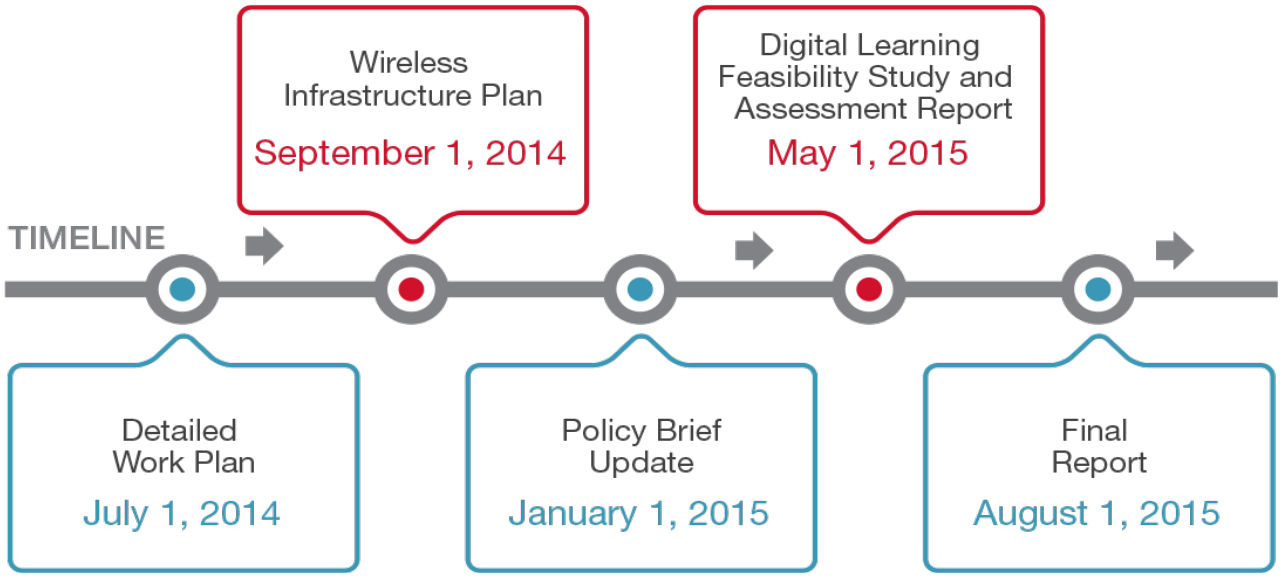
Preliminary Recommendations Summary Table

Initiative	FY2016	FY2017
I. TECHNOLOGY INFRASTRUCTURE		
Expand the School Connectivity Initiative to support internal Wi-Fi infrastructure.	$7M[8]	$12M-recurring[9]
Establish a collaborative procurement service.		
Support a multi-agency planning process for addressing broadband access in rural communities.		
II. MODEL DIGITAL LEARNING INNOVATIONS		
Establish a grant program to support the development and dissemination of innovative district digital learning models.	$24M	$24M-recurring
III. LOCAL EDUCATOR LEADERSHIP CAPACITY		
Support professional learning for educators who will lead digital learning initiatives and coach teachers.	$5M	$5M-recurring
IV. HIGH-QUALITY DIGITAL EDUCATION RESOURCES		
Continue to support Home Base while improving the curriculum and learning management components.	$6M	$6M-recurring
Provide resources to support digital learning, focusing on leveraging resources developed within North Carolina.	$10M	$10M-recurring
Begin the transition from a textbook adoption process to a digital educational resources adoption process.		
V. REGIONAL AND STATE SUPPORT STRUCTURES		
Strengthen regional support structures.	$4M	$4M-recurring
State-level management of centralized functions.	$1M	$1M-recurring
TOTAL NEW FUNDING PER FISCAL YEAR:	**$57M**	**$62M recurring**

[8] North Carolina has received approval from the U.S. Department of Education to apply $5 million of Race to the Top funding to the State's share of the Wi-Fi costs, thereby reducing the State funds required for the first year.
[9] This is in addition to the $19.9M already allotted for the School Connectivity Initiative. The annual total of $32M of State funds will leverage approximately $62M of annual investment from the FCC E-Rate program.

NEXT STEPS

The recommendations in this *Brief* are for the near term, and are intended to inform decisions that will be made early in 2015 to move North Carolina forward in its preparations to fully incorporate digital learning in all K-12 public schools. Additional recommendations and detailed implementation plans will be provided in future deliverables, as shown in the deliverables timeline below.



Completed publications and other information about the North Carolina K-12 Digital Learning Plan are available at http://ncdlplan.fi.ncsu.edu.

Attachment 4

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

Report to the North Carolina State Chief Information Officer

Agency Technology Plan

SL 2004-129

(SB 991)

Date Due: October 1, 2014
Report # 72
DPI Chronological Schedule, 2013-2014

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M071

North Carolina Department of Public Instruction

Information Technology Plan

For the 2015-17 Biennium

Submitted by:

Michael Nicolaides, Chief Information Officer
NC Department of Public Instruction

October 2014

Transmittal Letter

October 1, 2014

Mr. Chris Estes
State Chief Information Officer
Office of Information Technology Services
PO Box 17209
Raleigh, NC 27619-7209

RE: Submission of 2015-17 NCDPI Biennial IT Plan

I am pleased to submit the 2015-17 IT Plan for the NC Department of Public Instruction (NCDPI) as required by G.S. 147-33.72B. One of the items in your report to the General Assembly this year (Aligning Statewide Information Technology Communities) is the establishment of an IT Community Collaborative and Communities of Practice, including education. Accordingly, this plan has been shared with the Community College System and the University of North Carolina General Administration.

Much of this plan addresses the follow-on activities covered in the 2012-14 NCDPI IT Plan for the implementation of applications and services needed to fulfill the technical provisions of the Race to the Top (RttT) federal grant received in late 2010. This mammoth effort — $140 million ($70 million state and $70 million LEA) of the total $400 million total grant — has involved a multitude of technology projects and work effort, all directed to enhancing classroom instruction and improving student performance and educational outcomes. A major portion of this plan covers the completion of remaining development work and the transition from implementation to support, maintenance and sustain efforts.

A current technology buzz phrase is the “Internet of Things.” In its advertisements, Cisco expands upon that saying by touting: “The Internet changes everything.” That expression describes the results of our endeavors for Home Base applications and services, as these have shown potential for changing everything in our public school classrooms, – i.e., an example of the positive disruption of education driven by technology.

Sincerely,

Michael Nicolaides

c: Sarah Porper, ITS

Table of Contents

I. Executive Summary

English author Leonard Ravenhill (1907-1994) said: "You must take advantage of the opportunity of a lifetime within the lifetime of that opportunity." For the NC Department of Public Instruction and the State Public Schools, the opportunity was the receipt of a $400 million Race to the Top (RttT) federal grant received in late 2010. The lifetime is the expiration of grant funds in August 2015.

RttT is a major, revolutionary and far-sighted endeavor designed to enhance the performance of the state public schools, including reducing dropouts and better preparing students for work, higher education and citizenship. Of the total RttT $400 million grant, $140 million ($70 million state and $70 million to local education agencies, or LEAs) has been dedicated to instructional technology applications and technical services under the label Home Base.

This plan is a logical, time-sequenced extension of and sequel to the 2012-14 NCDPI IT Plan in that it covers the tasks needed to finish the development of Home Base, the work efforts to transition applications from an implementation phase to a support and sustain mode of operation, and the development of an overarching strategy for addressing the legacy administrative and financial systems at the LEAs and at NCDPI that are old, obsolete, functionally deficient, and expose unacceptable risks of failure. The four major themes are:

- *Finish work on and enhance the applications and technical services of Home Base and related endeavors,*
- *Complete projects and work efforts that will improve internal NCDPI IT management and associated processes,*
- *Review the status of legacy LEA and NCDPI administrative and financial applications and technical processes, and develop a strategy and plans for simplifying processes and replacing or modernizing applications, and*
- *Evaluate how NCDPI may better serve LEAs and schools given the merging of administrative and financial and instructional technologies and pedagogical trends at the local level of public education.*

Each is covered in separate sections below.

Finish Home Base

Over the past two years, a phenomenal amount of work has been accomplished in an exceedingly aggressive time period. While much success has been achieved, the monumental work load under a truncated time schedule has created difficulties and hardships at the LEAs, schools and at the Department. Fortunately, the vast majority of applications and technical services are operational, and the 'heavy lifting' period is coming to an end.

However, substantial work remains to complete the implementations in a timely finish and to develop high priority enhancements needed to complete the endeavors — similar to completing a punch list for a construction project. While some implementations experienced problems and complications, with a strong finish, Home Base should evolve from its start-up and growth stages to become a mature, reliable, collection of technologies that are indispensable to public education.

Improve Internal NCDPI Internal Management and Associated Processes

The high priority and concentrated focus on the implementation of Home Base fully occupied IT management and staff efforts over the past two years. The positive outcome is that IT has been able to deliver powerful technical capabilities focused on the classroom and useful to students, teachers and parents. However, the negative result of this focus is that IT has not had the time to address IT needs that would allow it to operate more effectively and efficiently.

NCDPI must develop adequate internal technical service management disciplines, processes and procedures in order to affect the transition from a development and implementation phase to a position for maintaining and sustaining recently implemented technical resources. Without an effective underlying operations management structure, the recently constructed applications and technical services will not be supportable, leading to operational reliability issues, system failures, unsatisfied users and the negation of key benefits that should accrue from Home Base.

