NC Department of Public Instruction

2010 Agency Information Technology Plan

"DRAFT"

October, 2010

Table of Contents

Section 1 - Executive Summary

The Department of Public Instruction (DPI) 2010 Agency Information Technology (IT) plan was developed to comply with the North Carolina General Statute 147-33.72B, which mandates that each Agency submit a technology plan to the State CIO by October 1 of each even-numbered year. This plan contains information collected about the following topics:

- DPI business direction
- IT Strategy to support the direction
- Current IT Projects
- Race to the Top Initiatives
- Existing Production Application Portfolio
- Technology Services organization and objectives
- Expansion Budget Requests

The DPI goals and business direction are the key drivers in the development of the 2010 Agency IT Strategy for Fiscal Years 2011-12 and 2012-13. The business direction is influenced by the State Board of Education (SBE) mission, goals, objectives, and policies as well as Federal and State mandated requirements.

DPI Mission

"The guiding mission of the North Carolina State Board of Education is that every public school student will graduate from high school, globally competitive for work and postsecondary education and prepared for life in the 21st Century."

DPI Goals

- North Carolina public schools will produce globally competitive students.
- North Carolina public schools will be led by 21st Century professionals.
- North Carolina public school students will be healthy and responsible.
- Leadership will guide innovation in North Carolina public schools.
- North Carolina public schools will be governed and supported by 21st Century systems.

This plan is focused on the fifth goal as stated above.

On August 24, 2010, North Carolina was selected as one of the winners of the Race to the Top (RttT) federal grant. This will result in additional projects and funding to significantly expand efforts to develop systems that support the 21st

Century learning environment in North Carolina. These new RttT initiatives will focus on:

1. Fully implementing a statewide longitudinal data system (SLDS) to include P-20+ continuum.

2. Accessing and using State data based on a high-quality plan to ensure that data from the State's SLDS are accessible to, and used to inform and engage, as appropriate, key stakeholders (*e.g.*, parents, students, teachers, principals, Local Education Agency (LEA) leaders, community members, unions, researchers, and policymakers); and that the data support decision-makers in the continuous improvement of efforts in such areas as policy, instruction, operations, management, resource allocation, and overall effectiveness.

3. Using data to improve instruction, which includes NC teachers and principals having online access to an Instruction Improvement System via the statewide Learning Management System, a technology platform delivered through the reliable, efficient, and cost-effective Education Technology Cloud.

Please refer to the Race to the Top URL (http://racetothetop.nc.gov/Narrative.pdf) to access the full application, dated June 2010 from the Office of the Governor, Beverly Purdue.

Three major elements of the IT Plan are in place to provide the foundation and scaffolding for the RttT initiatives:

- **The Foundation:** Implementation of approved projects that were funded prior to Race to the Top and are the base for building RttT solutions
- **The Structure:** Pursuing organizational and technical objectives that support effective implementation and operation of RttT solutions
- **The RttT Solutions:** Major IT Initiatives that will make RttT a success in NC

In addition, the strategy has been heavily influenced by the need to do more with less. From 2008 to 2010 the DPI Technology Services (TS) organization has been reduced from 157 permanent employees, 36 FTE contractors, and 27 part-time contractors to 139 permanent employees and 6 FTE Contractors. The DPI 2010 application portfolio has increased even though we had staff reductions.

Fifteen legacy systems have been retired and/or replaced since 2008. There are 159 Production Applications currently in place that require support as compared to the 115 applications that were supported during the 2008 planning period. We can conclude:

- Production support requirements have increased by 38%
- Available FTEs have been reduced by 30% (includes elimination of contract employees)

This alone makes it necessary to be much more focused on:

1. Delivering the high priority initiatives that will lay the foundation for RttT over the next 18 months,

2. Supporting and streamlining the production application portfolio, and

3. Only adding other new initiatives after the 18 month timeframe.

The following new initiatives have been approved for delivery during the next 18 months and are the "Foundation" for our move to RttT:

Initiative	Purpose	Target Closure Date
Common Education Data Analysis and Reporting System (CEDARS) Data Warehouse & Data Reporting	Statewide Longitudinal Data System (SLDS) Core Data Warehouse Project and Reporting Project.	11/30/2010
NC WISE Hardware Refresh	Improve and stabilize the DPI technical infrastructure.	9/31/2010
NC WISE eSIS 12.1 Upgrade	Improve the DPI technical infrastructure with the latest NC WISE eSIS version 12.1.	01/31/2011
NC WISE CMS/WCPSS Integration	Integrate Wake County Public School System (WCPSS) and Charlotte-Mecklenburg Schools (CMS) student information systems with the state-wide NC WISE system.	09/30/2011
CECAS 2.0 Enhancements	Upgrade CECAS 1.0 to a state-wide EC solution to manage all Exceptional Children Processing.	10/31/2010
CIMS State-wide implementation	21st century Computerized Instructional Management System (CIMS).	01/31/2011
CTE /CIMS Analysis/Reporting Enhancements	CTE analysis and reporting enhancements to 21st century Computerized Instructional Management System (CIMS).	TBD
Grant Management System	Single source for all LEAs and schools grant	06/30/2011

Initiative	Purpose	Target Closure Date
	applications for improvement funds and activities.	
Licensure Automation System	Web based licensure solution to import and store information and to automate the completion, submission and routing of licenses.	12/31/2010
Child Nutrition System Server and OS Upgrade	Improve and stabilize the DPI technical infrastructure.	11/30/2010
Child Nutrition ETL (Data Integration) for Direct Certification and Validation (DCV)	Streamline sharing and reuse of Authoritative Source data.	09/30/2010
School Activity Report	Automating the SAR, data collection of every teacher's class information, courses, number of students, and course codes (required by General Statute G.S. 115C-47(10)).	TBD
NCVPS Learning Management System (LMS)	Learning Management System	06/30/2011
DPI AS/400 Cloud Computing	AS/400 cloud computing that provides a scalable architecture to enable LEA migration to this environment.	06/30/2011

In addition, the TS organization, with it's existing resources, will be focused on the following secondary objectives over the next 24 months:

- **Comprehensive Master Data Management and Data Quality Initiative**: Enhancing and enforcing comprehensive data management guidelines, standards, and policies for Authoritative Sources and Uses of data across the enterprise.
- **Data Sharing and Reuse**: Streamline sharing and reuse of Authoritative Source data by utilizing Managed File Transfer System for data exchange.
- **Incorporating Shared Services into Applications and Processes**: Consolidate the DPI infrastructure and standardize around key technologies to simplify our fundamental platforms and reduce operations/maintenance costs.
- **Process Improvement**: Significantly improve processes, improve quality, and reduce overhead associated with these processes.

These objectives build the structure for successfully implementing RttT Initiatives.

Finally, there are Expansion Budget Items that are not in the current plan that will need funding:

Initiative	Purpose
Parent Assistant	Allow parents access to their student's educational progress.
NC WISE Disaster Recovery	Provide for a Disaster Recovery solution in NC WISE that can support the environment after the eSIS 12.1 upgrade.
Building wiring and wireless connectivity to support the Accountability and Curriculum Reform Effort (ACRE) and RttT	Wiring and further deployment of wireless for the DPI building.

In this new era of continual transformation, increasing pace of change, fewer resources, and more work than ever, we must maintain a clear focus on our objectives. The "Foundation" and the "Structure" we will discuss in this plan will build a strong platform for building our ACRE and RttT solutions as they continue to evolve.

Section 2 - DPI Business Direction

The primary business direction for education in North Carolina revolves around three major entities:

- NC State Board of Education Goals and Policies
- Governor Perdue's *Career and College: Ready, Set, Go!* Agenda
- Race to the Top Initiative

The following section of this document will cover these three directions.

NC State Board of Education Goals

The guiding mission of the North Carolina State Board of Education is that every public school student will graduate from high school, globally competitive for work and postsecondary education and prepared for life in the 21st Century.

Goal 1 - NC public schools will produce globally competitive students.

Goal 2 - NC public schools will be led by 21st century professionals.

Goal 3 - NC public school students will be healthy and responsible.

Goal 4 - Leadership will guide innovation in NC public schools.

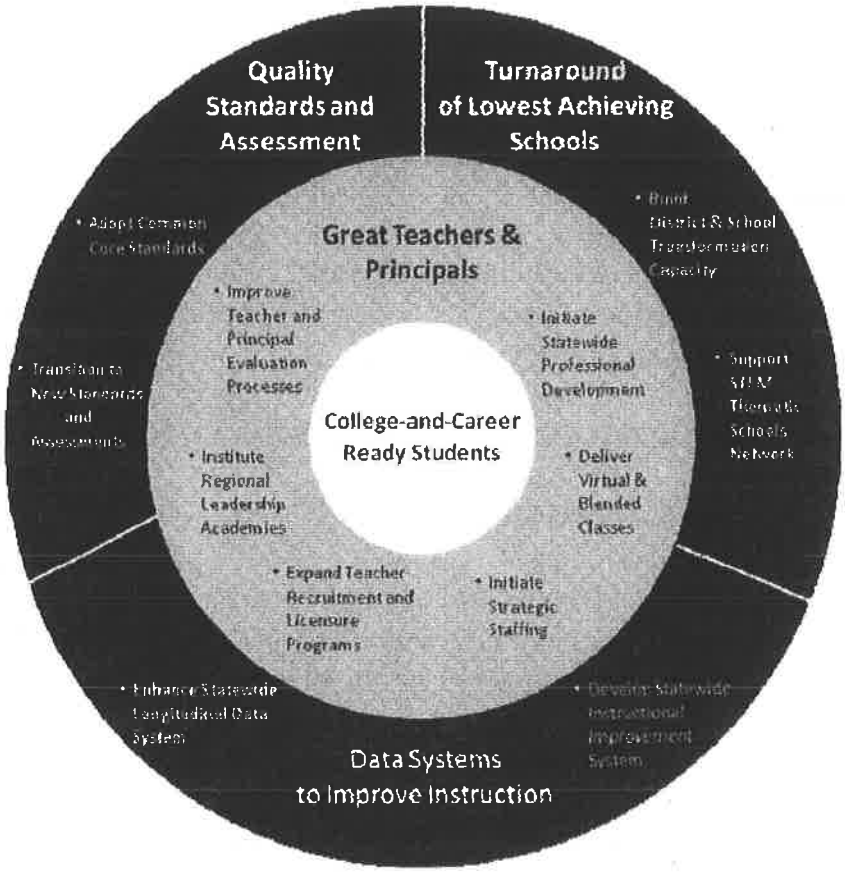
Goal 5 - NC public schools will be governed and supported by 21st century systems.

DPI's Information Technology function is dedicated to providing 21st Century systems to support the education of our youth in North Carolina.

Please see the NC State Board of Education website for more detail on our goals. (http://www.ncpublicschools.org/stateboard/about/goals)

Career and College: Ready, Set, Go! Agenda

Governor Perdue's *Career and College: Ready, Set, Go!* agenda provides North Carolina with an action plan for reaching these goals, as well as the framework for the RttT initiatives.



Ready, Set, Go – An Action Plan for North Carolina's Race to the Top

Overview of NC RttT Initiatives

On August 24, 2010, North Carolina was named as one of the 10 winners of the Race to the Top federal grant worth approximately $400 million in grant money. The following table provides an overview of the major initiatives and goals:

Initiatives	Goals
A. State Success Factors	
Technology infrastructure and Resources	• Establish PK-12 education technology "cloud" infrastructure to provide cost-effective and robust networking infrastructure for LEAs • Provide digital tools and resources to support all RttT initiatives • Prepare all educators to make effective use of online resources and tools
Evaluation and policy analyses	• Provide ongoing evaluations to inform continuous improvement of RttT initiatives • Provide summative analyses to inform future program, policy, and funding decisions

Initiatives	Goals
	• Conduct analyses of NC policies to inform the removal of policy barriers and the development of policies that support reforms
B. Standards and Assessment	
Transition to new standards and assessments	• Generate stakeholder support for transition • Ensure that all teachers understand the new standards and assessments • Ensure that stakeholders understand and use summative assessments effectively and appropriately
C. Data Systems to Support Instruction	
State Data Use	• Ensure that NC data are accessible to all relevant stakeholders • Ensure that all relevant stakeholders are prepared to make effective and appropriate use of the data (linked to Professional Development) • Ensure that all relevant stakeholders are prepared to make effective and appropriate use of the data (linked to Professional Development
Instructional Improvement System	• Increase the use of instructional improvement systems • Develop a statewide instructional improvement system to support curriculum-embedded assessments, diagnostic assessments, curriculum monitoring, and summative assessments to inform teacher planning and student placement decisions • Provide technology infrastructure to support effective use of the instructional improvement system • Prepare teachers to make effective use of the instructional improvement system • Improve student achievement outcomes, especially for low-performing students
D. Great Teachers and Leaders	
Teacher and principal evaluation processes	• Fully implement the new NC teacher and principal evaluation processes statewide, with student achievement growth data used as a significant component in the balanced evaluation
Performance incentives for lowest-achieving schools	• Provide opportunities to earn incentives based on student performance • Transition to classroom-level incentives by Fiscal Year 2012-13
Teacher effectiveness evaluation planning	• Develop, with the engagement of all stakeholders, a state-level, equitable, reliable, and transparent system for integrating student achievement growth data into evaluations for all teachers and principals
Regional Leadership Academies	• Increase the number of principals qualified to lead transformational change in low-performing schools in both rural and urban areas
Expand teacher recruitment and licensure programs	• Teach for America – Increase the number of TFA teachers in low-performing schools; focus recruitment on specific needs of each LEA • NC Teacher Corps – Using a TFA-like approach, recruit and

