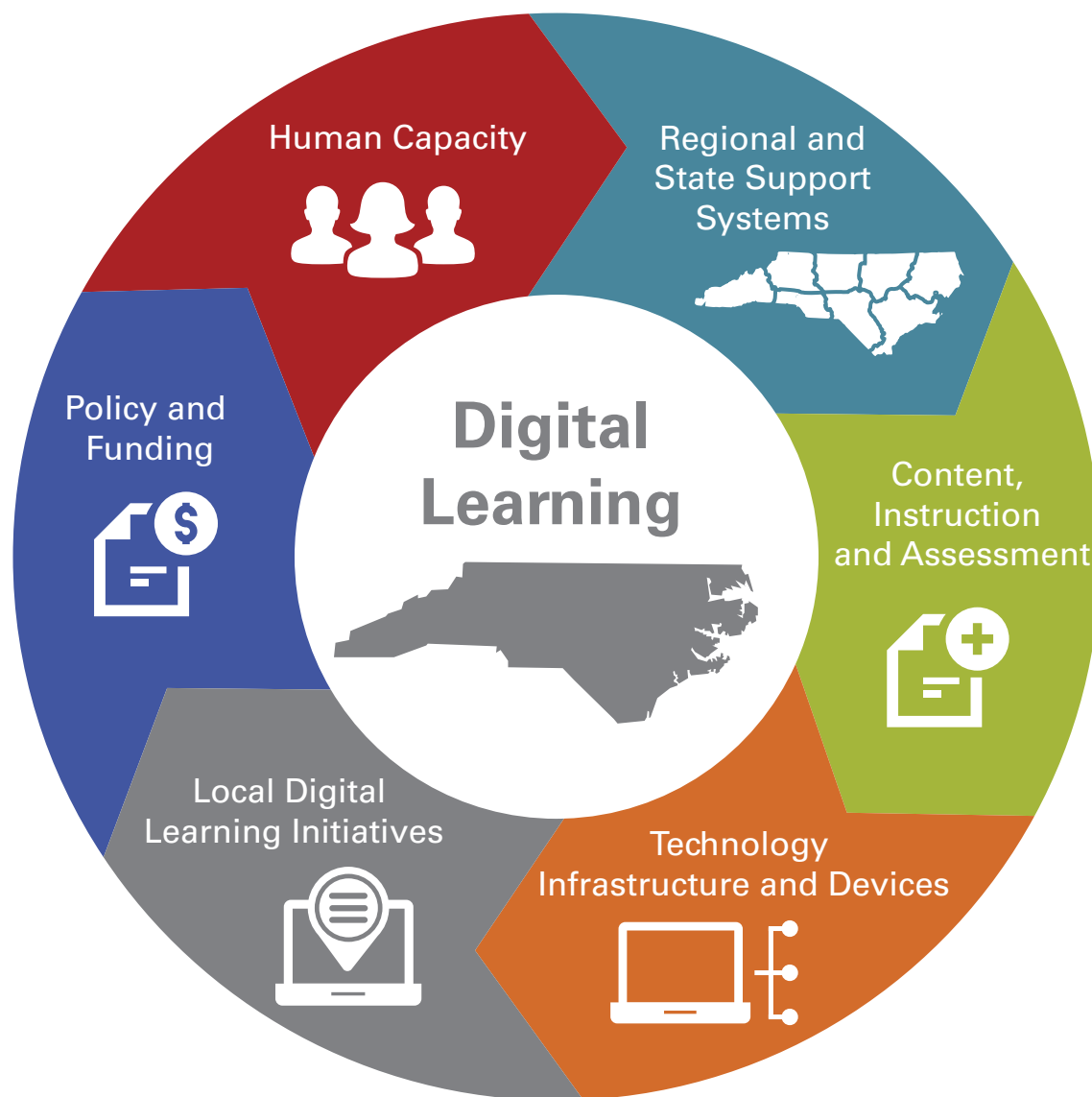


# NORTH CAROLINA DIGITAL LEARNING PLAN

Summary  
September 2015

*Prepared by the Friday Institute for Educational Innovation for the  
North Carolina State Board of Education-Department of Public Instruction*





## INTRODUCTION

North Carolina is committed to providing the personalized digital-age education its K-12 students need to be successful in college, in careers, and as productive citizens. The transition to digital learning has already begun in North Carolina at the State, district, and school levels:

- **Legislative actions** during the past two years address preparing educators for digital learning, providing digital resources, and ensuring technology access in all schools;
- **The School Connectivity, Home Base, and K-12 Cloud Computing initiatives** have advanced North Carolina in providing the necessary broadband access, software systems, and digital resources;
- **The North Carolina Virtual Public School** has expanded curriculum offerings through virtual learning for students throughout the State;
- **First-Hand Experience** – Many of the State’s educators have already gained first-hand experience as digital-age learners in virtual and blended professional development programs; and
- **Innovative Digital Learning Initiatives** – Most importantly, districts and schools throughout the State are already deeply engaged in innovative digital learning initiatives.