Accordingly, this plan prescribes a series of projects and work efforts that will enable NCDPI to create and implement the management activities and work processes needed to support Home Base in an ongoing maintenance and enhancement mode. Key areas include the expansion of Remedy support center software to allow LEAs to enter, view and track tickets, and the development of ITIL-based service management processes to enable error-free releases of software.

Review the Status of Legacy LEA and NCDPI Business and Financial Applications and Technical Processes and Develop a Strategy and Plans for Simplifying Processes and Replacing or Modernizing Applications

In the early 1980s, NCDPI issued a comprehensive IT plan (thought to be the first in the country for public education) and began the development of a series of automated business and financial applications at the school, LEA and state levels in response to General Assembly mandates for more accountability over the State Public School Fund. The approximately five-year, $30 million (in 1985-90 dollars) effort resulted in the implementation of a solid and comprehensive foundation of business and fiscal applications for student information, financial management (including general ledger, budgeting, expense reporting and payroll), teacher certification and salary verification, school bus routing and scheduling, and management of school bus maintenance. This effort, including the development of an automated data transfer capability between the LEAs and the NCDPI, was called the UERS (Uniform Education Reporting System).

Over time, these technical processes and associated applications were enhanced, supplemented by new ones, and expanded to meet changing technologies to address evolving and more complex business and reporting requirements at local, state and federal levels; growth in numbers of students, teachers and schools; and new participants, such as charter schools. However, modifications and additions to processes and applications were often made in a haphazard, one-off manner to meet specific needs at a point in time.

This limited-view approach for support and maintenance solved immediate and specific challenges, but it created a Rube Goldberg-like configuration of applications, hardware and communication facilities that is convoluted, overly complex, difficult to manage and unreliable to operate — presenting unacceptable risks of failure. Moreover, many of these applications and associated technical resources are old and outdated, technically obsolete, no longer supported by vendors, unable to offer features and capabilities desired by business and financial users, and consume an inordinate amount of time and effort to maintain.

This pressing challenge cannot be addressed on an application-by-application or process-by-process approach (i.e., piecemeal manner). A comprehensive and exhaustive review of key business and financial processes and applications must be conducted to determine tactics for simplifying activities and developing more effective and efficient workflows. An overarching, broad-based strategy for streamlining technical processes and replacing, outsourcing or modernizing technical resources must be developed, and projects and work plans must be created to implement a fully integrated and all-encompassing technical infrastructure for administrative and financial management.

Evaluate how NCDPI may better serve LEAs and schools given the merging of administrative and financial and instructional technologies and pedagogical trends at the local level of public education

Because of Home Base, for the first time on a statewide basis, administrative and financial and instructional technologies have been integrated at the local level of public education, more closely connecting the classroom, students, and teachers to parents. Moreover, and most important, these technologies are congruent with and support the overarching pedagogical goals, frameworks and methodologies under which they have been implemented.

Home Base is an example of a phenomenon associated with the use of technology for both business and educational enterprises. The implementation of technology is often very disruptive to old models of operation, performance of processes, organizational structures, and professional or job activities. In many circumstances, in order to take advantage of the benefits of the introduction of new or more advanced technologies, extensive and radical changes to those areas are required, and change can be unsettling to individuals within the organization and disconcerting for the enterprise as a whole.

Home Base is offering NCDPI the opportunity to evaluate how it may better provide services to the LEAs, school buildings and classrooms of the State. Although NCDPI has committed much thought and effort to successfully deploy these technological tools, the transformation of the organization as a whole from the implementation to the sustainment and growth modes of operation for Home Base may provide further prospects for improving services to the users. Equally important, NCDPI must consider how it will support and grow Home Base given the expiration of funding when the RttT grant expires later next year.

A key initiative related to Home Base is the planning project mandated by the General Assembly per SL2013-12 that calls for the transition by 2017 from textbooks to digital materials. Furthermore, there is broad-based agreement on the need to create standards for wireless connectivity and broadband capacity for a digital learning environment. A final planning report is due by August 2015 by the Friday Institute for Education Innovation of the College of Education of NC State University. A Policy Brief for this effort dated July 2014 is provided in an Appendix.

In summary, Home Base will change how, when, and where students learn and the instructional methods teachers use, but continued success and expansion will require much effort at both the state and local levels. NCDPI must determine how it will transform itself in order to sustain, grow, and fund Home Base in the future. Likewise, NCDPI must decide how it will help the LEAs and schools do the same.

Historical Perspectives

The plan contains three time-phased graphs of significant events for the State Public Schools in the areas of:

- *Pedagogical historical trends,*
- *Instruction applications historical trends, and*
- *Administrative and finance applications historical trends.*

These charts offer the following insights: For pedagogical trends and both administrative and financial and instructional technologies, the technologies have not been applied arbitrarily, but in concert with educational goals and objectives. For instructional technology, benefits of investments tended to be incremental until widespread access to the Internet was possible. From that point on, value gained from each major initiative increased dramatically and even more so (a quantum leap) from Home Base. For business and financial applications, these are at a point where they need a serious review and evaluation of their usefulness and risks in their present configurations.

II. Summary Plan – Four Themes

As described in detail in its 2012-14 IT plan, over the past two years NCDPI has been unwaveringly focused on the development and implementation of Home Base – the name for the instructional related applications and technical services developed from the $400 million federal Race to the Top (RttT) grant received in 2010. Of RttT's $400 million grant funds, $140 million ($70 million state and $70 million LEAs) has been dedicated to instructional technology, primarily for use by teachers and students in classrooms to improve student learning.

Taken as a whole, Home Base offers a one-of-a-kind, combined and more fully integrated instructional and administrative system for the State's public schools. While administration-focused applications have been employed in public and private education for many years, the instruction-based and classroom-targeted applications are later additions to the school environment. As Home Base has been implemented, North Carolina has become the only state to successfully combine both varieties of applications into one product, offering a single, integrated view to the education community, especially at the classroom level.

Home Base enables teachers to personalize instruction by using digital electronics to ensure each student gets what he or she needs. Students differ, and good teachers know students as individuals. Home Base provides the administrative and instructional tools for teachers to give individualized instruction; thereby, better motivating students and improving learning.

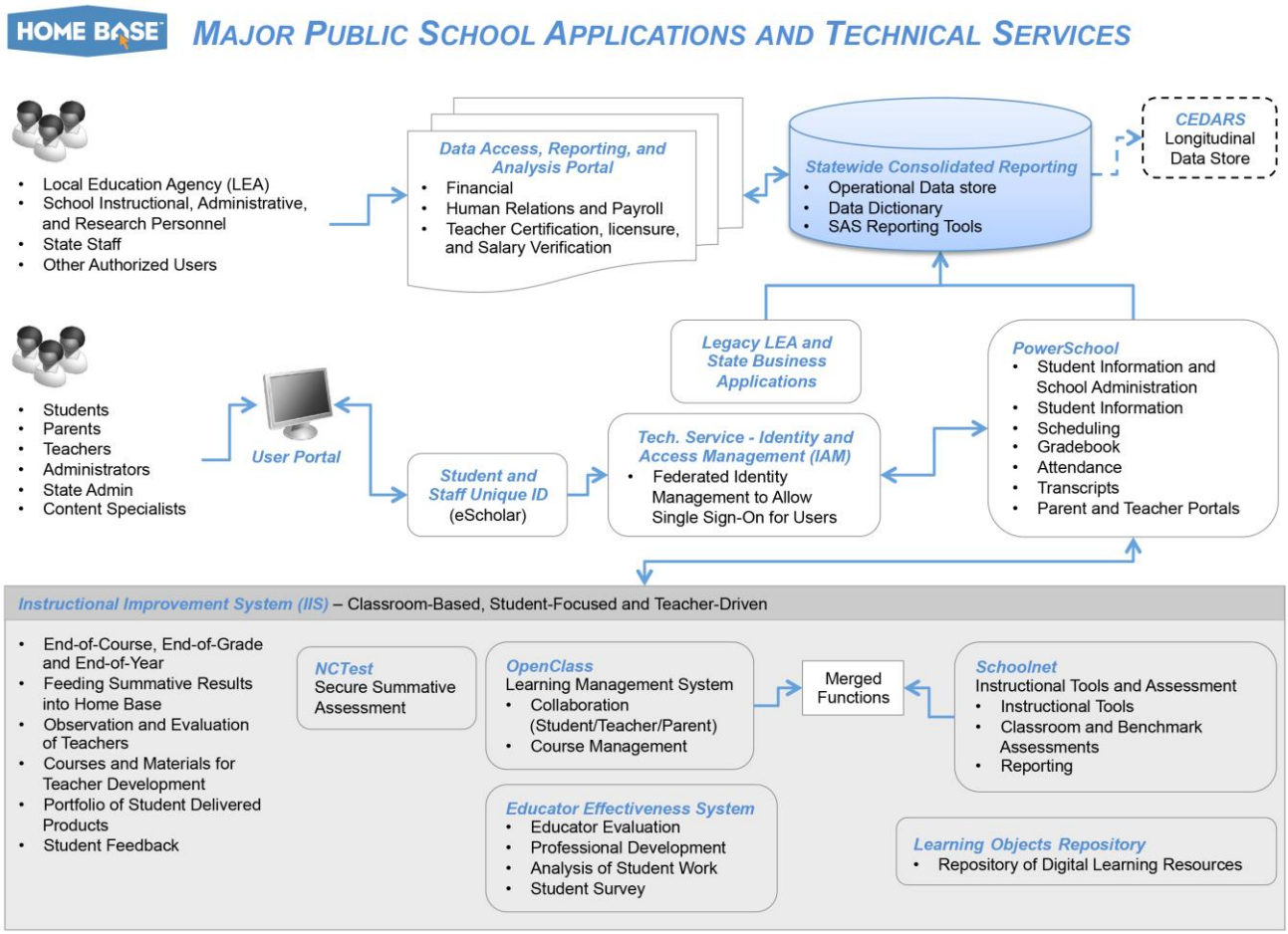
This IT plan for 2015-17 follows and builds upon the work of the preceding plan by addressing four key themes:

- *Finish work on and enhance the applications and technical services of Home Base and related endeavors,*
- *Complete projects and work efforts that will improve internal NCDPI IT management and associated processes for transitioning Home Base applications and technical services from the development and implementation phase to a supporting, maintaining and sustaining mode of operation,*
- *Review the status of legacy LEA and NCDPI business and financial applications and develop a strategy and plans for replacing or upgrading and improving them, and*
- *Evaluate how NCDPI may better serve LEAs and schools given the merging of administrative and financial and instructional technologies and pedagogical trends at the local level of public education.*

Each theme is summarized in sections below.

1. Finish Work on and Enhance the Applications and Technical Services of Home Base and Related Endeavors

The major technical components of Home Base and associated applications are presented in the diagram below.



To date, because of a prodigious amount of work performed by NCDPI, LEA and school and vendor staff under an aggressive and truncated timeframe, the components of Home Base have been mostly implemented, are operational and are providing previously unachievable educational benefits to students, teachers and parents. The following table highlights the status of the major Home Base and related applications and technical services included in the 2012-14 NCDPI IT Plan addressed as individual projects in that plan.

It covers the applications and technical services included in the chart above, as well as others that directly impact or otherwise are related to the success of the Home Base initiative. The vast majority was covered in the 2012-14 plan, and very few are recent, additional work efforts that are presented for continuity and comprehensiveness.

Application or Technical Service	Implementation Status	Key Future (2015-17) Work Items
PowerSchool – Pearson is the software and hosting vendor	Implemented and fully operational with the vast majority of application features and capabilities available. Hosting and software performance for the beginning of the new school year have been satisfactory.	Fix any remaining software glitches, clean up outstanding data errors, design and deliver exceptional contract items, finish integration with Unique ID (UID) and with the Identity and Access Management (IAM) service to resolve single sign-on problems improve hosting reliability and formalize the NCDPI ongoing support organization. Implement the next major upgrade for the vendor package.
Schoolnet – Pearson is the software and hosting vendor	Implemented, fully operational, and widely used by LEAs.	Improve integration with the Learning Object Repository (LOR), complete the integration with the IAM service to resolve single sign-on problems, deliver outstanding contracted functions and features, and improve hosting reliability.
OpenClass – Pearson is the software and hosting vendor	Fully operational, but to date, there has been a low rate of adoption.	Continue to roll out to entities desiring to receive it, but no major enhancements are anticipated.
Learning Management System (LMS) for NC Virtual Public Schools (NCVPS) and optionally at their choice, the LEAs and charter schools	An RFP has been issued to solicit proposals for a learning management system as a vendor-managed software as a service (SaaS) solution.	Provide a platform for the delivery of courses to K-12 students, including student-only online mastery courses, instructor-led online courses and instructor-led courses in classroom environments. The LMS is envisaged to become part of the Home Base suite of applications and will integrate fully with PowerSchool

Application or Technical Service	Implementation Status	Key Future (2015-17) Work Items
Educator Effectiveness System: • Educator Evaluation • Professional Development (PD) • Analysis of Student Work • Student Survey Truenorthlogic is the software and hosting vendor	Educator Evaluation was operational as of July 2013, and it is used by every teacher and principal in the state public schools. Professional Development is fully operational, as a series of pilots have been successfully completed, and it is being implemented incrementally as desired by LEAs and schools. Analysis of Student Work is in the pilot stage. The Student Surveys application will be delivered in the future.	No major immediate changes are anticipated for Educator Evaluation. Professional Development will be adding integration with the LEAs' HRMS application to push transcript data, and it will be adding a PD Marketplace functionality to allow LEAs to purchase PD offerings from vendors. Analysis of Student Work will be offered statewide upon successful completion of pilot sites. Student Survey will be developed and deployed in the coming school year. For the four applications, ensure their support is covered adequately either by the Home Base Support Center or outside resources.
Learning Objects Repository (LOR) – Pearson/Equella is the software vendor and Pearson is the hosting vendor, and the effort is being performed in conjunction with the NC Community College System	Implemented and operational; however, the integration with Schoolnet, while functional, does not allow for the transmission of metadata so that the LOR content can be presented in Schoolnet with the same functionality as content directly stored in Schoolnet. Also the integration of local learning management systems with the LOR is presenting challenges.	Re-examine the technical architecture of the LOR and the storage of content in the related applications to develop a resolution to the integration challenges. NCDPI will pressure Pearson (the vendor responsible for integration of Schoolnet and the LOR) to rectify the problems.

Application or Technical Service	Implementation Status	Key Future (2015-17) Work Items
NCTest – the Technical Operations for Public Service (TOPS) at NC Center for Urban Affairs and Community Services of NC State University is the software and hosting vendor	Application has been used in the state public schools for many years as a stand-alone product.	Ensure NCTest is able to meet the scalability requirements of Home Base. This is not considered to be a major challenge.
Identity and Access Management (IAM) – the software and hosting vendor is Identity Automation	IAM is fully operational and is being implemented on an LEA-by-LEA basis as desired by the LEAs. To date, 10 LEAs are using the service. In June or July 2015 all LEAs will use it for Home Base.	Major efforts include changing the present staff and student login ID to the UID from eScholar, integrating the IAM service with all Home Base applications, and integrating IAM with LEA local directory technologies and the State's Enterprise Active Directory service (EAD) by OITS utilizing the NCID identity management system.
NCDPI Home Base Support Center (HBSC)	Fully functional for Home Base applications from Pearson (PowerSchool, Schoolnet and OpenClass), but not for the Education Effectiveness suite of applications from Truenorthlogic. Performance metrics have been improving over the past few months. There have been high rates of turnover for supervisory and staff positions.	Review staffing levels and job classifications to ensure adequate personnel resources and rectify turnover problems, increase training of personnel, incorporate the full capabilities of the Remedy help desk support software, implement ITIL-based formal processes and procedures, and expand metrics and performance reporting capabilities. Transition tier 1 support for the Educator Effectiveness applications from the implementation team to the HBSC.