Initiatives	Goals
	prepare NC college graduates to teach in low-performing schools that are not served by TFA • Induction Support Program for New Teachers – Provide comprehensive, three-year induction program for novice teachers in low-achieving schools
Strategic staffing initiatives	• Support LEA development, implementation, and evaluation of programs to strengthen staffing in low performing schools and high-needs subjects and specialties
Research on effectiveness of teacher and principal preparation programs	• Use data and lessons learned to inform decisions about program improvements, expansion and closure.
Professional development	• Create, train, and support a cadre of teacher and principal professional development leaders to establish sustainable professional development capacity statewide • Develop resources (for workshops, professional learning communities, virtual courses, webinars, *etc.*) to support effective professional activities, with the capacity to create additional resources as needed • Align professional development with reform initiatives in the RttT plan • Expand the online professional development infrastructure to provide accessible and high-quality online professional development for all educators throughout NC • Evaluate professional development activities to determine the impact on teaching practices and student achievement, to inform continuous improvement of professional development activities
E. Turning Around the Lowest-Achieving Schools	
District and School Transformation support System	• Improve performance of all low-performing schools, with a specific target of moving all schools above the 60% performance level
Science, Technology, Engineering, and Mathematics (STEM) thematic schools	• Develop four coordinated STEM anchor schools, each focused on a major area relevant to NC economic development • Use the anchor schools as centers for professional development, curriculum development, technology use, and innovation to impact networks of STEM schools throughout NC

This table does not include related initiatives for which RttT funding is not requested, such as NC's ongoing work to develop updated summative assessments and to enhance the State longitudinal data system.

Governor Perdue's *Career and College: Ready, Set, Go!* agenda fits perfectly into the framework of the Race to the Top grant. Therefore, the focus for the remaining parts of this strategy surrounds the RttT initiatives and goals. Many of these initiatives are linked and mutually supportive in practice.

Section 3 - DPI IT Strategy to Support the Business Direction

The major driver of the IT Strategy is the Race to the Top Initiative. This section describes the major elements of the strategy and how they will be implemented.

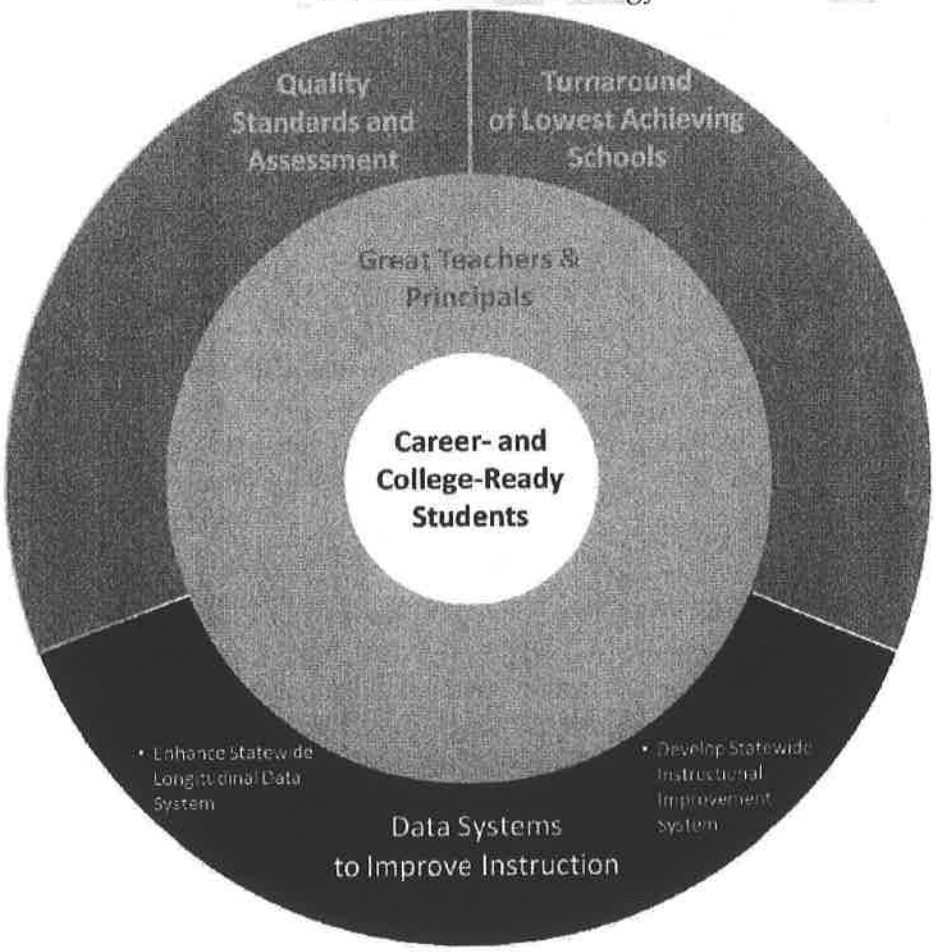
Key IT elements of the Race to the Top Initiative

The major technology focus areas for the RttT initiative are:

- Providing data systems that improve instruction
- Enhancing Statewide Longitudinal Data System supporting the America Competes Act of 2009
- Developing Statewide Instructional Improvement Systems

The following diagram represents the technology RttT focus areas.

NC RttT Information Technology Focus



North Carolina RttT Proposal

Fully implementing a Statewide Longitudinal Data System (SLDS)

In 2007, DPI received funding as part of the National Center for Education Statistics Institute of Education Sciences SLDS grant program to establish a robust PK-12 SLDS that includes statewide unique student and staff identifiers *that are not social security numbers*, as well as a comprehensive centralized statewide PK-12 data repository that supports trend analysis and exploration of the relationships between various education inputs and student outcomes. This new DPI technology system, called the Common Education Data Analysis and Reporting System (CEDARS) automates the reliable linking and analysis of data sets that in prior years had been assembled through labor-intensive manual processes. The unique identifier system is now in operation and already is improving data quality at the local education agency (LEA) and State levels. The CEDARS data repository, targeted for completion in October 2010, will automate creation of longitudinal data sets, enable users in DPI and the LEAs to produce standard and *ad hoc* reports through a powerful centralized, web-based business intelligence tool, and enable researchers to obtain mediated data extracts. Until the CEDARS repository construction is completed, DPI will continue to share data (now containing student and staff unique identifiers), consistent with current practice, with the agency and research center partners noted above.

The next phase in the continuous improvement of the NC SLDS has already begun. Since summer 2008, DPI has worked closely with NC's other education sectors and the NC Employment Security Commission to develop clear plans for an enhanced, robust PK-20+ SLDS, known as "NC P20+." Although DPI's 2009 proposal to USED requesting a PK-20 SLDS grant to support the NC P20+ initiative was not funded, NC will still push forward efforts to establish formal, statewide, collaborative governance and a technology infrastructure that will enhance accessibility, quality, interoperability, and use of shared data needed for sector-specific and statewide, cross-sector analysis and reporting.

While NC continues to improve our SLDS, by completing initial implementation of the CEDARS PK-12 repository and launching the NC P20+ initiative, we are merely enhancing a system that already contains all twelve of the America COMPETES Act elements.

The table below explains how the existing NC SLDS meets each of the 12 elements of the America COMPETES Act:

America COMPETES Act Element	NC SLDS Status
1. A unique statewide student ID that does not permit a student to be individually identified by users of the system [PK-16].	**NC has a unique statewide student ID that does not permit a student to be individually identified by users of the system [PK-16].** As part of CEDARS, DPI has implemented a statewide unique student and staff identifier system. Each student and staff person participating in all programs (pre-K through early college high school, which sometimes involves a grade 13) overseen by the NC State Board of Education (State Board) is uniquely identified, at their earliest contact with an State Board program, with a random number that is used strictly for educational management, evaluation, and planning purposes (*i.e.*, not a Social Security Number). As part of the NC P20+ initiative, the NC Community College System, University of North Carolina, and the Association of NC Independent Colleges and Universities have agreed to store the PK-12 unique student identifier with their student records to enable linkage across education sectors for purposes of analysis and planning. This agreement effectively makes the PK-12 unique identifier a statewide "NC P20+ unique identifier." The higher education and workforce sectors are working to streamline and automate the processes by which they access and store the NC P20+ unique identifier in their student data files. In addition, as part of the NC P20+ initiative, the education and workforce sectors will explore enriching the SLDS by attaching P20+ unique identifiers to historical data files.
2. Student-level enrollment, demographic, and program participation information [PK-16]	**All NC education sectors can produce student-level**
3. Student-level information about the points at which students exit, transfer in, transfer out, drop out, or complete P-16 education programs [PK-16].	**All NC education sectors collect student-level information about the points at which students exit, transfer in, transfer out, drop out, or complete P-16 education programs [PK-16].** DPI utilizes NC WISE for PK-12 and this information is loaded into the CEDARS Data Warehouse. These collection efforts will be improved and better coordinated across sectors as part of the NC P20+ collaborative efforts.
4. The capacity to communicate with higher education data systems [PK-16].	**NC's SLDS has the capacity to communicate with higher education data systems [PK-16].** The operational PK-12 statewide unique identifier system (established through CEDARS) enables all NC education sectors to access unique identifiers for students, subsequently enabling linkage of individuals' records across sectors. As noted in #1 above, NC higher education entities have agreed to adopt these unique identifiers. Work remains to improve automated data integration both within and across sectors by formalizing business and technology processes to access and store the unique identifier and to exchange linked data files;

America COMPETES Act Element	NC SLDS Status
	this enhancement work is targeted as part of the NC P20+
5. A State data audit system assessing data quality, validity, and reliability PK-16].	**Each NC education sector employs a data audit system that assesses data quality, validity, and reliability [PK-16].** DPI, the NC Community College System, and UNC all implement independent but complementary processes and procedures for enforcing sector-specific data quality, validity, and reliability standards. As part of the NC P20+ initiative, all the NC education sectors will collaborate to ensure the quality, validity, and reliability of the shared NC P20+ data set.
6. Yearly test records of individual students with respect to assessments under section 1111(b) of 1965 ESEA [PK-12]	**DPI has collected yearly test records of individual students with respect to assessments under section 1111(b) of 1965 ESEA [PK-12] data since the early 1990s.**
7. Information on students not tested, by grade and subject [PK-12]	**DPI has collected information on students not tested, by grade and subject [PK-12], since the early 1990s.**
8. A teacher identifier system with the ability to match teachers to students [PK-12].	**DPI has a teacher identifier system with the ability to match teachers to students [PK-12].** NC's PK-12 unique identifier system assigns a statewide unique identifier for each teacher employed by the public schools. This unique identifier is then stored by the State's student information system (NC WISE), which contains all students, their course/class enrollments, and the teachers associated with those courses/classes. Together, these data enable matching of students and teachers at specific grade levels and/or for specific courses for purposes of analysis and reporting.
9. Student-level transcript info., including information on courses completed and grades earned [PK-12].	**DPI captures and produces student-level transcript information, including information on courses completed and grades earned [PK-12].** The DPI-operated statewide student information system (NC WISE) collects these data, which can be transferred both between local education agencies (LEAs) and, through a partnership with the College Foundation of NC, between LEAs and UNC campuses.
10. Student-level college readiness test scores [PK-12].	**DPI has student level college-readiness test scores [PK-12]** of several types and forms. First, DPI reports student performance on State tests in terms of equivalent Lexiles and Quantiles. This research-based, criterion-referenced framework estimates the complexity of the work that a student is capable of completing, based on his or her performance on State tests in reading and math, respectively. The Lexile/Quantile scale enables comparison of a student's demonstrated capability to established benchmarks for the complexity of work required in college, the workplace, and the military. NC also has a statewide license enabling the DPI and all LEAs to access predictive reports from the Educator Value-Added Assessment System (EVAAS). These reports estimate a student's achievement

America COMPETES Act Element	NC SLDS Status
	trajectory based on past performance. DPI procures extensive Scholastic Aptitude Test (SAT) data from the College Board for all students taking the SAT. Also, NC provides funding for each student in grade 10 to take the PSAT and records score data from the College Board for those students.
11. Data that provide information regarding the extent to which students transition successfully from secondary school to postsecondary education, including whether student enroll in remedial coursework (postsecondary).	**NC collects data that provide information regarding the extent to which students transition successfully from secondary school to postsecondary education, including whether student enroll in remedial coursework (postsecondary).** DPI, the NC Community College System, UNC, and the NC Employment Security Commission collaborate on several standard tracking/reporting efforts (*e.g.*, Common Follow-up System, High School Feedback Reports, Freshman Performance Report) that address these topics. Through the NC P20+ initiative, these information products will be further refined and/or expanded.
12. Data that provide other information determined necessary to address alignment & adequate preparation for success in postsecondary education.	**In addition to those elements noted above, NC has rich longitudinal data that provide other information determined necessary to address alignment & adequate preparation for success in postsecondary education.** NC data, provided through the Duke Data Center, have enabled many, varied studies exploring the relationships between PK-12 education programs and policies, student performance, and student matriculation to and success in post-secondary education. These studies have included the following: • Using Lexiles to Support Instruction and Improvement in NC Schools • The Effect of *Teach for America* on Student Performance in High School • Study of the Efficacy of the NC Learn and Earn Early College High School Model • Effects of Summer Academic Programs in Middle School on High School Test Scores, Coursetaking, and College Major • Extending Opportunity in Higher Education: Starting and Finishing at Public Universities NC also is conducting an ongoing study examining the differential impacts on PK-12 student performance of teachers prepared in UNC teacher preparation programs. UNC is using the findings from the first wave of this study to guide its review and reform of teacher preparation programs (see Section D4). Expanding upon and enhancing this type of action-oriented research is a primary focus

America COMPETES Act Element	NC SLDS Status
	of the NC P20+ initiative.