On behalf of the State Board of Education and Department of Public Instruction, the Friday Institute for Educational Innovation at North Carolina State University has developed the *North Carolina Digital Learning Plan* to accelerate North Carolina’s progress, working in collaboration with policymakers, education leaders, practitioners, business leaders, and other partners across the State. The charge to the Friday Institute was comprehensive:

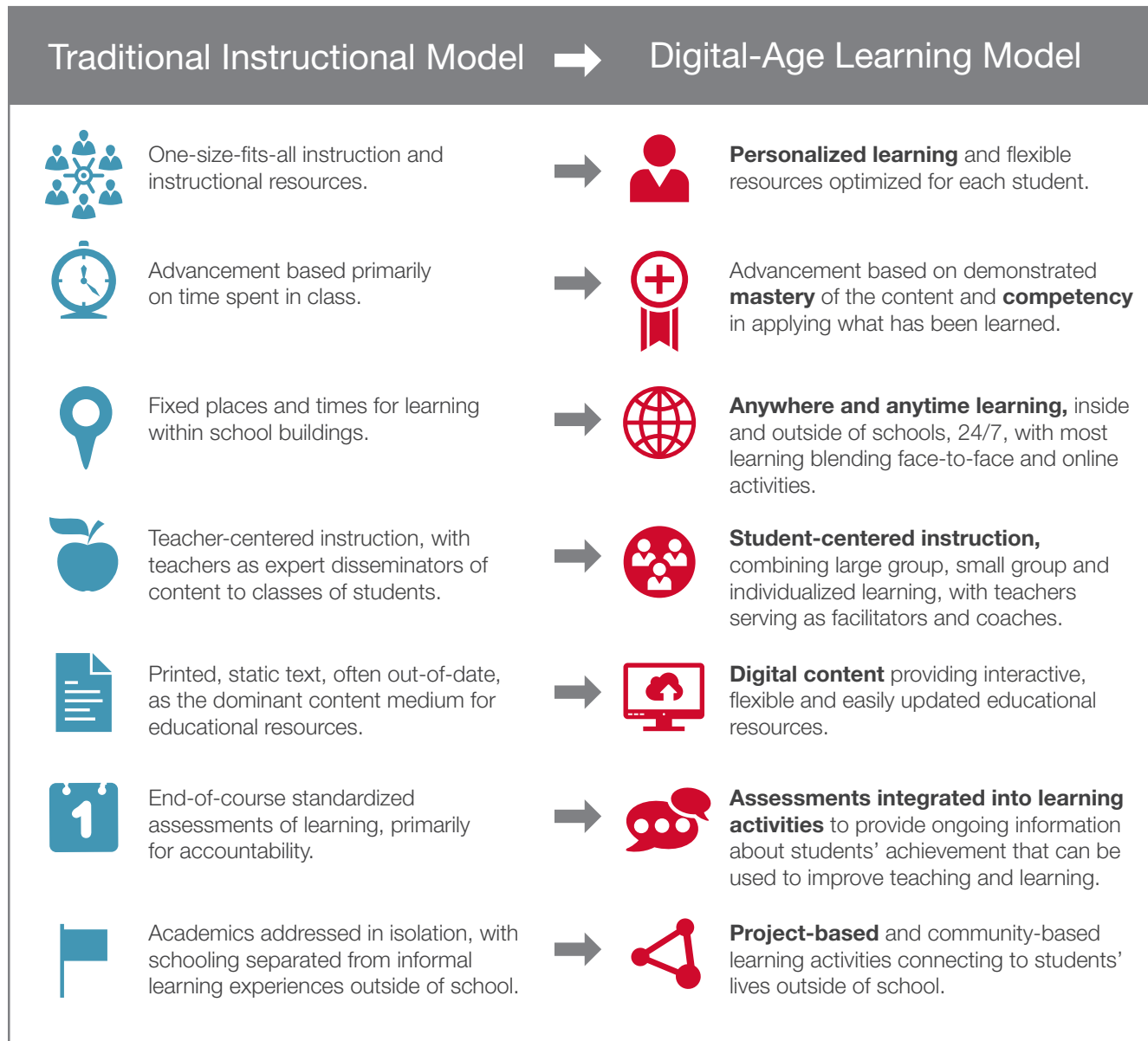
*The digital transition . . . will require changes in instructional practices, new types of educational resources, changes in classroom and school management, revised school staffing models, enhanced school and district technology infrastructure, Internet connected devices for all students and teachers, 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.*

The goal of the Digital Learning Plan is to build upon the existing foundation to develop a coherent long-term strategy that sets directions and priorities, supports innovation, and provides resources to enable the State’s educators and students to benefit fully from digital-age teaching and learning. The Plan provides recommendations for State actions that will guide and support K-12 schools in their transitions to digital-age education. This document summarizes the rationale and major recommendations of the Plan. The detailed Plan and additional background information are available at [ncdlplan.fi.ncsu.edu](http://ncdlplan.fi.ncsu.edu).