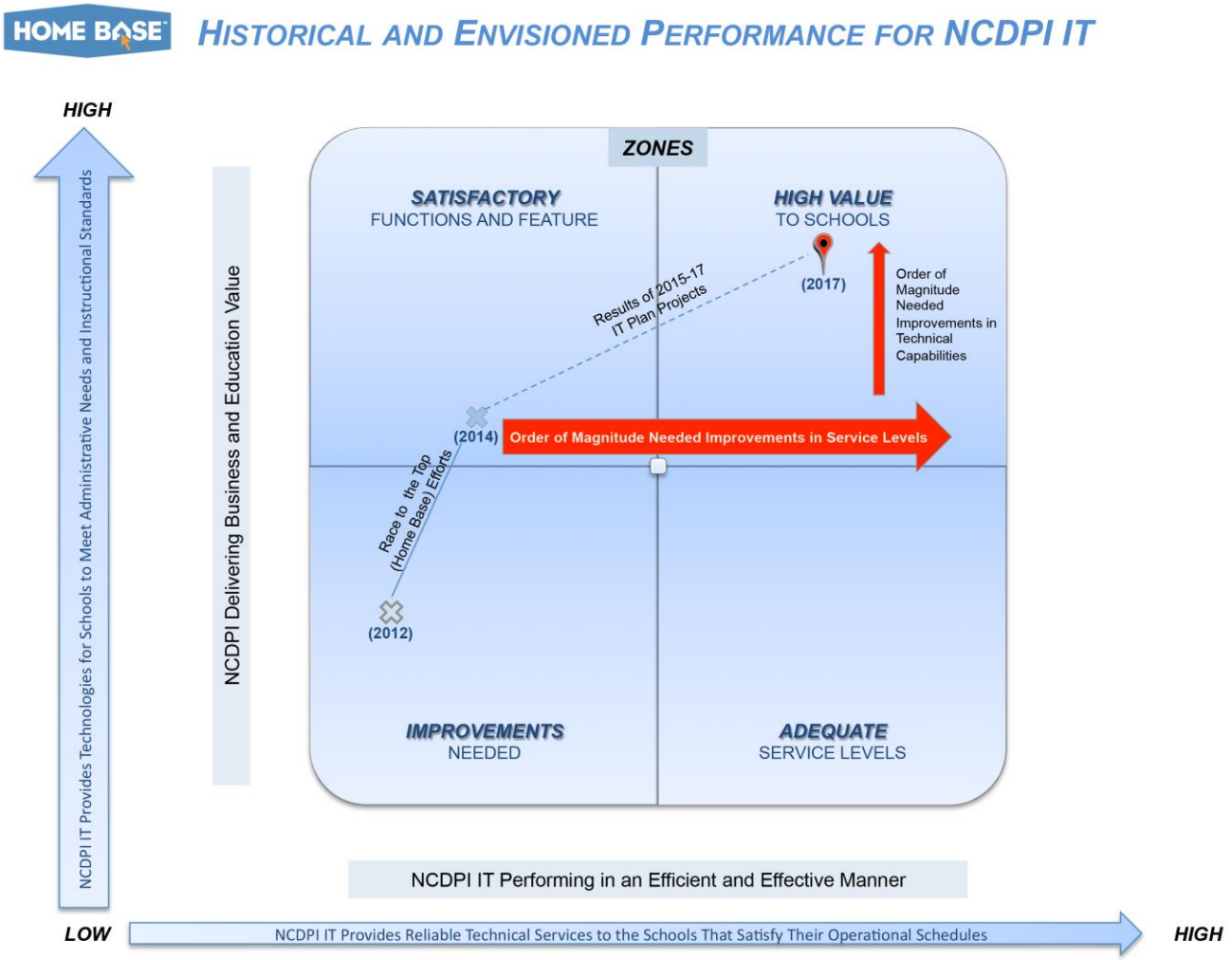
Application or Technical Service	Implementation Status	Key Future (2015-17) Work Items
Student and Staff Unique ID (UID), with eScholar as the software vendor and OITS is the hosting vendor	Fully functional, but problematic integration with other applications, especially PowerSchool, resulting in too many errors that need research and correction. Limited NCDPI support staffing and processes to research errors and keep UIDs clean without duplicates.	Work with Pearson (vendor responsible for integration) to complete integration efforts and eliminate problems in this area. Work with NCDPI staff and LEAs to assign clear ownership and responsibilities for UID administration, maintenance and integration, and establish processes to keep UIDs free from duplicates.
Data Integration and Reporting, with SAS as the software vendor (tool set) and Pearson is the hosting vendor – a key project as the State Public Schools become more data-driven and information-intensive	Partially functional with a large percentage of the around 400 reports fully operational. Data is now being regularly received from PowerSchool and other applications. Many NCDPI staff members have been trained on the SAS report writing tools. As the vast majority of data originates from PowerSchool, challenges from that application have influenced the delay in report preparation.	Complete the assignment of NCDPI staff for report writing, performing application administration functions, and performing mapping (IMAP) activities. In conjunction with the next major upgrade of PowerSchool, upgrade the software for the SAS tools and database software. Review the hosting near- and long-term technical environments (test, production and development). Design and implement a staging ODS for identifying data errors and making corrections before data is posted to the statewide reporting ODS. Complete the development of the School Report Card (SRC) application.
Formative Literacy Instructional Tool Pilot	An RFP has been issued to solicit proposals for a literacy remediation tool as a vendor-managed software as a service (SaaS) solution for the LEAs and schools to use at their option to improve student vocabulary and reading comprehension for third- and fourth-grade students.	Volunteer LEAs will participate as a pilot to ascertain usefulness prior to making this tool a statewide offering.

Application or Technical Service	Implementation Status	Key Future (2015-17) Work Items
Exceptional Children	An RFP will be issued soon to replace the more than 10-year-old present application that is becoming technically obsolete, functionally outdated (not meeting business objectives) and too expensive for the value offered.	Evaluate contender vendors and select and implement the best value product. New functions include workstreams for leading LEA staff through complex Medicaid regulations and features to assist in expediting early diagnosis and enabling prompt intervention.
Twenty internal NCDPI business/instructional applications that have been subsumed into PowerSchool in order to facilitate integrated processing by LEAs and schools, eliminate redundant data entry, and improve data quality	Seventeen applications are fully operational, and three should be implemented within the near future.	Enhance and maintain as required. Five are the responsibility of Pearson and the remainder have been developed by NCDPI.
The NC Education Cloud (NCEdCloud) portion of RttT follows closely the RttT projects; however, it focuses on the LEAs. It identifies information technology needs for K-12 users statewide and facilitates the procurement and implementation of tools and technical services on an opt-in basis.	In July 2013, the General Assembly enacted legislation (SL 2013-360) — including a section entitled Public School Procurement of Information Technology — that allows the State to implement public school cooperative purchasing agreements to meet statewide needs for technology tools and services. Accordingly, RFPs have been issued for: (1) An applicant tracking system and related services, and (2) a device management system and related services. Another NCEdCloud project is the LEA AS/400 iSeries Migration effort.	RFPs will be evaluated and best value vendors selected for offering products and services to the LEAs, schools and charters. The LEA AS/400 iSeries Migration effort has resulted in 34 of the LEAs opting in for centralized hosting by SAS. LEAs have until June 2015 to take advantage of this opportunity that offers cost savings and operational benefits.

Application or Technical Service	Implementation Status	Key Future (2015-17) Work Items
NC Digital Learning Plan for the State to transition from textbooks to digital materials by 2017, including wireless connectivity in the school buildings and broadband capacity	The project is being performed by the Friday Institute of the College of Education of NC State University. A Policy Brief was issued in June 2014 (as required by SL 2013-12), and it is presented as an Appendix.	Other documents are scheduled the remainder of this year and early and middle of 2015. The final report is due August 1, 2015.
Workforce Statewide Longitudinal Data System (SLDS) - NC P20W SLEDS (Statewide Longitudinal Educational Data System) made possible from a US Department of Education (USED) grant to implement an SLDS, linking a broker system with NCDPI, UNC-General Administration, NC Community Colleges, NC Independent Colleges and Universities and workforce data from NC Department of Commerce	The project is roughly 50 percent complete, with the design and prototyping of major components successfully finished.	Continue implementation activities to meet the scheduled completion date of June 2015. Major future activities involve the signing of the data sharing agreements, participants finishing the development of their data warehouses, completing major functionality requirements, finishing the development of the broker, integrating fully the eScholar UID and testing the system.
Licensure Automated System (LAS) that replaces the outdated public school professional certification system with a new, web-based application	The application is partly implemented, with a key component for calculating teacher experience appearing to be difficult to design and develop. The project has experienced many problems, and it has been continuously behind schedule.	A review of the project is scheduled for the near future to determine its viability for meeting the March 2015 implementation date. The issue is whether to give the vendor additional time despite repeated shortcomings or to terminate the contract and rebid the project.

2. Complete Projects and Work Efforts that will Improve Internal NCDPI IT Management and Associated Processes

The chart below highlights the need to improve the internal management processes and operations of NCDPI IT to: (1) provide the foundation for continuing to enable and support the recently implemented applications and technical services of Home Base, and (2) transition the management of these technical facilities from the implementation phase to a maintenance and sustainment mode. Due to the extreme time pressures and extraordinary work efforts over the past two years involved in the development of Home Base, NCDPI did not have available staff time and resources to address to the extent desired the service needs of the department, LEAs, schools and charters. The activities in this area respond to technical ongoing service management and other operational requirements.



The above diagram illustrates two major points:

- Over the past two years, NCDPI has made substantial strides in improving the delivery of technical functions, features and services to the State Public Schools by developing and

implementing Home Base and related applications and services for meeting educational objectives. However, due to limitations in personnel resources and time, progress in the improvement of necessary technical support operations and processes has been lacking.

- For the coming IT planning period, NCDPI is undertaking the work efforts focused on bridging the gap in developing and improving the internal technical operations and service management processes that have been neglected in the past. Thus, over the time period of this plan, significant efforts will be focused on internal processes for doing the right things and doing them in the right ways.

Major activities involved under this theme are listed below:

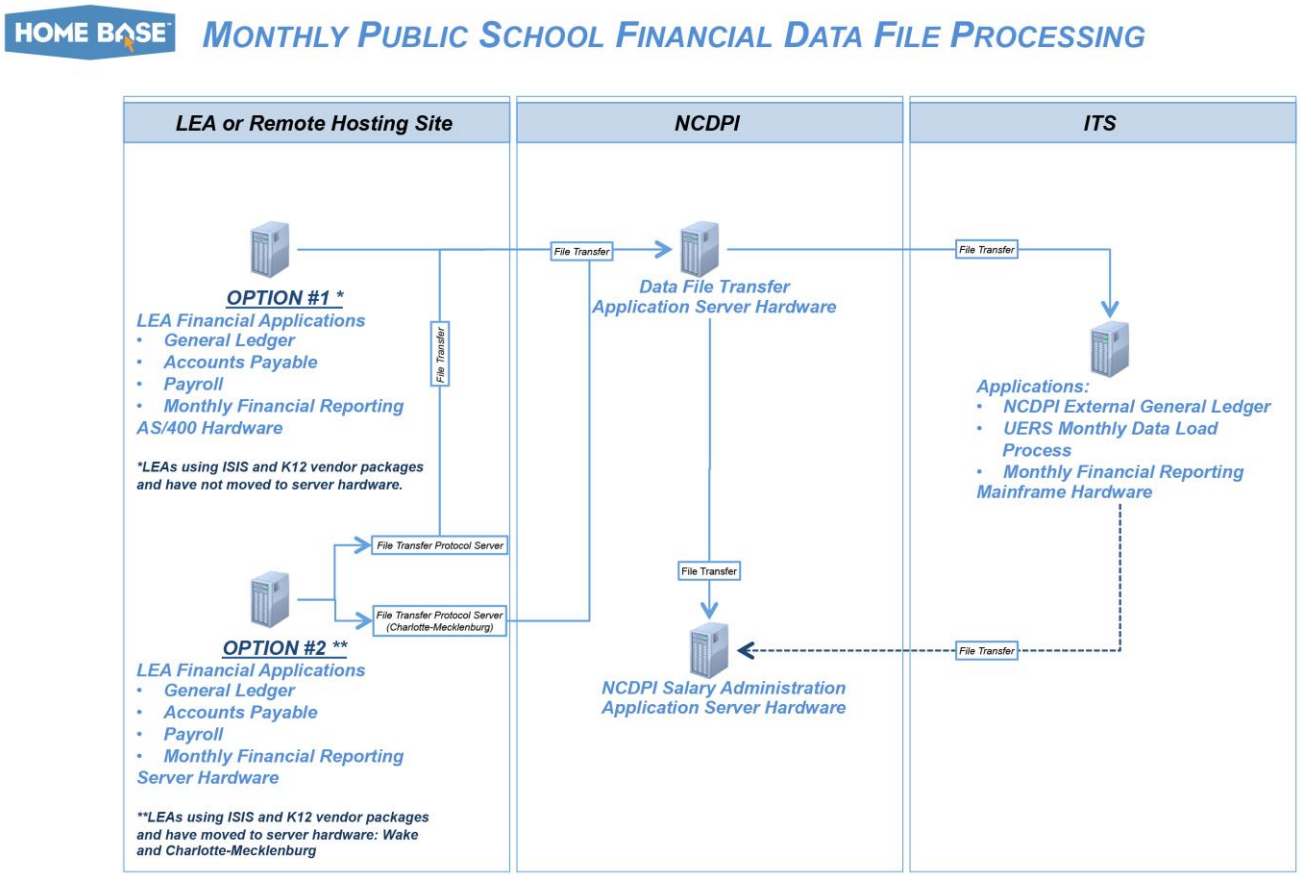
- **Implement a highly effective PMO (Project Management Office) —** Select a manager; appoint staff; develop project governance; define roles and responsibilities; educate personnel; coordinate with the OITS PMO; and prescribe applicable standards, policies, processes and procedures.
- **Select and implement automated productivity tools for NCDPI (including SharePoint Online, OneDrive, Lync, Project Online and Office 365) —** Identify staff, assign roles and responsibilities, purchase software, conduct training and provide ongoing assistance and support.
- **To the extent it is cost effective and value enriching, transfer NCDPI data center and technical services to OITS —** The intent is for applications to be hosted first by the vendor and second at OITS — no hosting done at NCDPI. Network operations and desktop support activities should be evaluated on costs, service levels and risks. The transition to Enterprise Active Directory service (EAD), including migration from Novell Netware, should be completed as soon as possible. This latter action may necessitate significant changes to some administrative and financial applications.
- **Develop and implement processes and procedures based on the ITIL (Information Technology Infrastructure Library) framework for services and operations management (including system monitoring and reporting) —** Establish a project team; review present practices and determine priority areas to address (including the Home Base Support Center); determine an overarching strategy; develop work plans, assign roles and responsibilities, and monitor progress.
- **Make greater use of the features and capabilities of Remedy (support center software) to improve the operations of the Home Base Support Center —** Review current usage, identify candidate features and capabilities for use at NCDPI (including offering LEAs and schools access to ticket information and online submission of tickets), determine an overarching strategy, appoint staff, assign roles and responsibilities, develop work plans and monitor progress.
- **Develop approaches for cleaning up and rectifying data errors that have originated from a variety of sources (including conversions during the implementation of applications and deficiencies in the**

assignment of staff and student IDs) and develop recommendations to improve data quality — Review the extent of the problems for urgency and impact, develop an overarching strategy and approaches, appoint staff, assign roles and responsibilities, develop work plans and monitor progress.

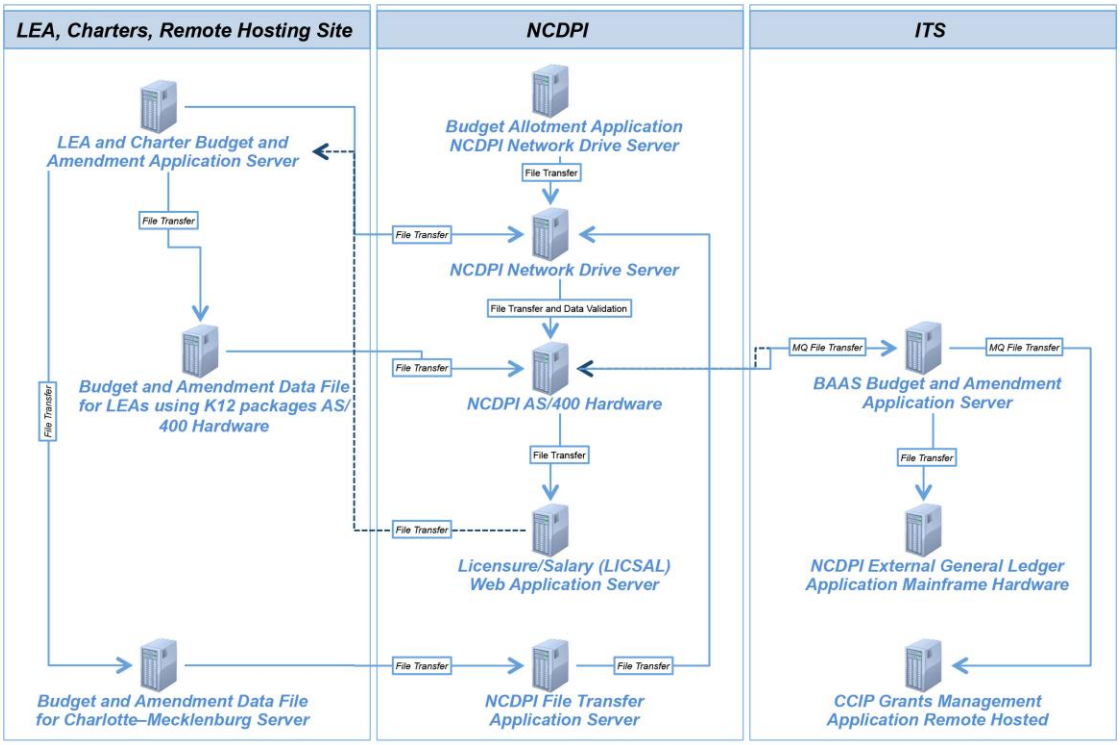
- **Review policies and practices for vendor management, including provisions of contracts, service level agreements, quality assurance and service management processes, etc. —** Assign staff, develop an overarching strategy, identify areas to address and pursue necessary vendor negotiations.

3. Review the Status of Legacy LEA and NCDPI Business and Financial Applications and Associated Technical Processes and Develop a Strategy and Plans for Simplifying Processes and Replacing or Modernizing Applications

The two charts that follow illustrate the technical components and workflows for two sample technical financial processes representative of those conducted by NCDPI.



DAILY PUBLIC SCHOOL FINANCIAL DATA FILE PROCESSING FOR THE BUDGET AND AMENDMENT SYSTEM



Other financial technical processes with similar applications, hardware, communications and technical services, such as the two flow charts depict above, are not shown, as the common key points for them are illustrated with these representative charts.

A cursory review of the above charts reveals the following pertinent facts for NCDPI's financial management technical processes in that they are:

- Complex by involving a multitude of applications and technical services, exceptions to main workflows due to differences in software packages, varied physical locations for technical components, and most important, lots of interfaces (illustrated by the file transfer arrows).
- Unacceptably risky by offering many single points of failure.
- Complicated due to the many backtracking and two-way flows; thereby, creating excessive management difficulties for troubleshooting failures and maintaining and enhancing them.
- Difficult to follow and understand, requiring much attention and hand-holding for assisting the LEAs and charters to perform their duties and responsibilities correctly.