Accessing and Using State Data

The State has a high-quality plan to ensure that data from the State's statewide longitudinal data system are accessible to, and used to inform and engage, as appropriate, key stakeholders (*e.g.*, parents, students, teachers, principals, LEA leaders, community members, unions, researchers, and policymakers); and that the data support decision-makers in the continuous improvement of efforts in such areas as policy, instruction, operations, management, resource allocation, and overall effectiveness.

DPI is poised to provide a range of stakeholders with enhanced capability to access important data through standard reports and *ad hoc* querying. In October 2010, implementation of the CEDARS longitudinal data repository and associated business intelligence tools will provide DPI and each LEA with improved access (through role-based security) to PK-12 data of multiple types (test scores, student information, program participation). DPI and LEA staff will be trained to use CEDARS business intelligence tools to produce annual and/or *longitudinal* reports relating various program and performance data across school years. By the end of the 2010, DPI will scale up statewide an operational data store and business intelligence tool associated with the statewide student information system, the NC Windows of Information on Student Education (NCWISE). Expanding this *operational* business intelligence capability statewide will enable every LEA to produce standard and *ad hoc* reports using student data during the course of the school year.

Using Data to Improve Instruction

NC is already working to increase the use of instructional data tools in classrooms and the effectiveness with which teachers and principals use these tools to improve student outcomes. Our RttT plan will ensure that every teacher and instructional leader in NC:

- Has ready access to a high quality instructional improvement system containing assessment and data analysis tools and guidance in how to use these tools to improve instructional practices;

- Has professional development that is sufficient to prepare him or her to use the instructional improvement system to address students instructional needs effectively; and
- Develops increasingly effective instructional and leadership practices that use data to improve student outcomes.

Our plan will also build on NC's strong history of providing data for researchers by ensuring that research relevant data are made easily accessible through the State Longitudinal Data System and the NC Education Research Data Center (Duke Data Center) at Duke University.

A Statewide NC Instructional Improvement System

As part of our RttT plan, we intend to extend the use of instructional improvement systems to more grade levels and subject areas, and to all schools in the State, through the provision of a statewide Instructional Improvement System that will yield specific instructionally relevant data for students, parents, teachers, and principals. All NC educators will be able to use the System to characterize accurately individual student learning at different points in time (*e.g.* today, the past month, this semester, this year), levels of specificity (about the entire course of study, units, individual standards, unpacked sub-standards or pre-requisite knowledge or skills) and levels of aggregation (about individual students, groups of students, students in particular buildings, grade-levels or teacher's classes). This comprehensive capability will allow teachers and leaders to develop an increasingly reliable understanding of what students know and are able to do, and to act on that knowledge to improve student outcomes.

All NC teachers and principals will have online access to the Instruction Improvement System via the statewide Learning Management System, a technology platform delivered through the reliable, efficient, and cost-effective Education Technology Cloud. In addition to the cost-efficiencies provided by this approach, having a common statewide System will simplify efforts to provide professional development to all teachers and principals regarding the use of the System tools. While the System will be provided centrally, however, it will enable local adaptations and extensions, such as the selection of specific sets of diagnostic items to use throughout a school or the addition of assessment items to match local curricula. This flexibility will be addressed as part of the core professional development regarding how to use the System.

The NC Instructional Improvement System will provide assessment tools that yield data for the following four distinct instructional purposes:

- ***Daily assessments embedded in instructional activities***. Creating a classroom environment in which students receive regular and specific feedback is a key to improving student outcomes. The System will support a variety of types of assessments designed to be embedded in instructional activities. For example, handheld tools and content-specific software like the two described above in the pilot programs will be supported to enable teachers to efficiently record student outcomes in real time. In classrooms equipped with such response tools and a large display device, the System will support activities in which the teacher quickly collects and displays the array of student responses to a question or problem to check students' progress or to stimulate discussions. The System will also enable teachers and students to create digital portfolios of student work (using digital cameras or scanners when the work is done on paper). In all cases, the System will enable teachers to collect ongoing information to review at the student, group, or class level to track progress, plan instruction, and provide information to students and their parents.

- ***Diagnostic assessment based upon learning trajectories***. In order to meet the needs of students - particularly those who are underperforming - teachers need information that provides insights about the students' progress in mastering key concepts and skills, and about student misconceptions that may be interfering with their progress. In other words, teachers need true *diagnostic* information that will enable them to help individual students mitigate their learning difficulties. In the RttT project, we will create a system of diagnostic assessments in mathematics and reading that builds upon the research on cognitive learning trajectories, *i.e.*, the sequences in which students effectively learn a subject area across grades and the concepts and skills that most commonly cause difficulties for students (Heritage, 2008; Confrey, 2009). This component of the Instructional Improvement System will be designed for teachers to use periodically, most often with students who are having difficulties, to pinpoint why a student is struggling and to make individualized instructional decisions based on an accurate, detailed student learning profile. This diagnostic assessment tool will be particularly powerful with students who are significantly below grade-level expectations and for whom grade-level tests are inadequate to provide the diagnostic information teachers need.

- *Curriculum Monitoring*. The System will support regularly checking student assessment data against instructional goals and expected curriculum pacing. The System's curriculum monitoring tools will enable teachers to periodically benchmark the overall progress of individuals, groups, and classes toward mastering the overall standards for the subject and grade. Similarly, these tools will enable instructional leaders to benchmark progress by class, teacher, grade, and subject area, to identify exemplary teachers and effective practices and to identify struggling teachers and provide them with coaching or other supports. These tools will also allow educators to engage students in achieving their learning goals by giving them access to their own progress data and to inform parents about their children's progress, accomplishments and areas for growth.

- *Summative Assessment for Teacher Planning and Student Placement*. The System will incorporate summative assessment data, based on statewide end-of-course assessments and other data, to inform overall planning at the classroom and school level. This component will use the Educator Value Added Assessment System (EVAAS). EVAAS is an analytical tool that uses up to five years of historical summative test data to calculate a precise measurement of individual student progress over time, as well as a reliable diagnosis of opportunities for growth. EVAAS can produce reports that predict individual student success on State end-of-grade and end-of-course summative tests, reveal patterns in subgroup performance, and estimate the impact of teachers and schools on student achievement. With this tool, teachers are able to assess student summative assessment data from prior years to see patterns of achievement, growth and areas of potential difficulty, and to plan for grouping students and the effective use of teacher aides and classroom volunteers. EVAAS offers teachers a meaningful look into their own effectiveness with individuals, sub-groups of students, and whole classes. EVAAS is also being used to inform student placement decisions. For example, an EVAAS predictive analysis can be used to estimate the probability that a student is prepared to be successful in Algebra I. EVAAS analyses have shown that 96% of the students predicted to be prepared for success in Algebra I received a passing grade. A related analysis showed that many students who are prepared for success in Algebra I are not enrolling in it, and that this is disproportionally true for minority students. These analyses are leading to an increase in the number of students taking Algebra I (Rivers, 2010). This type of analysis is now being extended to science and AP courses.

Finally, the Instructional Improvement System will provide teachers and principals with the capability to create customizable dashboards that will efficiently and accurately transform the various assessment data into useful information. The dashboard interface will:

- Support educators in developing an increasingly clear, reliable, and actionable picture of individual student performance and change in performance over time;
- Improve understanding of data by allowing users to view different data concurrently displayed in adaptable, easy-to-understand, and meaningful ways;
- Facilitate data-based discussions within and among professional learning communities;
- Set goals for changes in performance expected over time and monitor progress towards the achievement of those goals.
- Support teachers' classroom problem-solving and link to interventions or instructional resources connected to specific problems revealed in the student assessment data, as outlined in Section B3; and
- Draw on other centralized State data collections, to expand analysis capabilities by linking assessment data to key demographic, disciplinary, attendance and other non-academic achievement data

Statewide Technology Infrastructure and Resources: The K-12 Education Technology Cloud

Effective use of information and communications technologies is central to the NC plan to improve PK-12 education. These technologies are being used to enhance classroom teaching and learning; extend the educational resources available to every student and teacher; provide extended virtual learning opportunities for students, teachers, and administrators; improve the use of data in decision making at all levels; increase communications within the school community; and help prepare students for the technological world in which they live.

While a robust and reliable technology infrastructure is essential for 21st century schools, the current system of district-based acquisition and support of the full technology infrastructure is neither cost-efficient nor sustainable in small LEAs with limited resources. The alternative, frequently called a "cloud computing" approach, involves moving technology resources to centralized servers and then rapidly delivering what is needed, when it is needed, to individual devices, ranging from desktop computers to smart phones. This state-of-the-art approach

is used by technology leaders such as Amazon, Google, and IBM to provide Internet-based services and software. To directly support the RttT initiatives statewide, we propose to develop the NC PK-12 Education Technology Cloud (Education Cloud) to provide a highly reliable, cost-effective, server-based infrastructure that will support PK-12 education statewide. This development will involve transitioning statewide from individual, LEA-hosted server infrastructures to this centralized, cloud-hosted infrastructure as a service. The primary objective of the NC Education Cloud is to provide a world-class technology infrastructure as a foundational component of the NC education enterprise, along with:

- Reduced overall cost, with a significant savings once the transition to the Education Cloud is complete;
- Decreased technical support staffing requirements at the LEA level;
- Equity of access to computing and storage resources;
- Efficient scaling according to aggregate NC PK-12 usage requirements;
- Consistently high availability, reliability, and performance;
- A common infrastructure platform to support emerging data systems;
- Ability to provide statewide access to core technology applications;
- Improved security; and
- Sustainable and predictable operational cost.

Section 4 – Major Factors Influencing the Plan

Major factors influencing the plan consist of the following:

- State Board of Education's (SBE) mission, goals, objectives, and policies.
- Governmental Mandates that require DPI to implement processes and programs that meet or exceed Federal and State reporting requirements.
- IT Governance and Collaboration within DPI includes an enterprise governance structure through which a central decision-making body consisting of business and IT representation regularly reviews and manages the Agency IT project portfolio. In addition, collaboration with business owners through user groups is prevalent in the agency.
- Reduction in Force (RIF) Impacts the available staff to support the application portfolio. DPI has experienced significant reductions in force over the last two years.

Mission, Goals, Objectives and Policies of the State Board of Education

The guiding mission of the SBE is that every public school student will graduate from high school, globally competitive for work and postsecondary education and prepared for life in the 21st Century. The SBE goals and objectives for future ready schools are summarized in the following table.

NC SBE Goals and Objectives	
NC SBE Goals	**NC SBE Objectives**
Goal #1: NC public schools will produce globally competitive students.	**1.1** Every student excels in rigorous and relevant core curriculum that reflects what students need to know and demonstrate in a global 21st Century environment, including a mastery of languages, an appreciation of the arts, and competencies in the use of technology.
	1.2 Every student's achievement is measured with an assessment system that informs instruction and evaluates knowledge, skills, performance, and dispositions needed in the 21st Century.
	1.3 Every student will be enrolled in a course of study designed to prepare them to stay ahead of international competition.
	1.4 Every student uses technology to access and demonstrate new knowledge and skills that will be needed as a life-long learner to be competitive in a constantly changing international environment.
	1.5 Every student has the opportunity to graduate from high school with an Associates Degree or college transfer credit.
Goal #2: NC public schools will be led by 21st Century professionals.	**2.1** Every teacher will have the skills to deliver 21st Century content in a 21st Century context with 21st Century tools and technology that guarantees student learning.
	2.2 Every teacher and administrator will use a 21st Century assessment system to inform instruction and measure 21st Century knowledge, skills, performance, and dispositions.
	2.3 Every education professional will receive preparation in the interconnectedness of the world with knowledge and skills, including language study.
	2.4 Every education professional will have 21st Century preparation and access to ongoing high quality professional development aligned with State Board of Education priorities.
	2.5 Every educational professional uses data to inform decisions.
Goal #3: NC public	**3.1** Every learning environment will be inviting, respectful, supportive, inclusive, and flexible for student success.