Once the State budget for fiscal years 2016 and 2017 is finalized, a specific action plan will be developed for those two years to move North Carolina’s transition to digital learning forward to the maximum extent possible within the available resources.

## WHAT IS DIGITAL LEARNING?

The Friday Institute’s work has been informed by K-12 digital learning transitions already underway in schools across North Carolina and beyond. While schools and districts are taking different approaches and moving at different paces in this transition, a number of common themes have emerged that clarify how digital-age learning differs from traditional instruction, as shown in Figure 1.

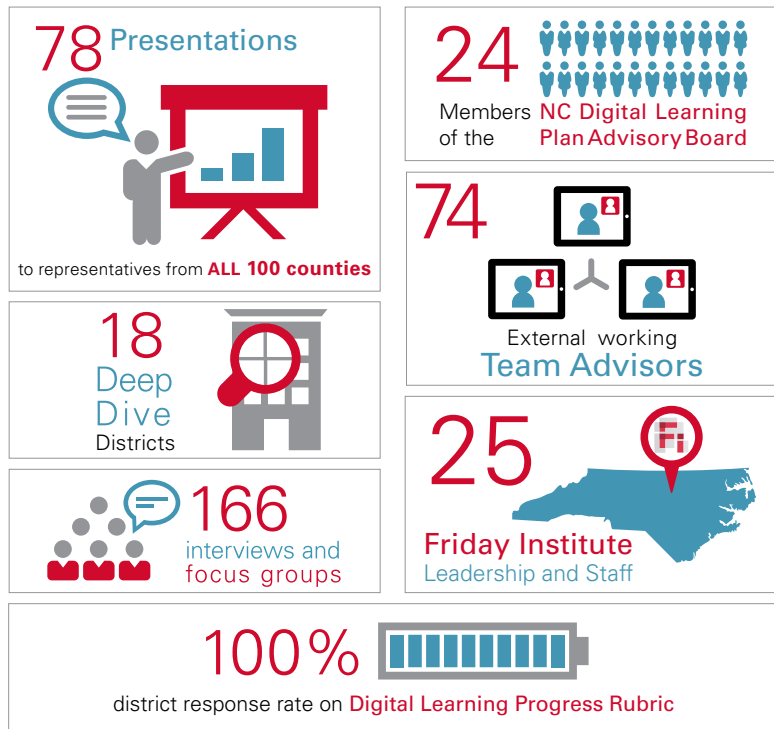


**Figure 1: Comparing Traditional and Digital-Age Education Models**

## THE PLANNING PROCESS AND FINDINGS

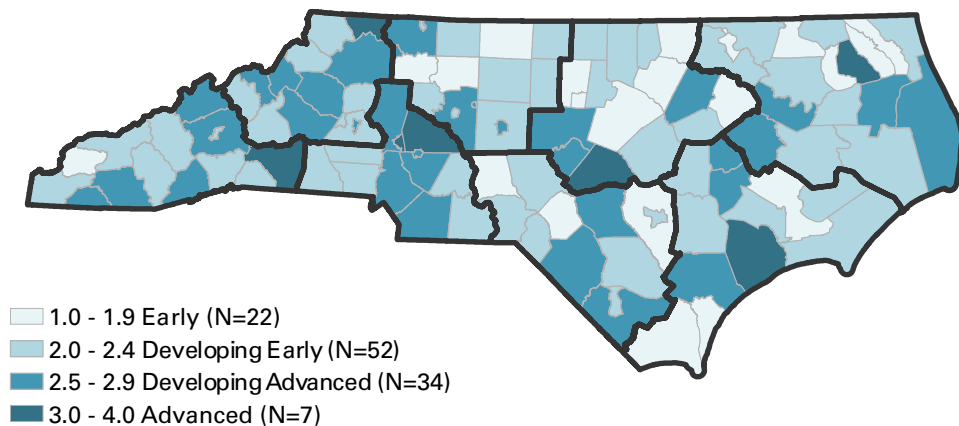
During the past year, the Friday Institute has led a multi-faceted planning process, building upon extensive prior work with schools across North Carolina; analyzing relevant data and model programs from across the State, nation, and world; conducting deep dive information gathering visits to schools and districts; and gathering input from representatives of all stakeholder groups, from elementary school students to school board members (Figure 2). Some major findings from this work include:

- All stakeholders agree that K-12 education needs to be updated to better prepare students for college, careers, and citizenship in the rapidly changing world.
- Innovative programs throughout North Carolina, implemented by creative and dedicated educators, provide strategies and lessons learned that can inform future digital learning initiatives.
- Districts with successful initiatives address all of the components of the transition to digital-age learning. For example, purchasing equipment does not lead to improved student achievement without well-developed plans to address leadership capacity, professional learning, content, instruction, and assessment.