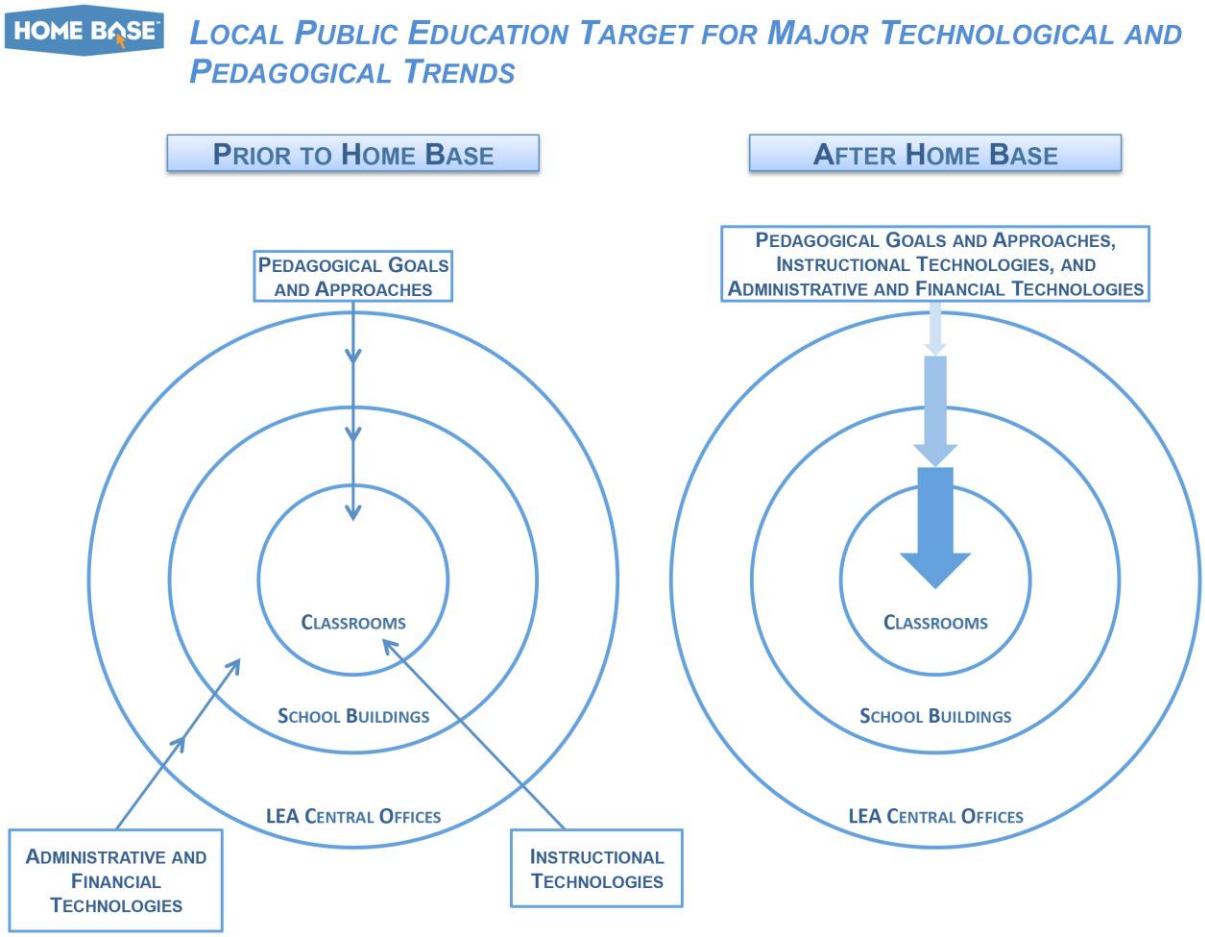
As the numbers of participants in the technical processes grow, the risks will increase exponentially. Accordingly, over time the error-prone and fragile technical infrastructure will fail due to its own weight. This phenomenon applies particularly to charter schools because they are (1) rapidly increasing in numbers, (2) use an especially fragile technical infrastructure for conducting their

financial processes, and (3) require much more attention and assistance from an already stretched NCDPI staff. The limited number of NCDPI staff dedicated to the management and support of these technical processes is another significant point of failure.

The applications contained in NCDPI's financial and administrative technical processes are addressed in the following **Background** section of this plan. Since both technical processes and encompassing applications are integral to the performance of the financial and administrative management of the State Public Schools, they must be studied and evaluated as a whole to identify problems, develop integrated solutions and approaches for implementing them, and prepare an associated overarching strategy and more detailed work plans.

4. Evaluate How NCDPI May Better Serve LEAs and Schools Given the Merging of Administrative and Financial and Instructional Technologies and Pedagogical Trends at the Local Level of Public Education

The chart below highlights the impact of Home Base on activities and processes at the LEA, school building, and classroom levels of the State.



The following points can be derived from the chart:

- Before Home Base, public school administrative and financial systems have been concentrated primarily on the LEA central offices and the school buildings while the instructional applications have been focused predominantly on the classroom. Precursor NCDPI student information systems (SIMS and NC WISE) did address both teacher and school building administrative needs; however, they were separate applications uncoordinated with instructional technologies.
- As shown in the trend charts of the following **Background** section, administrative and financial technologies and instructional technologies have followed different paths to maturation over the years, primarily due to the separate evolutionary paths of the types of technologies used and the availability and types of applications on the marketplace. However, and more important, both classes of technologies have been consistent with and supportive of the overarching pedagogical goals, frameworks, and methodologies under which they have been implemented.
- With the implementation of Home Base, for the first time on a statewide scale, both the administrative and financial and instructional technologies are coordinated for the LEAs and school buildings, and they are closely integrated for the classrooms, involving teachers, students and parents.

Home Base is an example of a phenomenon associated with the use of technology for both business and educational enterprises. The implementation of technology often is very disruptive to old models of operation, performance of processes, organizational structures, and profession or job activities.

In many circumstances, in order to take advantage of the benefits of the introduction of new or more advanced technologies, extensive and radical changes are required. These new procedures, scopes and lines of authority, techniques for performing work, funding models, etc. may be drastic, dramatic, and far reaching — certainly unsettling to individuals within the organization and disconcerting for the enterprise as a whole.

Home Base is offering NCDPI the opportunity to evaluate how it may better provide services to the LEAs, school buildings and classrooms across the state. Although much thought and work has been put into this opportunity by the Department, the transformation of the organization as a whole from the implementation to the sustainment and growth modes of operation for Home Base may provide further prospects for improvement.

The identification for candidate areas for change to enable the provision of consistently better services to its constituents requires a broad-based and wide-ranging view and evaluation of the NCDPI organization. An extensive variety of items must be considered, including allotment and funding models, organizational configurations and reporting relations, adequacy of staffing in key areas (such as the Home Base Support Center, educational content management, and training staff), personnel needs

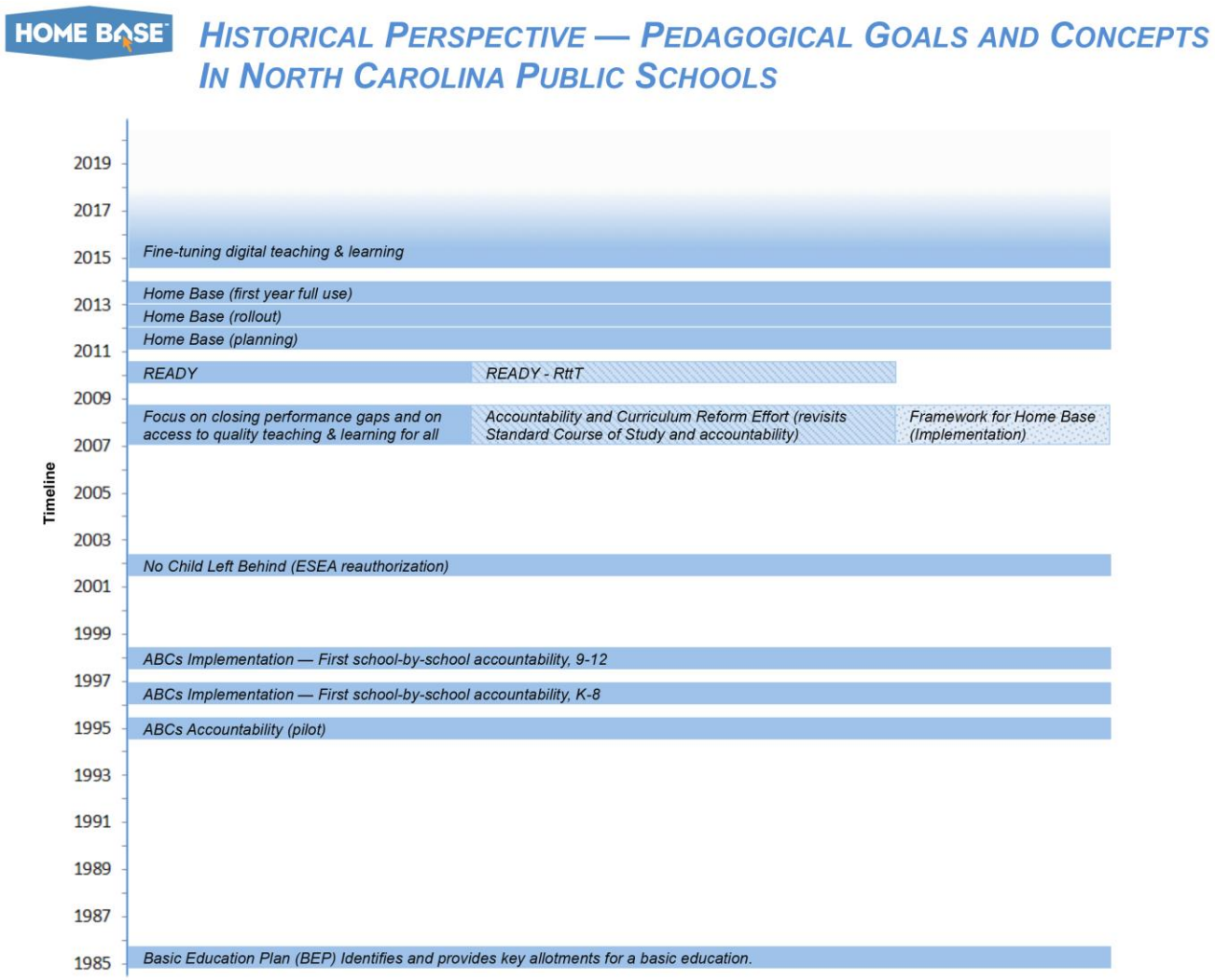
(including skills and competencies), process requirements (including the simplifying and streamlining of present ones and the need for new ones), governance (i.e., decision making) structures, etc.