NC SBE Goals and Objectives	
NC SBE Goals	**NC SBE Objectives**
school students will be healthy and responsible.	3.2 Every school provides an environment in which each child has positive, nurturing relationships with caring adults. 3.3 Every school promotes a healthy, active lifestyle where students are encouraged to make responsible choices. 3.4 Every school focuses on developing strong student character, personal responsibility, and community/world involvement. 3.5 Every school reflects a culture of learning that empowers and prepares students to be life-long learners.
Goal #4: Leadership will guide innovation in NC public schools.	4.1 School professionals will collaborate with national and international partners to discover innovative transformational strategies that will facilitate change, remove barriers for 21st Century learning, and understand global connections. 4.2 School leaders will create a culture that embraces change and promotes dynamic continuous improvement. 4.3 Educational professionals will make decisions in collaboration with parents, students, businesses, education institutions, and faith-based and other community and civic organizations to impact student success. 4.4 The public school professionals will collaborate with community colleges and public and private universities and colleges to provide enhanced educational opportunities for students.
Goal #5: NC public schools will be governed and supported by 21st Century systems.	5.1 Processes are in place for financial planning and budgeting that focuses on resource attainment and alignment with priorities to maximize student achievement. 5.2 Twenty-first century technology and learning tools are available and are supported by school facilities that have the capacity for 21st Century learning. 5.3 Information and fiscal accountability systems are capable of collecting relevant data and reporting strategic and operational results. 5.4 Procedures are in place to support and sanction schools that are not meeting State standards for student achievement.

In addition, the official policies of the SBE are a significant factor in DPI's Agency IT Plan. These policies are intended to move DPI forward toward the full implementation of the Excellent Schools Act and The ABCs of Public Education and in keeping with the Board's mission and priorities. The SBE policies can be found at the following link: http://sbepolicy.dpi.state.nc.us.

Governmental Mandates

The following table summarizes the Federal and State Mandates met through the projects and initiatives for the 2010 Agency IT Plan. The specific projects meeting each of these mandates are referenced in Section 5: Appendix I - Summary of Governmental Statutory Requirements.

Referenced Federal and State Mandates	
Federal Mandates	**State Mandates**
Federal Register: January 25, 2007 (Volume 72, Number 16), Rules and Regulations Pages 3697-3703	North Carolina General Statute 147-33
No Child Left Behind Act of 2001 (NCLB), Public Law 107-110, which includes McKinney Vento Act and all Title Programs	North Carolina General Statute 115C
Child Nutrition and WIC Reauthorization Act of 2004, Public Law 108-265, Section 126	North Carolina General Statute 1743
Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99)	North Carolina General Statute 15C
The Privacy Act of 1974, 5 U.S.C. § 552a	North Carolina State Law 2007-323 sec 7.28a-f

Referenced Federal and State Mandates	
Federal Mandates	**State Mandates**
Richard B. Russell National School Lunch Act, 79 Public Law 396, 60 Stat. 230	North Carolina State Law 2006-09
Carl D. Perkins Career and Technical Education Act of 2006, Public Law 109-270	North Carolina State Law 2006-66
Office of Management and Budget (OMB) Race and Ethnic Standards for Federal Statistics and Administrative Reporting, Statistical Policy Directive No. 15	North Carolina State Law 2005-414
Individuals with Disabilities Education Improvement Act (IDEA) of 2004 Re-authorization, Public Law 108-446, http://idea.ed.gov/	North Carolina Law 2008-107
American Recovery and Reinvestment Act of 2009; PUBLIC LAW 111-5—FEB. 17, 2009; America Competes Act	None

IT Governance and Collaboration within DPI

Governance:

The DPI Business Units and programs currently evaluate IT needs according to the following criteria:

- Enterprise - meaning the request would serve/benefit the entire Agency/enterprise and the customers they serve.
- Self-contained - meaning the request would serve/benefit the specific/unique Business Unit or units within a particular area/division and the customers they serve.

The Portfolio Management Committe (PMC), which consists of the State Superintendent, DPI Business Owners, DPI CIO, Business Support Services/PMO, and other Technology Services Management staff provides guidance and approves the project blueprint for all (enterprise and self-contained) projects.

DPI has implemented an enterprise governance structure through which a central decision-making body consisting of business and IT representation will regularly review and manage the Agency IT project portfolio to ensure that Agency resources are allocated in accordance with Agency strategic priorities.

Collaboration:

Many of the functional application areas in have implemented User Advisory Boards to help guide the direction of their application development and support efforts. The following systems are supported by UAB groups:

- NC WISE
- CECAS

- Accountability
- CEDARS

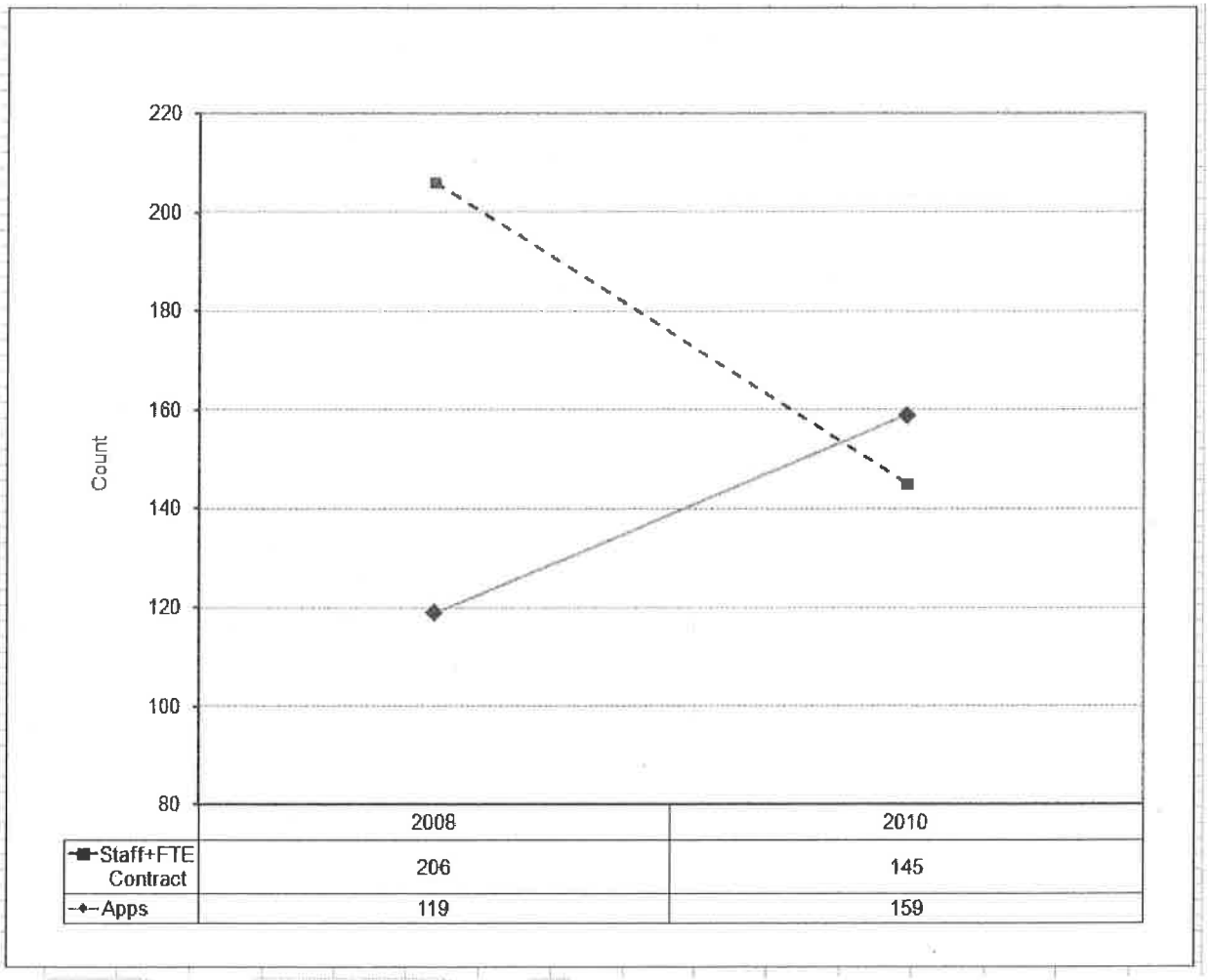
In addition, DPI has been participating in many state-wide IT collaboration efforts as shown below:

- CIO Advisory Council
- Inter-Agency Procurement Process Work Group
- EPMO Project Managers Advisory Group
- EPMO Methodology Work Group

Reduction in Force (RIF) Impacts

Over the past 2 years from 2008 to 2010 the DPI Technology Services organization has been reduced from 157 permanent employees, 36 FTE contractors, and 27 part-time contractors in 2008 to 139 permanent employees and 6 FTE Contractors in 2010. In 2009, the Reduction in Force actions required the elimination of 64 paid positions in DPI, of which 15 were IT positions. In 2010, another 10 IT positions were eliminated.

During the same period, the DPI application portfolio increased even though there were significant staff reductions. The following chart shows the project and production application count growth and the Technology Services staff reductions.



Applications versus Staff Level

Meanwhile, 15 Legacy systems have been retired and/or replaced. However, 159 Production Applications are currently in place and require support. As a result, the organization is challenged to do more with a great deal less. This alone makes it necessary to be much more focused on 1) delivering the high priority initiatives that will lay the foundation for RttT over the next 18 months, 2) supporting and streamlining the production application portfolio, and 3) adding other new initiatives after the 18 month timeframe. With the recent addition of RttT funds, we should be able to accelerate projects that are directly related to RttT.

Section 5 - Major Elements of the Agency IT Plan

There are three major elements of the IT Plan that are in place to provide the foundation and scaffolding for the Race to the Top initiatives:

- **The Foundation:** Approved Projects that were funded prior to Race to the Top and are the base for building RttT solutions
- **The Structure:** Organization and Technical objectives that support effective implementation and operation of RttT solutions
- **The RttT Solutions:** Major IT Initiatives that will make RttT a success in NC

The Foundation

There has been 38% growth in the application portfolio from 2008 to 2010. In the mean time the available resources are pushed more than ever toward maintaining more production applications while continuing to develop new ones. With this dichotomy, comes the need for an excruciating level of prioritization and focus. Over the next 18 months the IT organization will be immersed in 12 critical project areas that build the "Foundation" for the new RttT initiatives.

The following table identifies the Key Projects that will build this strong foundation.

Common Education Data Analysis and Reporting System (CEDARS)

CEDARS Current Projects					
Project Name	**Funding**	**Staff Resources**	**Schedule**	**Scope**	**RttT/Objectives**
CEDARS Statewide Longitudinal Data System (SLDS) Core Data Warehouse Project and Reporting Project	Currently fully funded through the CEDARS program. $3,344,835	The CEDARS projects currently have 7 fulltime internal resources assigned and a contract Program Manager. The plan is to apply 1 additional time-limited fulltime (analyst) internal resource. 15 Agency contributor resources are assigned at 5 - 40% to ensure stakeholder data integrity and enterprise considerations. Boston Consulting Group (BCG), working under a Gates Foundation Grant, is providing advisory services to the CEDARS program.	The SLDS target date for completion is 11/2010.	The SLDS project will identify all data elements required to produce the EDEN Data submission (EDFacts); research and define the required interfaces for all source systems (roughly 23 systems) to CEDARS required to produce the EDEN Data submission (EDFacts); implement the BASE SLDS data warehouse; and integrate with the UID. The planned solution is to utilize Oracle technologies.	Statewide Longitudinal Data System (SLDS)
CEDARS Reporting Project	Currently fully funded through the CEDARS program. $ 2,013,422	Same as noted above.	The Reporting Project is scheduled for completion in 05/2011.	The Reporting Project will procure a solution to enrich the data in the CEDARS data warehouse to include additional data elements from the initial 23 source systems used to populate the warehouse and will provide additional data elements from 6 additional source systems. This	Statewide Longitudinal Data System (SLDS)

CEDARS Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
				project will also build roughly 60 standard reports from the data in the CEDARS data warehouse and will install basic data analytic software to enable detailed analysis of the data in the CEDARS data warehouse.	