**Figure 2: Input to the Planning Process**

- Districts are at very different places in their progress toward digital learning. Responses to the Digital Learning Progress Rubric<sup>1</sup> revealed that about 19% of the districts rate themselves at the early stage of the transition, while only 6% rate themselves at the advanced stage. Most districts are in the developing stage—incorporating some digital learning in some schools—but are far from implementing digital learning throughout the system. Figure 3 summarizes the district results. The charter school data show a similar range of responses.



**Figure 3: Overall Digital Learning Progress: District Self-Assessments**

## GUIDING PRINCIPLES

The North Carolina Digital Learning Plan builds upon a core set of guiding principles that reflect both relevant research and input from North Carolina educators and other stakeholders:

- Focus on teaching and learning, enabled and enhanced by technology.
- Leverage existing innovations, expertise, and resources from throughout North Carolina, while also building upon national and international models and research.
- Build school and district leadership capacity throughout the State.
- Engage teachers, administrators, students, parents, and other stakeholders.
- Ensure equity of educational opportunity for all students throughout North Carolina.
- Plan for long-term sustainability, continuous improvement, and an educational return on investment.

## RECOMMENDATIONS AND GOALS

The following pages address each of the following six areas:



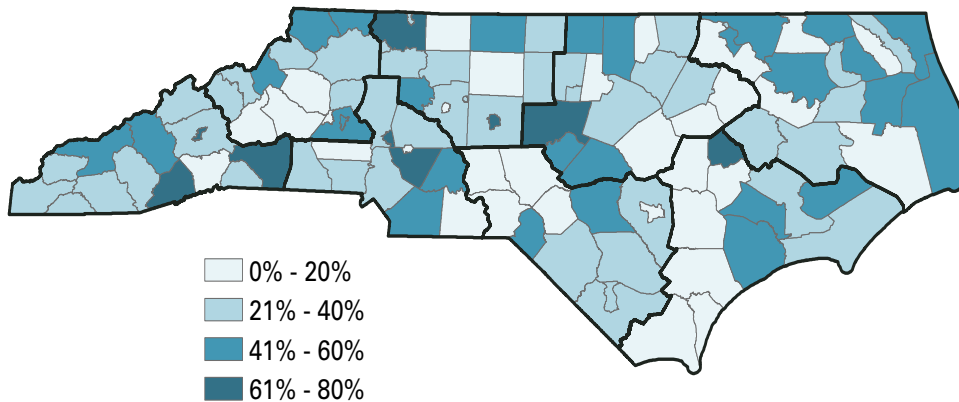
For each area, a summary of the current status of progress in North Carolina is provided, followed by recommendations for State actions and measurable goals for each action. More detailed information is available in the full Plan on the [ncdlplan.fi.ncsu.edu](http://ncdlplan.fi.ncsu.edu) website, which also contains data, analyses, and background documents that informed the Plan.

## TECHNOLOGY INFRASTRUCTURE AND DEVICES



An effective digital learning transition requires that students and teachers in every school have ready access to the technology required for digital teaching and learning. While North Carolina has made great progress in providing broadband access to all schools, further work is needed to provide Wi-Fi networks within schools and connected devices for all students and teachers.

Figure 4 shows the percentage of teachers, by district, who report that they have sufficient access to instructional technology.<sup>2</sup> As in other data relevant to digital learning, these show a wide range of responses across districts, with only a few coming close to meeting the technology needs of their students and teachers.



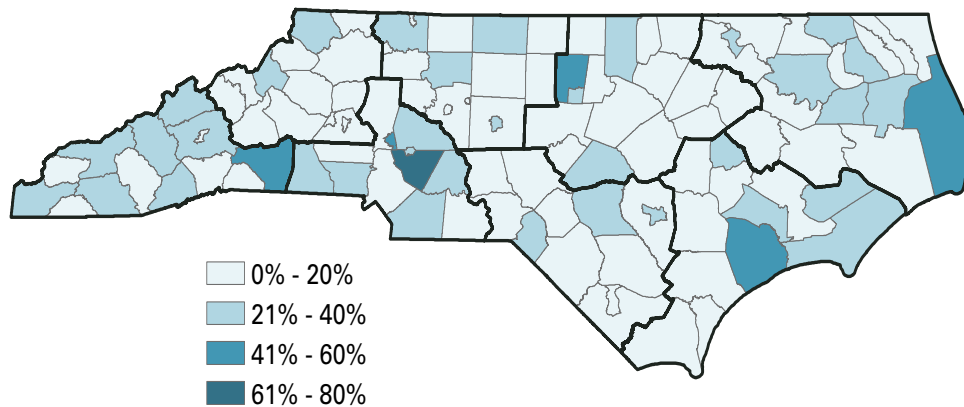
**Figure 4: Proportion of Teachers Reporting Adequate Access to Technology**