Two other considerations regarding Home Base must be addressed by NCDPI. One is how it will support and grow Home Base given the expiration of funding when the RttT grant expires later next year. The second is should it review its points of interests as an advocate for the LEAs. For example, should it place more emphasis on providing content (and associated tasks like standards alignment and tagging) over traditional needs, such as class size?

In summary, Home Base will change how students learn and it will raise performance levels, but continued success and expansion will require attention and effort at both the state and local levels of public education. Therefore, NCDPI must determine how it will transform itself in order to sustain, grow and fund Home Base in the future. Likewise, NCDPI must decide how it will help the LEAs and schools do the same. Some LEAs are and will continue to be capable of accomplishing these actions on their own; however, many will need help in leadership and more in-depth operational assistance.

III. Background

1. Historical Pedagogical Trend



HISTORICAL PERSPECTIVE — PEDAGOGICAL GOALS AND CONCEPTS IN NORTH CAROLINA PUBLIC SCHOOLS

1985	Basic Education Program (BEP)

The Basic Education Program (BEP), adopted by State Board of Education in response to a legislative mandate, outlines the curriculum, programs not confined to subject areas, general standards, material support and staffing which should be provided in all schools throughout the state.

1995-96	Pilot - ABCs Accountability

General Assembly directs State Board of Education (SBE) to develop a restructuring plan for public education, which became the ABCs of Public Education accountability program that became law in 1996

1996-97	ABCs Implementation (K-8)

Implementation began for schools with grades K-8 with growth and performance composites and included End-of-Grade (EOG) Reading and Mathematics and Writing at Grade 4.

1997-98	ABCs Implementation (9-12)

Low-performing schools receive assistance teams. Implemented with the high school accountability model.
All schools making Expected or Exemplary Growth/Gain were awarded incentives per the Excellent Schools Act, enacted by the General Assembly (Up to $1500 for certified staff, up to $500 for teacher assistants in schools making Exemplary Growth/Gain; schools making Expected growth/gain received up to $750 for certified staff; up to $375 for teacher assistants).

2000s	Remolding Public Education

- New standards and assessments of what students know and are able to do
- Retooling the skills of 100,000 teachers and principals
- Personalizing learning for 1.5 million students
- New technology tools

HISTORICAL PERSPECTIVE — PEDAGOGICAL GOALS AND CONCEPTS IN NORTH CAROLINA PUBLIC SCHOOLS

2010	READY

- Career and college ready standards
- Balanced assessments
- Measurement of educator effectiveness
- Support for districts and schools
- Technology to enhance instruction

2010	Race to the Top (RttT) – (Start)

- Great teachers and leaders
- Quality standards and assessments
- Turning around the lowest-achieving schools
- Data systems to improve instruction

2010-14	Home Base (planning, rollout, first full year of statewide use)

- PowerSchool (student information and school administration)
- Instructional Improvement System (IIS) – classroom focus
  - Core (curriculum and instruction and student assessment)
  - Professional Development and Educator Effectiveness, including Education Value Added Assessment System (EVAAS)
- Learning Objects Repository (LOR)

2014 → Future	Fine-tuning digital teaching & learning

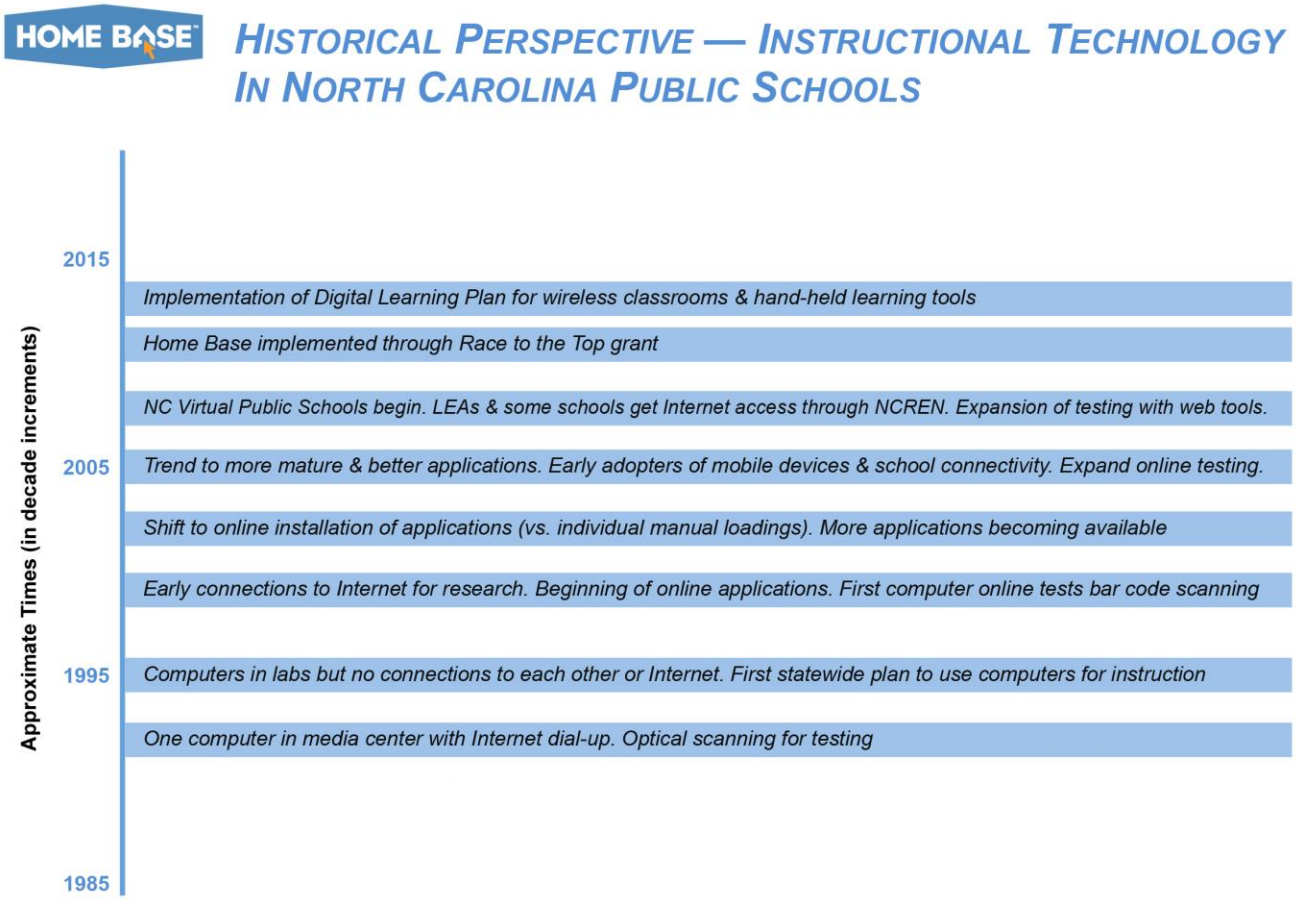
Future expectations include more customized instructions to meet individual students' needs and inclusive devices for delivery in and out of classrooms.

Home Base Guiding Principles

- Empowering — operate with ultimate goal of maximizing student achievement
- Consolidated — All operations/data collections will be incorporated into Home Base
- Flexible — Maximize flexibility for LEAs and charter schools
- Improving Data Quality — Improve data accuracy and completeness
- Simplifying Reporting — Making it easier
- Secure — Maintain security and privacy of information