NC WISE Student Information System Improvements

NC WISE Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
NC WISE Hardware Refresh	Budget was approved June 2009. $ 13,268,288	Existing Operations and Data Management personnel were used o complete the refresh.	09/31/2010	Upgrade the NC WISE Hardware environment to newer, higher capacity servers.	Accessing and using State data
NC WISE eSIS 12.1 Upgrade	Budget was approved August 2010 $ 647,250	Current DPI staff is not adequate to support these major efforts due to vacancy and Reduction in Force efforts since FY 2009. Funding for additional staff needs through contracting resources approved.	01/31/2011	Upgrade current eSIS application environment to more current version. Update user documentation and training curriculum to support client base on new release. Verify that new Race/Ethnicity changes are compatible with existing data feeds	Accessing and using State data
NC WISE CMS/WCPSS Integration	Budget was approved August 2010 $ 3,712,280	Same as noted above.	07/30/2011	WCPSS and CMS eSIS student information systems will be integrated with the other state-wide systems as Data Center 18 and 19 in the Western Data Center. One single authoritative	Accessing and using State data

NC WISE Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
				source for all student information in the state of North Carolina which includes WCPSS and CMS will be established	
SAS AHR State Rollout	$ 3,893,902	Contract with SAS to provide project deliverables.	12/31/2010	This project will provide LEAs and charter schools a robust and comprehensive ad hoc reporting solution according to user requirements. The solution to date has delivered approximately 1100 data fields identified in the Ad Hoc Reporting requirements documents. This project will extend this capability state-wide. The project will also position AHR to replace the Reporting Hub system over time, which contains more than 300 distinct reports, many of which will be replicated in the new reporting system.	Accessing and using State data

Comprehensive Exceptional Children Accountability System (CECAS) 2.0

CECAS Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
Comprehensive Exceptional Children Accountability System (CECAS)	The primary source of funding for CECAS is the Federal	CECAS has two support staff that are contractors.. The project team also includes a contract PM and external	The plan for CECAS 2.0 enhancements are scheduled for completion in 11/2011.	The current CECAS scope includes the capabilities for case management, Individual Education Plans (IEPs) and accountability reporting for Special Education pre-K through grade 12	Accessing and using State data

CECAS Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
2.0	government. $ 6,273,307	development resources provided by the vendor. Two SME's that provide expertise from the business area. Four regional trainers that support two regions each. One Quality Assurance specialist that reviews the releases before rolling to production and one FSA that is responsible for business rules for the application.	The latest contract was signed February 2010 with the first round of enhancements delivered to production in June 2010 and a completion date of all items in the fall of 2011.	students attending NC schools to support compliance with Federal mandates. Also, the current servers are sun setting, so the three environments of hardware are being replaced. There is no mandate that all NC LEAs use CECAS: 5 LEAs have CECAS-like systems.	

21st century Computerized Instructional Management System (CIMS)

CIMS Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
Computerized Instructional Management System (CIMS) State-wide implementation	This project is be funded by a Federal grant from the government. Funding for licenses will be paid by withholding a	Vendor has been contracted for application deployment, administration and support. Internal staff will manage the rollout project and vendor management.	01/31/2011	The scope of this project is to procure and implement statewide a web-based online instructional and paper-based Computerized Instructional Management System to replace the legacy applications CMS95, TestMate Clarity, and iDEA as well as meet the increasing accountability standards. The new system must manage test	Using data to improve instruction

CIMS Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
	percentage of the Federal CTE funds allotted to the schools. $ 9,312,783			generation, test administrations, data collection, data validation, data reporting, item bank creation, item bank reliability, and item bank validation for Career Technical Education (CTE). The system must also manage CTE curriculum assessment item banks, scan and score student assessments, manage State and local assessments process, import student demographics, and export student data for analysis and reporting.	
CTE /CIMS Analysis/Reporting Enhancements	Same as above	Same as above	TBD	CTE Reporting enhancements for the above system	Using data to improve instruction

Grant Management System

GMS Current Project					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
Grant Management System (Comprehensive Continuous Improvement Planning - CCIP)	The Agency has approved funding allocations for this program to include funding from Title I grants,	External and internal resources as identified in the staffing plan are required to support this project. DPI will adjust staffing priorities as necessary.	This project is scheduled for delivery for Iteration 1 in FY 10-11 for Title I and EC. Proposed Iteration 2 will deliver in FY 11-12 for CTE Pilot	The project will obtain and deploy a regulatory-compliant tool to expedite Federal and State grant application processes to all NC K-12 Public Schools and Charter Schools. The current existing LPS Grants and Exceptional Children Grants systems will be modified to include Federal	Accessing and using State data

GMS Current Project					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
	Exceptional Children grants and Career Technical Education grants. $ 939,135		and Iteration 3 in FY 12-13 will complete CTE.	mandates as an interim solution for these existing systems until the enterprise-wide solution is complete.	

Licensure Automation System

CIMS Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
Licensure Automation System	Estimated Cost: $ 3,956,656	A Business Analyst (BA) will need to be identified and possibly funded for this project. This role is estimated at a six month effort at approximately $50K.	01/2012	The scope of the Licensure Automation System program is to build a consolidated application process and tool for LEAs, schools, and teachers that minimize paper applications, expedite submission of application, minimize data entry by office staff, and reduce status inquiries by applicants who strive to obtain a North Carolina teaching license. This application should be simple enough for non-technical users to create and submit a licensure application. The tool should also be easy for non-technical users to save copies of each application request submitted for their own files. The tool should also have	Accessing and using State data

CIMS Current Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
				the capacity to integrate with the current LMS system.	

Connectivity – AS/400 Cloud Computing

Cloud Computing Current Project					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
Connectivity - AS/400 Cloud Computing	This project was approved and funded to move forward in February 2010. $ 413,956	AS/400 environment SME, AS400 applications team, and testing staff, DPI BA, DPI PM.	Delivery 06/2011	This project will be to create an AS400 environment, hosted via a cloud environment, to initially host LEA partitions. The hosting provider will be responsible for physical hardware, connectivity, backups, and base operating system environment. DPI will be responsible for system configuration and operation as well as application support. The second phase of the project will involve the migration of the contents of DPI's current AS400 to the new environment.	Accessing and using State data

Child Nutrition System Upgrades and Integration

Child Nutrition Current Projects					
Project Name	**Funding**	**Staff Resources**	**Schedule**	**Scope**	**RttT/Objectives**
Child Nutrition System Server and OS Upgrade	$ 232,530		11/30/2010	Improve and stabilize the DPI technical infrastructure for the DCV application. Upgraded to newer software releases.	Accessing and using State data
Child Nutrition ETL (Data Integration) for Direct Certification and Validation (DCV)	$ 66,333		07/30/2010	Automating the Data Integration with Authoritative Sources in DCV (Direct Certification and Verification) for Free and Reduced Lunches	Accessing and using State data

School Activity Report

SAR Current Project					
Project Name	**Funding**	**Staff Resources**	**Schedule**	**Scope**	**RttT/Objectives**
School Activity Report	High Level Estimated Cost: $21,380	Internal Staff only: 500 hrs for PM, FSA, and Development 10% PM 40% FSA (Requirements and Design) 50% Programmers/Technical (Development & Implementation)	TBD	Automation of the SAR, data collection of every teacher's class information, courses, number of students, and course codes (required by General Statute G.S. 115C-47(10)). The current process has been in place for 20 years and is no longer timely and accurate.	Accessing and using State data

NCVPS Learning Management System (LMS)

NCVPS Current Project					
Project Name	**Funding**	**Staff Resources**	**Schedule**	**Scope**	**RttT/Objectives**
NCVPS Learning Management System (LMS)		Staffed by the NCVPS team.	06/30/2011	Learning management System	Using data to improve instruction

Enterprise Development Initiatives

NEED INPUT FROM Julien Alhour for Final Agency IT Plan

Enterprise Development Current Projects					
Project Name	**Funding**	**Staff Resources**	**Schedule**	**Scope**	**RttT/Objectives**
Accommodations Information Management System AIMS			08/2010		
CFD -Title 1 Part D, Neglected and Delinquent Students			05/2010		
CFD - Title 1, Part A Student Participation			07/2010		
CFD - Title 1, Part D, N&D, Aggregated collect non public school			07/2010		
CFD -Non Title I School Improvement			08/2010		
CFD - Title I , NCLB			08/2010		

Enterprise Development Current Projects					
Project Name	**Funding**	**Staff Resources**	**Schedule**	**Scope**	**RttT/Objectives**
School Improvement					
CFD - Title VI, RLIS			08/2010		
CFD - Title I Schools Identified for Improvement			08/2010		
CTE Analysis & Reporting Project			09/2010		
AMTR Re-Write			11/2010		
DPI - Human Resources Portal – Job Posting & Application Phase I			08/2010		Support RttT staffing effort
CFD - Title I, LEA Improvement			07/2010		
Child Nutrition ETL Automation & Enhancements			09/2010		
DPI - Human Resources Portal – Reporting Phase II			**TBD**		Support RttT staffing effort
DPI - Human Resources Portal – Recruitment & Orientation Phase III			**TBD**		Support RttT staffing effort

DPI/ITS Exchange Migration Project

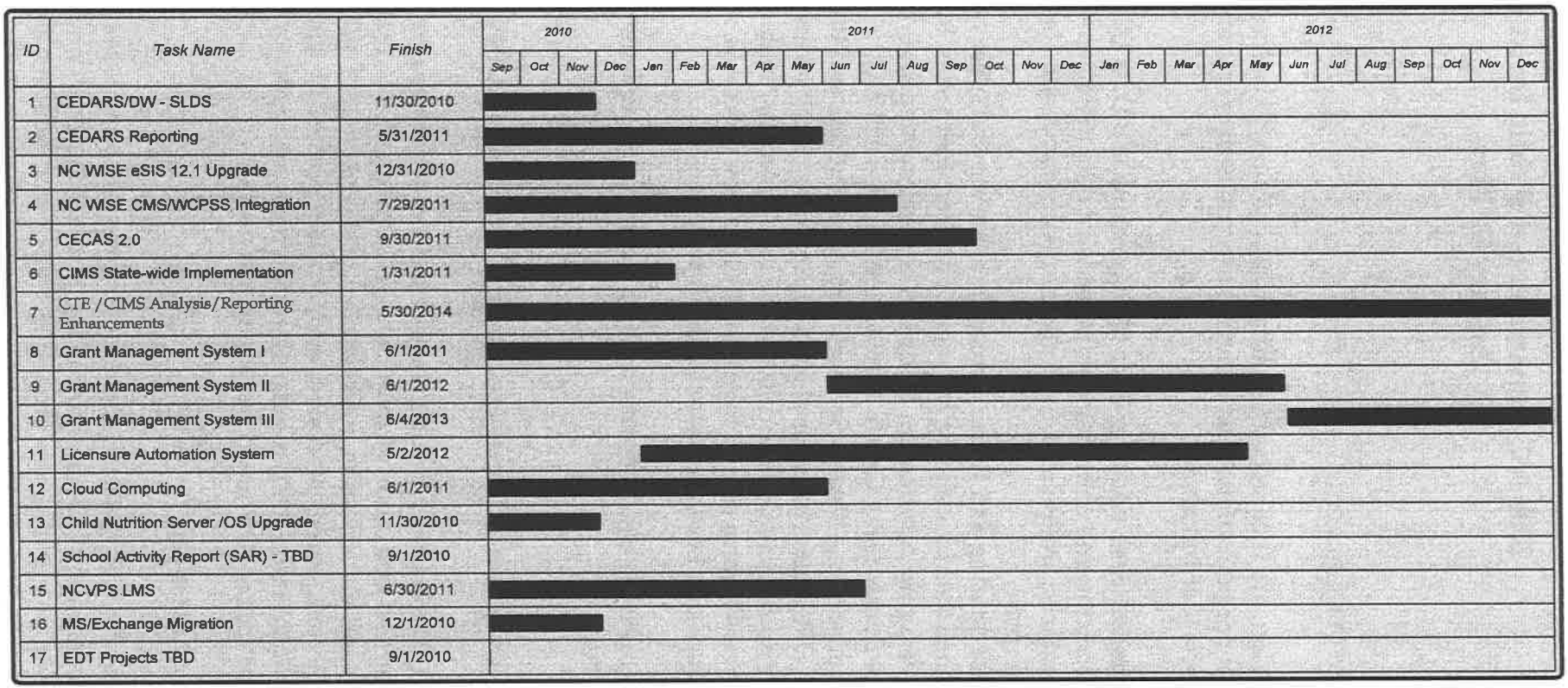
Enterprise Development Current Projects					
Project Name	**Funding**	**Staff Resources**	**Schedule**	**Scope**	**RttT/Objectives**
MS/Exchange Migration Project	This is an internally funded project. $ 388,582	A PM and trainer have been assigned. This will hosted and supported by ITS.	12/01/2010	The primary DPI business goals for this project are to continue to ensure secure and reliable email and calendaring in order to support worker productivity, while complying with government legislation for consolidation of services and the e-mail retention and archiving policy. By utilizing the service provided by ITS, DPI eliminates the need to manage and support its own email, calendar, and IM (Instant Messaging) systems. Thereby, creating more bandwidth for internal operational staff to attend to the needs of internal agency applications and requests.	

The above projects are all funded from the existing state funds and were planned and approved by DPI for implementation over the next 18 months.

Foundation Application Projects Roadmap

Over the next 18 months, the focus for the IT function within DPI will be on building the "Foundation" for RttT. The applications in the following list are those applications needed to ensure that all systems are "Go" for the RttT project.