	RECOMMENDATIONS		GOALS
Expand the School Connectivity Initiative to provide and support broadband access, internal networks, and related services to all schools, while planning for increased bandwidth demands, replacement of outdated equipment, increased network engineering support, and ongoing funding.	All schools have sufficient network capacity to fully support digital learning in all classrooms and workspaces by 2018.  Sustainable funding and processes are available to maintain well-functioning networks in all schools thereafter.		
Provide guidance to inform local decision makers about purchasing networks, supporting infrastructure, and devices.	Ongoing increases are found in (a) teachers' and students' ratings about their access to technologies, and (b) the number of schools that provide devices to every student.		
Establish a statewide cooperative procurement service for networks, devices, and digital content.	Cost savings are obtained through economies of scale purchasing for both equipment and digital content.		
Participate in multi-agency efforts to provide broadband access for all homes.	All Districts are able to address community and home access to ensure digital resources are available to all students.		



## HUMAN CAPACITY



The digital learning transition requires that teachers and administrators are able to take full advantage of modern technologies. Statewide data show that much remains to be done; in only six districts did more than 40% of the teachers rate themselves as having sufficient training to fully utilize instructional technology (Figure 5).<sup>3</sup> On another survey, only 13 districts rated their leadership for digital learning to be at the advanced level.<sup>4</sup>



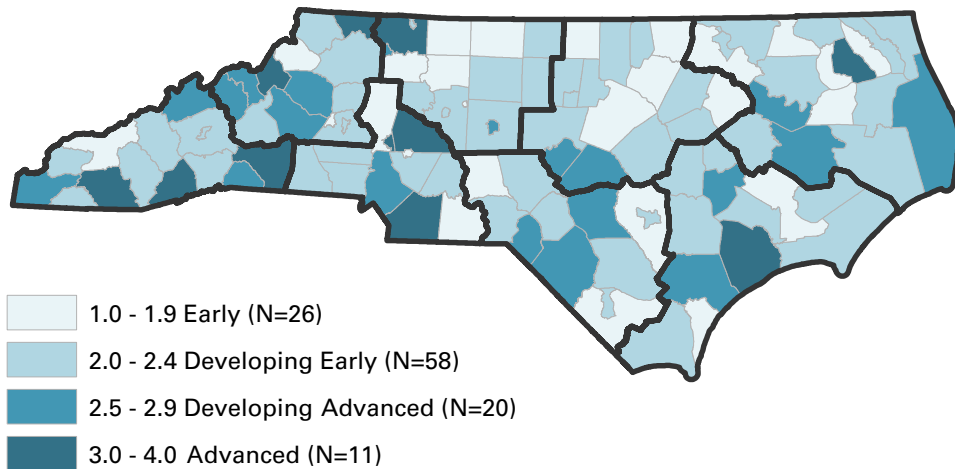
**Figure 5: Proportion of Teachers Reporting Sufficient Training for Technology Use**

 <b>RECOMMENDATIONS</b>	 <b>GOALS</b>
Develop and implement digital learning competencies for teachers and administrators as required by SL 2013-11.	All teachers and administrators demonstrate understanding and application of the digital learning competencies.
Provide professional development for school and district leaders, instructional support staff, and technical staff, in order to prepare local leadership teams to plan and implement successful digital learning initiatives.	All teachers and students report effective leadership and support for digital learning in their districts and schools.
Develop a network of professional development facilitators to prepare teachers for digital learning. Provide resources to support them in delivering face-to-face, online, and blended professional learning programs for teachers of all content areas and levels.	<p>All teachers report that they are prepared to effectively use digital learning to increase their students' engagement and achievement.</p> <p>All students report that their teachers use technology effectively to enhance learning.</p>
Guide teacher and administrator preparation programs to ensure that their graduates are ready for digital-age schools.	Superintendents, principals, experienced teachers and students report that new teachers and administrators are well prepared for their roles as digital-age educators.

## CONTENT, ASSESSMENT AND INSTRUCTION



Digital learning requires very different tools and resources than traditional learning. Curriculum resources are no longer static pages, but instead provide interactive, multimedia learning experiences, with embedded assessments of progress and personalized paths to learning. While there has been some progress statewide, most districts rate themselves at the early or early developing stage of progress in the use of digital content and instruction (Figure 6).<sup>5</sup> While, on average, districts rated themselves as more advanced on their use of data and assessment, most see the need for further progress in those areas as well.