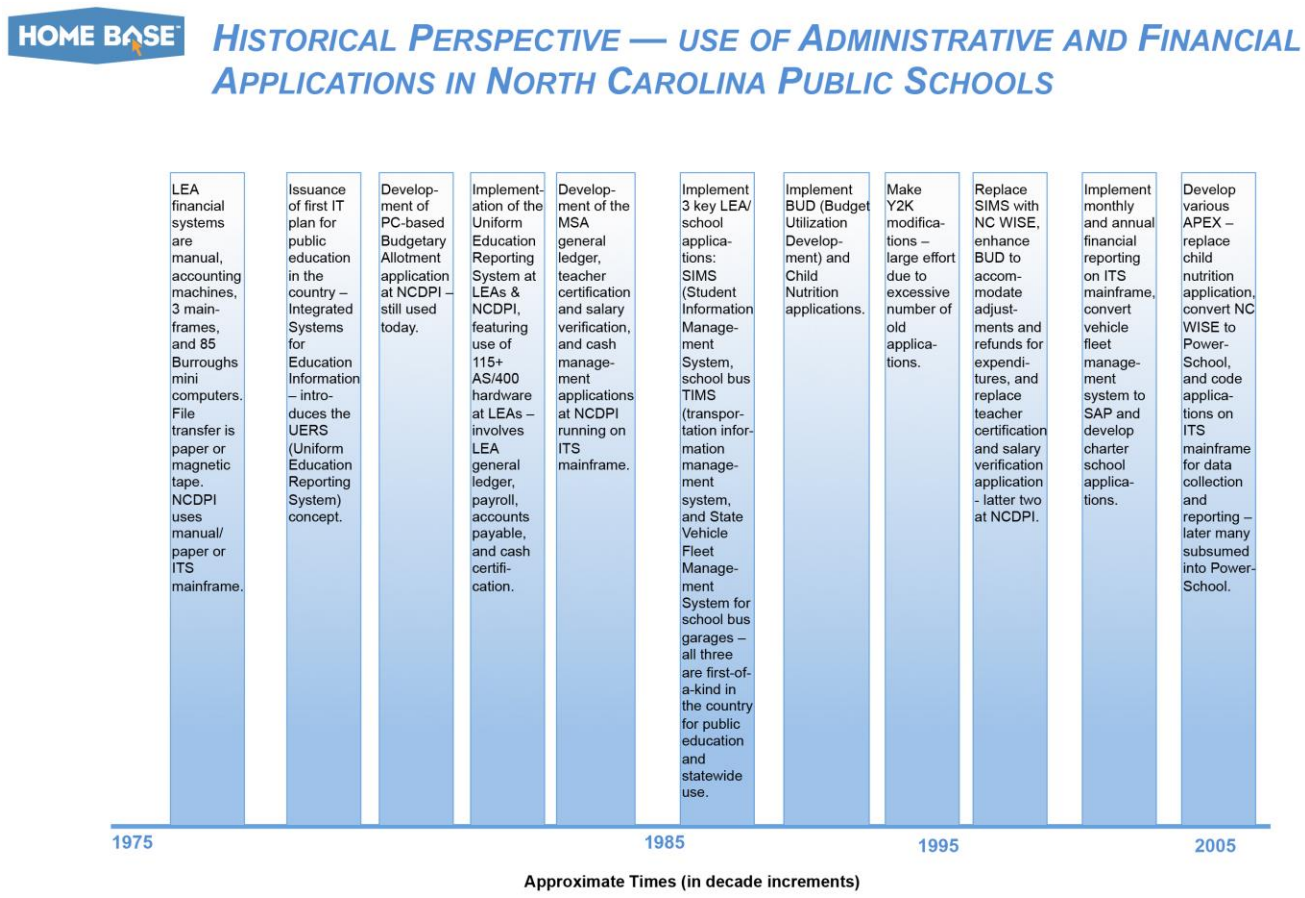
The preceding charts illustrate two important facts: One, Home Base as an instructional concept was not implemented as a separate individual-purpose endeavor, but it follows and is congruent with a number of educational programs and initiatives dedicated to shared objectives and consistent purposes. Two, as revealed when referencing the chart below, instructional technologies implemented over time have not been stand-alone entities demonstrating the application of technology for its own sake. Rather, they have been closely aligned with and supportive of associated pedagogical initiatives, goals and objectives.

2. Historical Instructional Technology Trend



The chart above highlights two observations regarding the growth and evolution of technology for enabling and supporting classroom instruction. First, while incremental benefits were achieved in early implementations of technology, increasingly greater learning results started to accrue in more recent years, especially as the Internet became a bigger part of the technology package. Second, because Home Base offers the first time that both administrative and instructional technologies are integrated (seamlessly working together) at the classroom level for teachers, students and parents, realistic expectations for a quantum leap in benefits should materialize.

3. Historical Administrative and Financial Applications Trend



Observations for this chart are described below:

- The development of public school administrative and business applications started ahead of instructional technologies – a country-wide reality given the majority of the early applications for PCs (the computer on which most of the beginning instructional applications resided) were primarily targeted to business areas.
- North Carolina got a head start over all the other states due to its unique philosophy for funding public education and the desire of the General Assembly to gain better control over and better management of the State Public School Fund.
- The creation of what is thought to be first public education, business-related IT plan (issued in March 1984) and the resulting immediate development of an extensive group of coordinated administrative and fiscal applications and related communications facilities at LEA, school, school bus garage and state management levels provided an early and solid foundation for growth and expansion. Taken together, this early infrastructure of applications and technical services was a national leader, and it was called the Uniform Education Reporting System

(UERS). The word uniform signified that the technical components worked together and applied statewide — both novel concepts at the time, and they have withstood the test of time.

- Over the years, many implementations of administrative and financial applications and technical services have replaced, built upon, or enhanced the technical resources originally developed under the banner of UERS.
- The almost continuous march of technology developments over time evidenced by the chart appears to have offered benefits and value and has been responsive to the immediate challenges and needs of the times they were implemented. The chart provides little direct evidence, but it seems that many additions, replacements, enhancements, etc. to the State's public education administrative and financial technical infrastructure were implemented in a piecemeal, one-off manner to meet specific problems at a particular point in time.
- Most important, although not confirmed fully by the chart, an inference can be made concerning the current status of administrative and financial applications — that many are old with often obsolete technologies not meeting the functional capabilities desired by users, that many are difficult to maintain and enhance, thus presenting unacceptable risks of failure. It is known that older technologies incorporated in some components are no longer supported by vendors (e.g., Windows XP, Windows Server 2003 and older versions of Server OS); thereby, necessitating immediate replacement or upgrading.

The portfolio of legacy applications and technical services for administrative and financial management should be reviewed and evaluated to ascertain the status of each application and technical service and the condition of the portfolio as a whole. Given the findings, an overarching, comprehensive and broad-based remediation strategy must be developed.

Appendices

A. **Goals and Objectives from the State Board of Education Strategic Plan**

B. **Goals and Priority Activities for NCDPI IT Services**

C. **North Carolina Digital Learning Plan – Policy Brief**

State Board of Education Strategic Plan

Vision: *Every public school student will graduate ready for post-secondary education and work, prepared to be a globally engaged and productive citizen.*

Mission: *The State Board of Education has the constitutional authority to lead and uphold the system of public education in North Carolina.*

Goals	Objectives
1. Every student in the NC Public School System graduates from high school prepared for work, further education and citizenship	1. Increase the cohort graduation rate 2. Graduate students prepared for post-secondary education 3. Graduate students pursuing a Career and Technical Education (CTE) concentration prepared for careers 4. Reduce the percentage of students needing remediation in post-secondary education 5. Increase student performance on the state's End of Grade (EOG) and End of Course (EOC) Assessments and on the National Assessment of Educational Progress (NAEP)
2. Every student has a personalized education	1. Increase the number of students who graduate from high school with post secondary credit 2. Increase the number of teachers and students using digital learning tools 3. Increase the number of schools designated as Science, Technology, Engineering and Mathematics (STEM), Global Education-ready, or schools using time as a variable for learning 4. Increase the number of charter schools meeting academic, operational, and financial goals 5. Increase the percentage of schools with a performance composite at or above 60% and meeting or exceeding academic growth
3. Every student, every day has excellent educators	1. Develop and support highly effective teachers 2. Develop and support highly effective principals 3. Increase the number of teachers graduating from quality traditional and alternative educator preparation programs 4. Increase the number of principals graduating from quality traditional and alternative educator preparation programs 5. Increase the percentage of effective or highly effective teachers in schools with a performance composite below 60% and not meeting or exceeding academic growth
4. Every school district has up-to-date financial, business, and technology systems to serve its students, parents and educators	1. Provide all schools with sufficient wireless coverage to support 1:1 computing initiatives 2. Use Home Base as an essential resource for instructional delivery, online test administration, and communications with parents and students 3. Use State and federal funding according to State and federal laws and State Board of Education policies
5. Every student is healthy, safe, and responsible	1. Create and maintain a safe and respectful school environment 2. Promote healthy, active lifestyles for students 3. Decrease the number of students who are chronically absent, dropout, or suspended out of school 4. Decrease violence and crime in schools

Technology Services
2014-15 Priority Goals and Activities
July 2014

SBE Goals	Priority Goals	Priority Activities	Status
4.1 4.2 4.3	Perform a comprehensive review of Information Technology (IT) services and establish processes and procedures surrounding technology operations and projects in order to institute proper governance and management.	Establish a Technology Services Project Management Office (PMO) by October 2014.	On-track
		Introduce, LEA centered, Governance into IT operations by June 2015.	On-track
		Increase the collaboration with the Office of the State Chief Information Officer (SCIO) and take advantage of offerings from Information Technology Services (NC-ITS) in order to enhance the efficiency of NCDPI and realize cost savings.	On-track
1-5	Ensure that all internal and external stakeholders have access to data and reports via state of art systems.	Develop and implement a comprehensive data integration plan for enhancing the data models and their interfaces across all applications/systems including Home Base by June 2015.	On-track
		Develop and implement consolidated reporting framework by June 2015.	On-track
4.1	Develop and implement a plan ensuring every school has sufficient wireless coverage to support 1:1 initiatives.	Work with all stakeholders in the development of this plan as this activity is part of the North Carolina Digital Learning Plan.	On-track
1-5	Improve LEA, School and NCDPI users' satisfaction with the NCDPI Technology Services.	Transform the Support Center to be able to properly support LEAs and Schools by June 2015.	On-track
		Develop a customer satisfaction survey to measure customer satisfaction and identify areas of strengths and weaknesses by March 2015.	On-track
4.1 4.2 4.3	Ensure that all technology systems are available when needed by end users and meet industry standards.	Develop and implement a plan to modernize or replace legacy applications and/or systems by June 2015.	On-track
		Establish and enforce Service Level Agreements (SLA) with all technology services providers and customers by June 2015.	On-track
		Introduce new content and collaboration tools by leveraging the implementation of Microsoft Office 365 and introducing cloud-based applications such as SharePoint Online, Project Online, OneDrive and Lync by June 2015.	On-track

Please note that the above is not an exhaustive list of the area's goals and activities, but reflects the area's **highest priorities**. For more information regarding Technology Services, please see http://www.ncpublicschools.org/techservices/ .