ID	Task Name	Finish
1	CEDARS/DW - SLDS	11/30/2010
2	CEDARS Reporting	5/31/2011
3	NC WISE eSIS 12.1 Upgrade	12/31/2010
4	NC WISE CMS/WCPSS Integration	7/29/2011
5	CECAS 2.0	9/30/2011
6	CIMS State-wide Implementation	1/31/2011
7	CTE / CIMS Analysis/Reporting Enhancements	5/30/2014
8	Grant Management System I	6/1/2011
9	Grant Management System II	6/1/2012
10	Grant Management System III	6/4/2013
11	Licensure Automation System	5/2/2012
12	Cloud Computing	6/1/2011
13	Child Nutrition Server /OS Upgrade	11/30/2010
14	School Activity Report (SAR) - TBD	9/1/2010
15	NCVPS LMS	6/30/2011
16	MS/Exchange Migration	12/1/2010
17	EDT Projects TBD	9/1/2010



The Framework

In addition, the Technology Services organization will be focused on the following organizational and technical objectives over the next 24 months to enable the RttT Initiatives:

- **Comprehensive Master Data Management and Data Quality Initiative**: Enhancing and enforcing comprehensive data management guidelines, standards, and policies for Authoritative Sources and Uses of data across the enterprise.
- **Data Sharing and Reuse**: Streamline sharing and reuse of Authoritative Source data by utilizing Managed File Transfer System for data exchange.
- **Leveraging Application Delivery**: Leveraging application delivery timeframes using Oracle Application Express (APEX).
- **Incorporating Shared Services into Applications and Processes**: Consolidate the DPI infrastructure and standardize around key technologies to simplify our fundamental platforms and reduce operations/maintenance costs.
- **Process Improvement**: Significantly improve processes, improve quality, and reduce overhead associated with these processes.

These objectives build the structure for successfully implementing the RttT Initiatives.

Comprehensive Master Data Management and Data Quality Initiative

The NC Department of Public Instruction views data quality management as the creation and utilization of roles, responsibilities, policies, and procedures concerning the collection, maintenance, and reporting of quality data. Data that are collected, stored, processed, and/or disseminated by the NC Department of Public Instruction (DPI) information systems is an agency-wide resource that must be managed from an enterprise perspective.

Past Data Practices

Historically, DPI has been siloed by program area and reporting requirements. This separation of responsibilities has resulted in a lack of coordination of reporting timelines across programs, lack of trust between program areas, and lack of defined authoritative data. This disconnects, coupled with the lack of a unique student and staff ID resulted in duplicated efforts at all levels.

At the DPI level, North Carolina has multiple data collections that are best described as program specific collection. Joining data at the individual level from several collections was algorithmic and labor intensive. The result was questionable at best given the inability to match all records. At the LEA level, personnel were required to collect and enter multiple submissions of the same data elements.

Data Responsibilities

DPI divisions and managers of agency data are responsible for the timeliness, accuracy, understandability, availability and security of data under their stewardship. Data is a program area initiative not an IT initiative. IT plays an integral role but is not responsible for the collection and reporting of data. Each program area accepts responsibility and ownership of the quality of the data it is authoritative to maintain and report.

To improve data practices, DPI has an established a data management governance structure. This structure consists of clearly articulated processes designed to ensure agency compliance with State statutes, NC State Board of Education (SBE) policy, and best practice standards for data management, data standardization, data certification, and data life cycle management.

Data Management Group

The Data Management Group (DMG) is the official oversight body that is accountable for department data. This group sets the standards for enterprise data authoritative sources and sharing amongst all participating systems. The Policies of the DMG fall into five categories: Data Quality, Data Security, Communication, Information and Needs Analysis, and Research Facilitation. The DMG's objectives are to reduce effort for schools/LEAs/SEA; provide consistent data definitions; and provide higher quality, more accurate and timely data.

The DMG supports DPI's efforts to achieve the SBE's mission, by ensuring data quality, accountability, and timeliness, all of which are essential to enabling data-driven decision-making. The Data Management Group has authority to set policy over data integration between information systems because data integration is a key technical means of standardizing common data across systems and improving the quality of that data.

Furthermore, the DMG is authorized to direct the publication of data by an information system which has been deemed authoritative for that data by the

DMG. The scope of authority granted to the DMG regarding publishers and subscribers includes specification of the content and format of data publications as well as the required frequency of their publication and the acceptable lag time permitted between publication of data and consumption by subscriber systems.

DMG Leadership and Members

The DMG is chaired by the Enterprise Data Manager. The Enterprise Data Manager position resides in the Superintendent's Office within Policy and Strategic Planning. This structure allows the position to function as an advocate of the entire agency rather than as a proponent of a given area of the agency. In addition to the chair, the group is composed of fourteen area representatives. The program areas that make up the Data Management group are:

School Business Services
Exceptional Children
NC WISE
Accountability Operations
Limited English Proficient and Immigrant
More at Four
Academic Services and Instructional Support
Uniform System of Disciplinary Data Collection & Dropout
Title 1 Part A, C, and D, Title VI Part B, and Title X
Career and Technical Education
Licensure
Web Services and Publications Sales
Educator Recruitment & Development
District and School Transformation
Technology Services

Current/Past Practices

File sharing of data is currently the method of sharing authoritative data. This is a cumbersome and labor intensive method of moving data across partner data systems. It is not limited only to resource limitations and costly; it allows errors from manual intervention to potentially impact data quality.

Present/Future Practices

DPI is employing a Managed File Transfer System (MFTS) to exchange data between source systems. The objective is to populate all subscribing systems with authoritative data so that they can provide consistent data while at the same time reducing effort.

Data Sharing and Reuse

The integration of data across systems remains the single most important activity we can undertake to improve the quality of data in our applications and reduce the effort we expend to get it. When we capture the same data in different systems from sources of original entry, we introduce an opportunity for data inconsistency between systems. This data inconsistency is the single largest source of poor data quality across the Department. To improve data quality, we must first establish data consistency. Our strategy for doing this has been to develop the Middleware Team and assign this group responsibility for standardizing and simplifying data exchange between systems. They have developed a Managed File Transfer Service (MFTS) as an initial step in this direction. This service provides a standardized file pickup, routing, and delivery services that are available to all participating applications. This service is being used heavily by the CEDARS projects to move data between applications and the new Staff and Student Unique Identifier Systems, and will also be the primary movement mechanism from source data systems to the CEDARS Data Warehouse.

Working in conjunction with the newly developed policies from the Data Management Group, it is our intent to require use of the MFTS for all new data exchanges between systems. In addition, we intend to replace existing point-to-point data exchanges as time and resources permit. New projects should include MFTS data integration plans. Systems that do not provide data to or consume data from other systems using the MFTS will be scrutinized very closely indeed. The Managed File Transfer Service developed by the Middleware team for the purpose of facilitating Enterprise-level application data integration is the prescribed method of integration. Any other similar file-sharing-based solutions should be migrated toward MFTS. Candidates for the migration towards MFTS are:

- File transfer solution as part of the SNA-network replacement project
- File transfer solutions which provide extracted data from the NCWISE environment to school districts.

Incorporating Shared Services into Applications and Processes

Shared services provide a common service to many consuming applications or processes. The needs for these services are usually very similar across applications, which lends support to the development of an external service approach. Databases are one of the best examples of shared services. Almost all applications need to create, retrieve, update, delete, and query data. Database

Management Systems (DBMSs) provide these general services with high integrity and performance attributes, so most applications today simply use the services of a DBMS rather than create their own data management service. Important shared services in the DPI environment include the NCID and NC Trust Identity Management and Authentication services. These services extract much of the work of user account management and security out of applications. In many cases much of the work of managing the accounts through these services is actually transferred to the account holder themselves, reducing the need for staff to perform these tasks at DPI, LEAs, and Schools. An example of a shared service within a process is gForge. This service provides project collaboration support for any project at DPI and is very self-service oriented.

As a general principle we should be using shared services where they are available. Use of NCID or NC Trust will be the default expectation for all new systems. GForge is the default project collaboration and change management support service. Similar services such as the Rational Software Suite should be migrated to gForge as quickly as possible to eliminate software costs associated with them.

Projects and Programs should use the Oracle Database wherever possible. The Statewide contract for Oracle products allows such projects and programs to use the Oracle products without additional licensing cost.

The impact of having too many technologies at work in an organization is often difficult to see from within a program silo. It is only when we begin to connect different programs together than we realize that differences in our technology choices have real impacts on everything from what it is possible to do with a technology to the terminology and design constructs familiar to the people that work with it. The net result of this is that for the most part, we are limited to small systems, small projects, and small impacts. Large scale efforts require teams of people with the specialized expertise needed by more demanding projects.

The preferred software construction and service technologies are:

- Oracle DB technology
- Oracle Service Oriented Architecture for data sharing
- Oracle Business Intelligence Plus (OBIEE+) for reporting
- Oracle Apex Rapid Development for Data Collection Applications
- Use NCID and NC TRUST for user authentication
- GForge for change and configuration management
- Utilize cloud-based computing services for legacy systems

Major Projects/Programs Advancing Our Technical Positions

NC WISE – Ad Hoc Reporting (AHR)

NC WISE will continue as the student information system in North Carolina. It is provisioned at the State level for all LEAs and represents the largest system in the application portfolio and the largest dollar investment in information technology ever made in the NC education space. The ad hoc reporting project under the NC WISE program area will drive development/growth of an Oracle RAC database implementation in conjunction with the CEDARS data warehouse.

Today, NCWISE-AHR is at a junction with regards to selecting the application server infrastructure and reporting tool. Short-term, the program needs to consider using Open-Source application servers to avoid costly maintenance and support cost. Application servers such as JBoss provide this avenue. Long-term, the implementation should follow the strategic direction of the reporting solutions at DPI.

An end-of-life date for the reporting hub should be issued. This work-around solution was implemented as a stop-gap measure during the deployment of NCWISE and NCWISE-AHR takes its place.

CEDARS Enterprise Data Warehouse

The Common Education Data Analysis and Reporting System (CEDARS) Data Warehouse is an enterprise level data warehouse that will receive data from many source systems throughout the DPI and organize them in a commercial education data warehouse system provided by eScholar. This project is spearheading the use of Oracle Business Intelligence tools for report development and data analysis. It will also be the largest near-term customer of the managed file transfer system as flows of data from source systems are routed to the data warehouse via the MFTS.
To support the OBIEE environment Technology Services needs to build a new Center of Excellence. This center should provide:

- Data integration of various resources into the Ware house.
- Maintain the data dictionary of all data fields and their metadata.
- Interface with the Shared Service (MFTS) team to manage data movements to the DWH

- Data architecture modeling to enhance reporting and data analysis.
- Front-end support to help businesses to build Information portals and dashboards.

The NCWISE-AHR project needs to consider replacing SAS-BI with OBIEE+ since OBIEE + is covered by the Statewide Oracle Licensing contract.

CEDARS Unique Identifier (Staff/Student)

The CEDARS Staff and Student Unique identifier (UID) projects were acquired to provide identity management functions at an enterprise level. As these systems are fully implemented they will bring source system data into sync with a common indexing key that the UID system provides. This key is critical to managing student and staff identities across disparate information systems and insuring that data in the CEDARS data warehouse is reliably connected to staff and students.
The UID systems also provision web services that should be the first cross application service calls we see used in the Department. We have applications like HRMS that use web service technologies.

- Data shared among different system require the student/staff ID to present.
- Applications need to embrace and implement direct and indirect interfaces with the UID system as a priority. (During record creation dynamic data lookup using web services and other match-code technologies)

Server Moves to ITS

This project furthers the area of infrastructure consolidation by shifting approximately 60 servers from the DPI data center to ITS data center hosting. It is a cornerstone in the longer term effort to close down the DPI Data Center. The approach that will be used to accomplish this move is still be determined, but it will likely involve server by server movement following a pattern established through research into the interconnections between servers and resources they use, application component locations and how those might be re-engineered to achieve better price/performance tradeoffs, and general application design improvements.

- More importantly: IT technical staff focuses on business requests and business challenges rather than technical computer-platform maintenance, issues, and problems.

- Address the rising cost of infrastructure components for the Ops room (cooling, fire, etc)

System Security

The built-out of a proxy-tier started more than a year ago as part of addressing specific security needs to APEX applications hosted in the Eastern Data Center. The proxy tier is a fail-over/redundant environment and was built based on repurposed servers from the J2EE environment which is also protected by the proxy-tier.
In fall of 2010 the production environment of APEX will be moving into the Western Data Center and a new proxy-tier environment will be required. The proxy-tier needs to serve all NC-DPI applications (if applicable) hosted in the western data center to avoid building individual proxy-tier server environments. As of June 2010 plans are being developed to build a new proxy-tier environment for the eastern data center which will replace the current APEX production environment as part of the move of APEX to the Western Data Center. The current APEX production environment will be used as a test/QA proxy environment in the Eastern Data Center. The plans of building the new Eastern Data Center proxy-tier environment includes:

- The CECAS project: The project currently undergoes a hardware refresh and as part of this move will provide one proxy-tier server to be used for CECAS but also for all other enterprise-level web-based application.
- The CRE project: The project currently undergoes a hardware refresh and as part of this move will provide one proxy-tier server.