**Figure 6: Digital Content and Instruction Progress: District Self-Assessments**

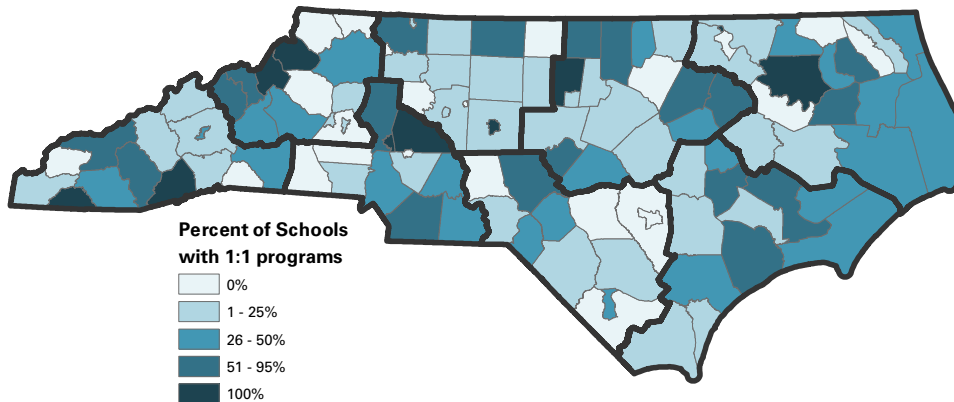
RECOMMENDATIONS	GOALS
Establish standards, review processes, and collaborative procurement for digital learning resources. Standards address curriculum content, personalized learning approaches, effective uses of technology, and technical requirements.	High-quality, personalized, interactive digital learning resources are available to all students. Effective systems are in place for teachers to select, create, organize, share, review, and use digital learning resources and curricula.
Support the use and sharing of high-quality open educational resources and teacher-created resources.	The cost of educational resources is reduced while maintaining quality and alignment with the North Carolina curriculum standards.
Provide digital tools that enable educators to use student data to improve teaching and learning.	All teachers use assessment data that enables them to personalize instruction and increase student achievement.
Update Home Base tools and support systems to further meet the needs of educators, students, and parents.	Home Base use increases significantly. Teachers, students, and parents rate highly the value of Home Base.

## LOCAL DIGITAL LEARNING INITIATIVES



While districts and schools maintain primary responsibility for ensuring digital-age teaching and learning for their students, the State has a role in guiding and supporting local education leaders in planning and implementing digital learning initiatives, and in ensuring that all students have equitable access to digital learning.

There has been progress in North Carolina, but much remains to be done. Figure 7 shows, by district, the percentage of one-to-one (1:1) schools in which every student has a connected digital device. While most districts report having at least a 1:1 pilot school, only 10 provide devices to every student in all schools. Overall, the 2015 data show 688 schools in 93 districts with 1:1 programs—more than twice the number shown in the 2013 survey. Some districts are planning to begin programs in Fall 2015, so the numbers of 1:1 schools will continue to increase.



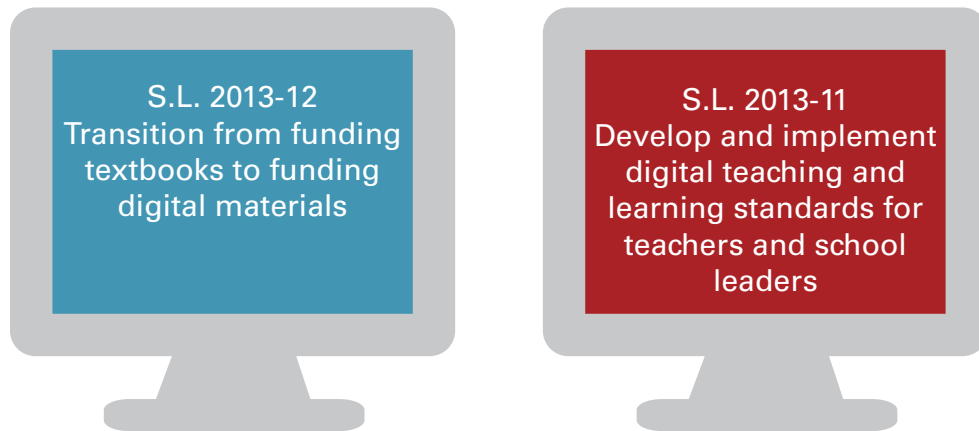
**Figure 7: Percentage of Schools with 1:1 Programs by District, as of June 2015**

	RECOMMENDATIONS		GOALS
Guide and support local leadership teams in planning and implementing digital learning initiatives through face-to-face, online, and blended activities, as well as a toolkit of resources.	All districts and schools advance on each dimension of the Digital Learning Progress Rubric.		
Provide grants to support the development and dissemination of local innovative digital learning models.	Effective digital learning practices are spread across all North Carolina schools.		