Both projects are spearheading the effort to provide the commonly used proxy-tier within the Eastern Data Center. In the future the project teams will work on a charge-back cost model which will require web-applications to pay a share of the proxy-tier security protection.

iSeries Consolidation/Retirement

This project will be to create an iSeries environment, hosted outside of DPI, to initially host DPI and LEA partitions (or other architecture solutions). The hosting provider will be responsible for physical hardware, connectivity, backups, and base operating system environment. DPI will be responsible for system configuration and application support. The second phase of the project

will involve the migration of the contents of DPI's current iSeries to the new environment.

Projects/Programs using the iSeries or iSeries-related components (i.e. DB2) will be evaluating options to migrate toward the Oracle standard technology platforms outlined in this document. However, this is beyond the scope of this document.

Managed File Transfer System Expansion

The managed File Transfer Service developed by the Middleware team for the purpose of facilitating Enterprise-level application data integration is the prescribed method of integration. Any other similar file-sharing-based solutions should be migrated towards MFTS. Candidates for the migration towards MFTS are:

- FTP solution within Accountability
- File transfer solution as part of the SNA-network replacement project
- File transfer solutions which provide extracted data from the NCWISE environment to school districts.

APEX Development

APEX development is not a project so much as it is a generally provisioned and supported development and production runtime environment. What makes it important to the technical direction is the manner in which acts as a standardizing factor for many small to medium size applications that might traditionally been handled with desktop products like Excel, Access, Visual Basic, or Java-Web applications. The APEX environment supports rapid development of application data base structures inside a shared Oracle RAC and the generation of web based application code. This makes it easy to produce applications that serve multiple concurrent users via web browsers - a significant advantage over sharing spreadsheets or access databases.

Organizationally we have tied the APEX environment to the Enterprise Development Team (EDT) which specializes in APEX application development and Oracle Database Design. This team is able to provide opportunities for developers to acquire greater depth of technical skills with the tools while working across a variety of departmental applications. They have developed standard code modules for routine services such as using NCID or NCTrust for

user authentication and MFTS for data integration. This approach shortens development cycles, uses the Enterprise Oracle Database platform and creates greater consistency across applications using shared modules.

For the deployment of APEX applications the EDT has two different platforms available:

- Unsecure, public access
- Secure, NCID/NCTrust access

Change Management, Code Management

GForge is the de-facto standard for Change Management and Code Management. Other, similar solutions such as SourceSafe, CVS, etc should be migrated to gForge. A number of tools are available to support this migration process.

Disaster Recovery for NCWISE

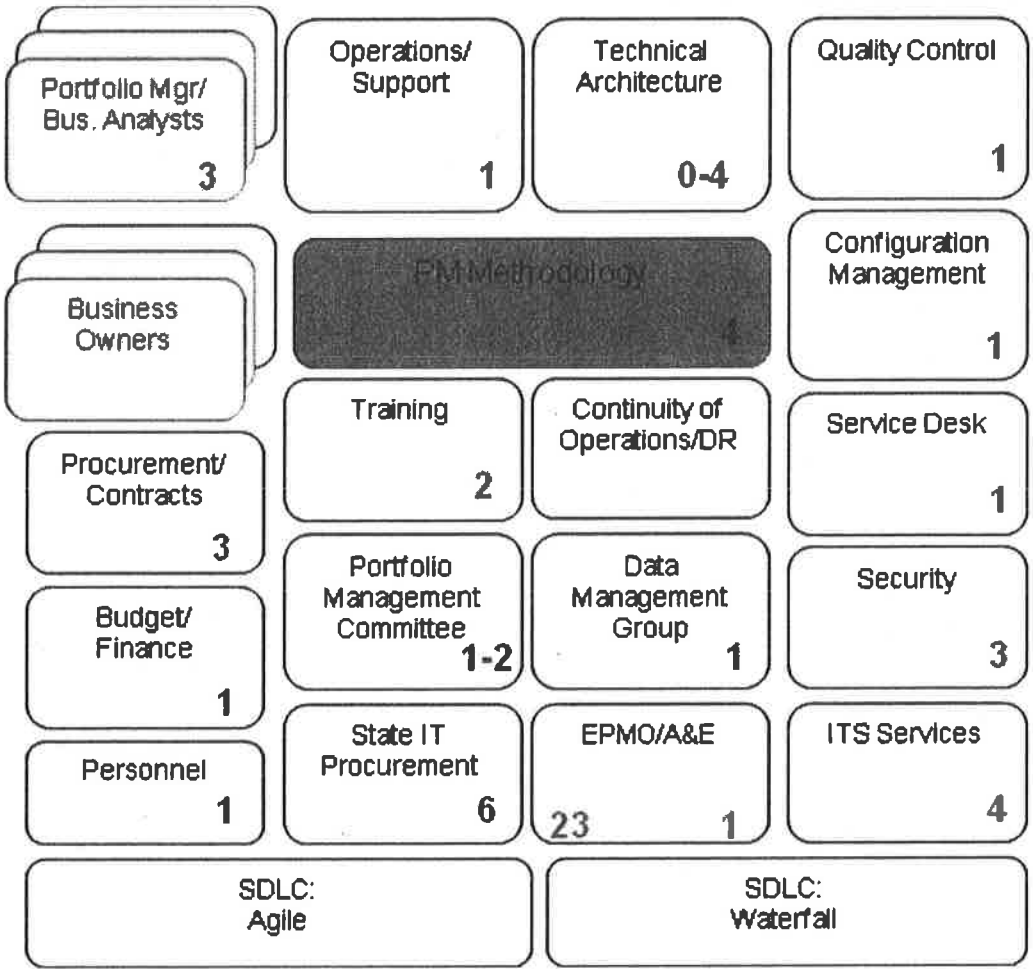
NC WISE is a mission-critical Student Information System which serves school districts and charter schools statewide. Without this service schools will not be able to operate. In the event of a disaster at the Eastern Data Center (before July 12th) and at the Westerns Data Center (after July 12th) the NC WISE system could be down for an extensive period of time as no disaster recovery site exists today. Building a disaster recovery site for NC WISE must become a priority for Technology Services to ensure that business expectations at the schools, school administration and the department can be met without long interruptions. Under the leadership of the CTO initial conversations took place with ITS to repurpose the current Eastern Data Center production environment as a mid-term disaster recovery site after the NC WISE production has been moved to the Western Data Center on July 12th, 2010.

Reconfiguring the environment to become a disaster recovery site will probably not introduce new technologies but have to be focusing on the process, procedures and testing to verify that Disaster Recovery for NC WISE works and provides a defined service level for the schools.

Process Improvement

There is a significant project management challenge on streamlining the DPI processes to make delivery of new projects more efficient. The project teams are consumed by the volume of documents and complicated processes. There are

many organizations that participate in the project management processes making the process more complicated and the volume of documentation requested by these parties increasingly voluminous. The chart below shows the organizations involved and the number of documents requested by each.



In addition, we are engaging in new development approaches like Agile that require significantly different processes and deliverables. As a result of this challenge DPI is in the process of:

- Developing a **Project Management Methodology/ Framework** that is effective and efficient
- Reworking the **IT Information Resource Library** to support a streamlined PM Methodology
    - Focus on Project Information Delivery
    - Eliminate unnecessary documents
    - Consolidate information into fewer documents

  - Replace documents with more usable information (spreadsheets/workbooks, PPM Tool, etc.)
  - Establishes ownership
- **Iteratively rolling out** based on PM Phases and Document Groups

There is a five step process that has been created to address the issue. In addition, a work group has been assembled to complete this effort.

Step	Phase	Status
Decide on Baseline Documents/RACI	**All**	**Complete**
Group Documents/Packages for Review	Initiation Planning & Design Execution & Build Implementation Closeout	Complete In Process
Define Process Flow by Phase	Initiation Planning & Design Execution & Build Implementation Closeout	Complete In Process
Analyze Doc. Groups and Processes; Develop Documentation and Process Recommendation by Process Phase	Initiation Planning & Design Execution & Build Implementation Closeout	Complete In Process
Meet W/existing Owners to Review Docs to Eliminate, Consolidate or Keep as is; Agree Upon Doc RACI; and To Review Phase Process	Initiation Phase Planning & Design Execution & Build Implementation Closeout	In Process

The objective is to complete the streamlining of these processes before the end of 2010-11 Fiscal Year.

The Race to the Top Solution

The Race to the Top Initiative is the basis for our strategy for the next two years. The following major components of this strategy are defined in this section. They include:

- NC PK-12 Education Cloud
- Instructional Improvement System
- SAS Institutes Education Value Added Assessment System
- Instructional Improvement System Timeline
- Accountability Curriculum Reform Effort

NC PK-12 Education Cloud

The NC PK-12 Education Cloud will be used to deliver statewide access to the major digital resources and tools necessary to support RttT initiatives. This project builds on the "Foundation" project called Connectivity - AS/400 Cloud Computing, which provides a cloud computing solution for the consolidation of the AS/400 systems distributed throughout the LEA local sites.

The primary objective of the NC PK-12 Education Cloud is to provide a world-class IT infrastructure as a foundational component of the NC education enterprise. This involves migration from LEA-hosted server infrastructure to cloud-hosted infrastructure as a service. The NC PK-12 Education Cloud will provide for:

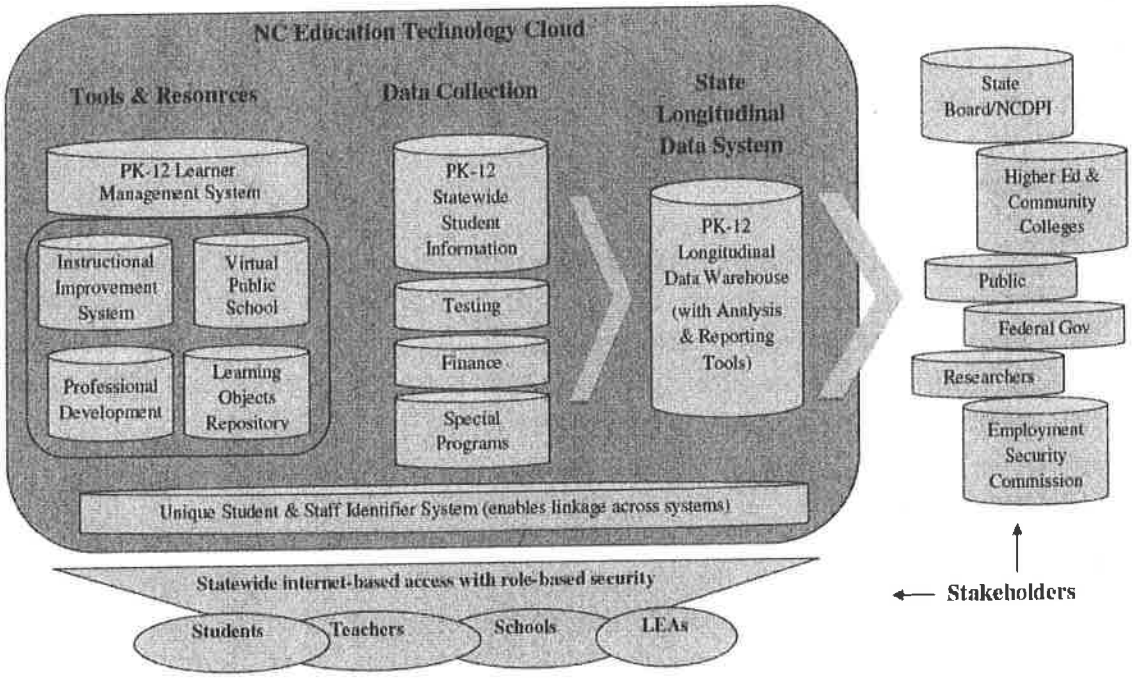
- Equity of access to computing and storage resources;
- Efficient scaling according to aggregate NC K-12 usage requirements;
- Consistently high availability, reliability and performance;
- A common infrastructure platform to support emerging data systems;
- Sustainable and predictable operational cost.

The NC PK-12 Education Cloud will provide students and teachers with highly available and universally accessible Learning Management Systems offering the following functionality:

- Online courses for students and educators, and materials to support the integration of online resources into traditional courses;
- Web 2.0 tools, such as blogs, wikis, and social networking tools, in protected spaces appropriate for educational uses by students and teachers;

- Libraries of digital learning objects, such as educational videos that can be streamed into classrooms; and
- Online spaces for students and teachers to post and share their work, from text to video, and to engage in collaborative work.

The following diagram illustrates how the proposed NC PK-12 Education Cloud brings together key statewide information technology components.



Providing a common set of online resources and tools will ensure that every student and teacher has equitable access to technology resources. A focused set of digital tools and resources used across NC also will facilitate technical assistance; professional development; and the sharing of resources across classrooms, schools, and districts.

Goals and Target Outcomes

In creating the NC PK-12 Education Cloud we aim to improve service reliability, increase efficiency, and decrease long-term IT costs, while re-aligning local technical resources away from supporting and managing infrastructure.