## POLICY AND FUNDING



The transition to digital learning requires updating legislation and policies to foster educational innovations, restructuring budgets for sustainable initiatives, and ensuring that all students have access to digital-age learning opportunities. North Carolina has already made important progress—for example, the legislation shown in Figure 8—but further work is needed.



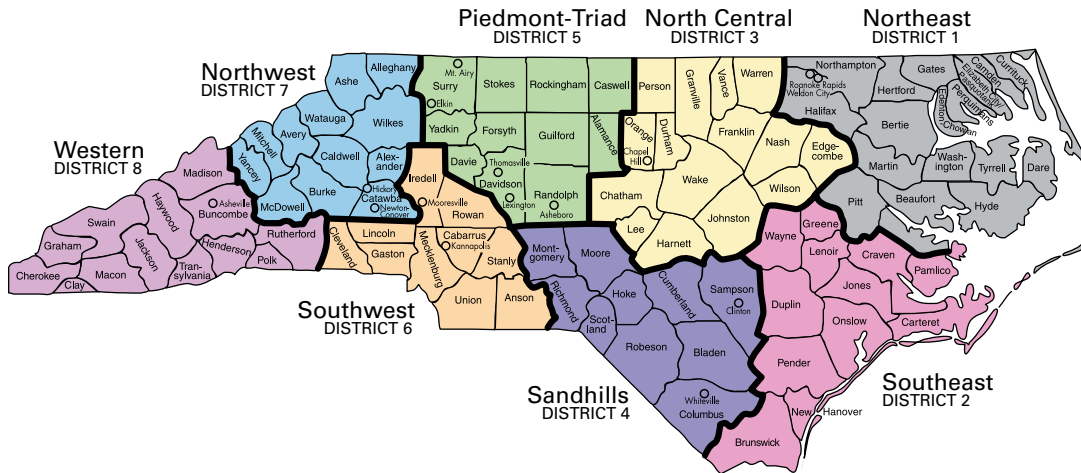
**Figure 8: North Carolina Digital Learning Legislation**

 <b>RECOMMENDATIONS</b>	 <b>GOALS</b>
Update State policies to provide support and flexibility for local digital learning innovations—including policies that support strategic staffing, mastery-based advancement, revised scheduling, and other innovations.	School and district leaders report that State legislation and policies support innovation and that barriers have been removed.  North Carolina is frequently cited as a national leader in digital learning innovations.
Provide guidance to help educators address privacy, security, copyright, and responsible use issues.	Schools have minimal problems with the misuse of digital technologies; structures and systems are in place to effectively address any issues that do occur.
Develop new State and local funding models to support and sustain digital-age learning.	Sustainable funding exists and allows for long-term planning.
Provide additional supports to ensure equity of digital learning opportunities for all students.	Access to digital learning is addressed as part of the State’s responsibility to provide a sound basic education to all students.



## REGIONAL AND STATE SUPPORT



A system of supports at both the regional (Figure 9) and State levels is essential to ensure progress across all schools and equity of opportunity for all students.



**Figure 9: North Carolina Education Districts**

 <b>RECOMMENDATIONS</b>	 <b>GOALS</b>
Establish the North Carolina Digital Learning Collaborative to manage the recommended State programs, with Executive Committee representation from NCDPI; the Friday Institute; the Golden LEAF Foundation; and the Principals, Superintendents, and School Boards Associations; and Advisory Board representation from all stakeholder groups.	Local education leaders report that statewide systems provide effective support for digital learning initiatives.  All districts and schools advance on each dimension of the Digital Learning Progress Rubric.
Establish regional digital learning networks to support digital learning initiatives and foster collaborations.	Local education leaders report that regional systems provide effective support for digital learning initiatives.
Implement a digital learning progress dashboard and data-informed continuous improvement processes.	Multiple measures demonstrate ongoing increases in statewide progress in digital learning and student achievement.

## **BUDGET CONSIDERATIONS**

The transition to digital-age strategies, resources, and tools in education requires investments—as in every industry. In education, the return on investment will be realized in terms of increased student engagement and achievement, graduation rates, and preparation for college, careers, and citizenry. While these do not provide a short-term financial return, the long-term financial benefits to the State of having an updated and improved education system are very significant.

The budget for a comprehensive transition to digital learning across all public schools must include the costs of the school network infrastructure, devices for all students and teachers, digital content, staffing to support the technologies and educational uses of them, professional development for teachers and administrators, and State and regional supports for the transition process. The full transition will involve funding from multiple sources, including the State, districts, federal agencies, foundations, and the private sector. Some of the funding can come from existing budgets, but additional investments will also be required.

Budget requirements in some categories are well defined. For example, based upon detailed analyses and past experience, completing and sustaining the networking infrastructure for every public school will require \$94 million per year, of which only \$32 million per year needs to come from North Carolina. Of this amount, \$19.9 million has already been allocated for the School Connectivity Initiative. The total \$32 million will leverage approximately \$62 million of annual investment from the FCC's E-Rate program, so the State's cost will be about \$20 per student.

Another major cost is devices for students and teachers. Here, there are a range of options—including tablets, Chromebooks, PC laptops, and Apple laptops—with significantly different costs, currently ranging from \$70 per year for a Chromebook to \$182 per year for an Apple MacBook. Schools may select different devices for different grade levels, or begin providing devices for every student in grades three or four. One set of assumptions—based upon current costs and ratios of types of devices, a four-year refresh cycle, and devices for all K-12 students—results in an estimated annual cost of \$155 million, or \$103 per student and teacher. If devices are provided only to students in grades four to twelve, the total estimated cost is reduced to \$129 million. To date, districts have funded the cost of devices, often with Title I federal funds combined with grants or other one-time funds. Ongoing planning needs to address both the sustainability of funding for devices and the ability of all districts and schools to provide devices to their students and teachers.

For digital content, we estimate a total cost of \$90 million per year, or \$60 per student, based upon the current budgets of leading digital learning districts. This is somewhat more than the current State budget recommendations for textbooks and digital learning resources.

Professional development funding at the State and local levels can be reallocated to digital learning, as is already being done. We recommend additional State funding of \$6 million per year to support the specific Human Capacity recommendations in this Plan. We also recommend that \$6 million be allocated annually for the recommended Regional and State Support Systems, in addition to existing funding that can be allocated to those supports.

The final recommendation requiring funding is to support Local Digital Learning Initiatives. The Golden LEAF Foundation has supported these in a number of economically distressed counties and plans to continue to do so, aligning their grant program with the Digital Learning Plan. Other districts have obtained grants and some have reallocated available funding for digital learning initiatives, often supplemented by some private sector support. State funding to support scaling model programs would move the digital learning transition forward more quickly.

## SUMMARY OF RECOMMENDATIONS

### I. TECHNOLOGY INFRASTRUCTURE AND DEVICES

Expand the School Connectivity Initiative to provide broadband access, internal networks, and related services to all schools.

Provide guidance to inform local decisions about purchasing networks, supporting infrastructure, and devices.

Establish a statewide cooperative procurement service for networks, devices, and digital content.

Participate in multi-agency efforts to provide broadband connectivity to all homes.

### II. HUMAN CAPACITY

Develop and implement digital learning competencies for teachers and administrators as required by SL 2013-11.

Provide professional development for school and district leaders, instructional support staff, and technical staff.

Develop a network of professional development facilitators to prepare teachers for digital learning.

Guide teacher and administrator preparation programs to ensure that their graduates are ready for digital-age schools.

### III. CONTENT, INSTRUCTION AND ASSESSMENT

Establish standards, review processes, and collaborative procurement for digital learning resources.

Support the use and sharing of high-quality open educational resources and teacher-created resources.

Provide tools that enable educators to use student data to improve student achievement.

Update Home Base tools and support systems to further meet the needs of educators, students, and parents.

### IV. LOCAL DIGITAL LEARNING INNOVATIONS

Guide and support local leadership teams in planning and implementing digital learning initiatives.

Provide grants to support the development and dissemination of local innovative digital learning models.

### V. POLICY AND FUNDING

Update State policies to provide the support and flexibility needed for local digital learning innovations.

Provide guidance to help educators address privacy, security, copyright, and responsible use issues.

Develop new State and local funding models to support and sustain digital-age learning.

Provide additional supports to ensure equity of digital learning opportunities for all students.

### VI. REGIONAL AND STATE SUPPORT STRUCTURES

Establish the North Carolina Digital Learning Collaborative to manage the recommended State programs.

Establish regional digital learning networks to support digital learning initiatives and foster collaborations.

Implement a digital learning progress dashboard and data-informed continuous improvement processes.

## **FOR MORE INFORMATION**

The North Carolina Digital Learning Plan website (<http://ncdlplan.fi.ncsu.edu>) provides the full detailed Plan, prior reports from the Friday Institute, summaries of data and findings from the planning project research, and links to other documents that informed the Plan. Additional and updated information will continue to be added to this website.

## **ENDNOTES**

- 1 A 25-item survey completed by all 115 districts and 120 charter schools in May 2015.
- 2 Data from the 2014 North Carolina Teacher Working Conditions Survey.
- 3 Data from the 2014 North Carolina Teacher Working Conditions Survey.
- 4 Data from the North Carolina Digital Learning Progress Rubric completed in May 2015.
- 5 Data from the North Carolina Digital Learning Progress Rubric completed in May 2015.
- 6 Data from the 2015 North Carolina Annual Media and Technology Report (AMTR) survey.