Key Program Elements

The key elements of the program are:

- Planning
- Cloud Deployment
- Pilot Migrations
- Statewide Migration
- Measurement and Monitoring
- Cloud Administration
- Statewide Application and Content Licensing

Planning

As with all IT initiatives the deployment of the NC PK-12 Education Cloud will require careful planning. The planning team will be tasked with developing an implementation and operating plan for the NC PK-12 Education Cloud. The planning process will include an onsite assessment of infrastructure and infrastructure support resources at each of the 115 NC LEAs.

Cloud Deployment

Upon completion of the planning process, the planning team will present the community-vetted implementation and operating plan to the NC State Board of Education for review and approval. Upon approval of the plan the NC PK-12 Education Cloud team will transition from planning to deployment. The initial deployment elements will be related to building a relationship with one or more commercial cloud providers. The cloud deployment phase will likely require a competitive procurement process and as such the development of one or more Requests for Proposals (RFPs). The data collected during the LEA infrastructure assessment will serve as the basis for the scope of cloud RFPs in terms of types and numbers of server instances. The team will work with the selected cloud provider(s) to roll out combination of reserved (persistent) and on-demand server instances and storage resources to meet the aggregate needs of the NC K-12 education enterprise. As part of the rollout process the NC PK-12 Education Cloud team will manage the development of any middleware required to integrate the cloud with LEA directory, authorization, and authentication systems.

Pilot Migrations

In parallel with cloud deployment and based on the implementation plan the team will orchestrate a group of carefully selected pilot migrations of LEA and DPI infrastructure to the NC PK-12 Education Cloud. The pilots will include representative hardware platform types, persistent and on-demand resource allocations, and services that extend across LEA boundaries. The primary goal of the pilots is to validate planning assumptions and to fine-tune migration and steady-state support processes.

Statewide Migration

With lessons learned from the pilot migrations, DPI will manage a 30-36 month statewide migration of LEA server and storage infrastructure to the NC PK-12 Education Cloud. Work will include directory integration and network provisioning to support the unique requirements of each infrastructure and service migration. In some cases shared applications will be migrated to the cloud and users will be transitioned to the cloud service together. In other cases individual resources will be turned up, tested, and transitioned on an LEA-by-LEA basis. During the migration project contemporary systems supporting innovation in instruction and leadership will be designed from the beginning as cloud services. Existing LEA infrastructure arrangements, licensing agreements, and federal e-rate guidelines, may impact the migration timeline and schedule.

Measurement and Monitoring

A significant benefit of procuring infrastructure-as-a-service is that the provider will be held accountable through a service level agreement (SLA) that specifies commitments related to service availability, performance, and support responsiveness. The NC Education Cloud will be instrumented for measurement and monitoring in order to manage to the SLA. Data collected through this instrumentation will also be used to scale resource allocations for both new and existing services. Finally, the NC PK-12 Education Cloud will also collect data related to user access. User access data can inform assessment systems developed in support of core RttT goals. The deployment team will coordinate instrumentation of the NC PK-12 Education Cloud with the cloud service provider during cloud deployment and service migration, as appropriate. Instrumentation costs are included in deployment and migration project budgets.

Cloud Administration

DPI will manage a contract with a cloud administrator. DPI will review the details of the NC PK-12 Education Cloud service with the NC K-12 community at

least annually to optimize offerings, support opportunities for federal e-Rate support, and to add or remove cloud providers. In order to provide for sustainability of the NC PK-12 Education Cloud moving forward DPI will expand the existing Client Network Engineering support contract with MCNC to cover LEA engineering support and will contract with an appropriate provider for cloud operations.

Statewide Application and Content Licensing

In tandem with the deployment of the statewide education cloud infrastructure model will overlay a suite of applications, tools, and content that support equitable access to the contemporary data systems, online professional development, and blended instructional delivery models defined in the core chapters of the NC RttT proposal. Specifically, this includes integration of a standard K12-wide Learning Management System, a companion learning objects repository and collaboration tools. We incorporate a federated identity management approach to facilitate secure and mediate student and educator access to statewide resources. Finally, we include the development of web personalization functionality to the NC e-learning portal to further enhance and focus student access to online instructional content resources.

Instructional Improvement System

DPI will implement the instructional improvement system through a phased approach that is interdependent with the development and rollout of the other technology components included as part of the RttT plan. Each component will focus on certain specific content areas, as shown below.

Components of Instructional Improvement System

Component	Subject Areas Planned
Daily Assessments Tools	K-12 All subject areas
Diagnostic Assessments Tools	K-8 Mathematics and Reading. NC will focus the work to define learning trajectories and developing diagnostic assessment items to K-8.
Curriculum Monitoring Assessments Tools	K-12 Reading/English Language Arts, Mathematics, Science and Social Studies.
Summative Assessment Tools	All subject areas with a End-of-Grade or End-of-Course assessment and for all students with at least three years of historical performance data

Standards and Assessments

In an effort to support LEAs further, NC is moving toward providing formative, diagnostic, and summative assessments online, making data collection and analysis more efficient, providing ready adaptations for students with special needs (*e.g.*, enlarged displays or text-to-speech conversion for visually impaired students), and opening the possibility of branched (computer adaptive) tests to provide more accurate measurement of each student's progress.

Data Systems to Support Instruction

NC's State Longitudinal Data System depends upon a statewide technology infrastructure for data collection, analysis, reporting, and use by stakeholders. The broadband access provided by the School Connectivity Initiative has been essential in providing every school with access to these data systems. The RttT Instructional Improvement System requires a sophisticated database structure and online access to provide targeted, timely assessments to inform instructional decisions.

Great Teachers and Leaders

The NC technology infrastructure is essential for most of the teacher- and leader-focused initiatives. It provides: an online system for recording teacher and principal evaluations, technology to provide virtual courses for students when effective teachers are not available locally; and extensive use of online workshops and webinars, virtual learning communities, virtual classroom observations, online coaching, and other uses of technology to extend and enhance both pre-service preparation and professional development programs for teachers and administrators.

Turning Around the Lowest-Achieving Schools

All of the uses of technology described above are essential to improving the lowest-achieving schools. In addition, it is essential that students in these schools have equitable access to technology and to teachers with the expertise to use it well, to guarantee that they experience the full range of technology uses that their peers in high-achieving schools receive.

SAS Institute's Education Value Added Assessment System (EVAAS)

In 2007, to expand the toolset available to NC teachers to support their understanding of individual student growth trajectories, the General Assembly funded a statewide license that grants access for all LEAs to the SAS Institute's Education Value Added-Assessment System (EVAAS). This powerful tool uses historical test data to measure individual student progress over time, diagnose opportunities for growth, and predict the probability that a student will succeed in specific courses, based on her or his prior test scores.

Accountability and Curriculum Reform Effort (ACRE)

North Carolina's Accountability and Curriculum Reform Effort - also known as ACRE - is the state's comprehensive initiative to redefine the Standard Course of Study for K-12 students, the student testing program and the school accountability model. In undertaking this ambitious work, North Carolina education leaders are the first in the nation to address learning standards, student tests and school accountability simultaneously. Quite simply, this is the most important and significant work of the State Board of Education and Department of Public Instruction in a generation. This work, being completed in stages over five years, will

- Identify the most critical knowledge and skills that students need to learn - filtering the "must have" elements of the curriculum from the "nice to have" elements;
- Create new student tests for grades 3-8 and high school courses that use more open-ended questions, more technology and more real-world applications of what students learn; and
- Provide a new model for measuring school success that gives parents and educators more relevant information about how well schools are preparing students for college, work and adulthood.

In June of 2008, the North Carolina State Board of Education authorized NC DPI to start the "Framework for Change: The Next Generation of Assessments and Accountability". As a result the ACRE effort was launched to address this. Refer to http://www.ncpublicschools.org/docs/acre/basis/overview.pdf to review the documentation.

There are five technology related ACRE projects that will tie directly into accomplishing not on the "Framework for Change" and, now, the Race to the Top Initiative. The following chart lists the projects:

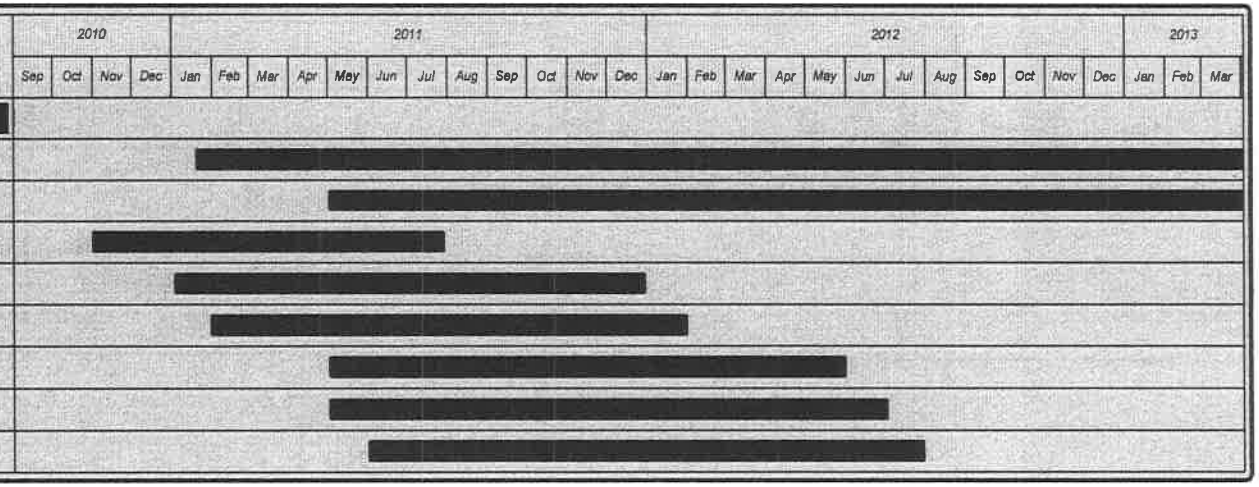
ACRE Projects					
Project Name	Funding	Staff Resources	Schedule	Scope	RttT/Objectives
ACRE: Online Writing Statewide Beyond Grade 7 (Grade 10) 2010-2011	RttT Grant		TDB		
ACRE: Online Item Bank and Benchmarking Tool	RttT Grant		TBD		
ACRE: Online modules for professional development and an online professional learning community	RttT Grant		TBD		
ACRE: Online method for students to house electronic portfolios	RttT Grant		TND		
ACRE: Online statewide assessments with computer simulations (Movement of More Summative Assessment Tests Online)	RttT Grant		TBD		
ACRE: Statewide PLC's – PD Modules Delivered Online –	RttT Grant		TBD		

NEED ADDITIONAL RttT INPUT FROM Adam Levinson for Final Agency IT Plan

Race to the Top Application Project Roadmap

Over the next 3-4 years DPI will be implementing the RttT major initiatives. The applications that have been described in the previous sections are shown in the following roadmap. This roadmap provides the high level direction that will be implemented over the next planning period using the RttT funding.

ID	Task Name	Finish
1	RttT Initiatives	
2	PK-12 Education Cloud	12/31/2013
3	PK-20 Longitudinal Data System	12/31/2013
4	ACRE: Benchmark Tool	7/29/2011
5	Learning Management System	12/30/2011
6	ACRE: Professional Development	1/31/2012
7	ACRE: Online Portfolios	5/31/2012
8	ACRE: Statewide Assessments	7/2/2012
9	ACRE: Statewide PLCs	7/30/2012



Funding

A total of $34,639,376 million of the RttT funding will be used to support the ACRE/Learning Management System program and NC Education Cloud implementation. The implementation costs are disbursed as shown in the following items:

1. *Learning management and e-portfolio system* – The Learning Management System (LMS) is the central platform in a contemporary learning environment – connecting students, teachers, administrators, and parents with content, services, and applications. Commercial LMS providers include Blackboard, moodlerooms, Desire2Learn and a host of others.

Estimates by year:
Year 1: $2.3 million; Year 2: $3.45 million; Year 3: $3,396,102; Year 4: $1,698,051

2. ***Identity Passport*** – Identity passport represents a federated identity management and single sign-on approach that requires integration and development in order to mediate student and educator access to online resources.

Estimates by year:
Year 1: $550,000; Year 2: $350,000; Year 3: $200,000; Year4: $100,000

3. ***Learning Object Repository*** – A learning object repository (LOR) provides for a data warehouse and mechanisms for managing instructional resources in an iTunes-like library. Equella and Alfresco are examples of commercial providers in this space.

Estimates by year:
Year 1: $831,000; Years 2-4: $159,700 (per year)

4. ***Web collaboration*** – Web collaboration provides for multi-modal, real-time, interaction between students and educators – enabling blended, online, anytime instruction and professional development. Wimba, Adobe Connect, and Elluminate are commercial options here.

Estimates by year:
Years 1-4: $1.1 million (per year)

5. ***e-Learning portal personalization*** – Web development that provides learner personalization elements to the existing ncelearning.gov portal.

Year 1: $225,000; Years 2-4: $51,500 (per year)

6. Cloud service providers and associated costs.

A. **Friday Institute** contract scope includes planning and design, systems engineering and architecture, total cost of ownership modeling, and application profiling. The Friday Institute is located at NC State University and contracts with DPI are governed under the UNC General Administration-DPI Master Agreement. The 4-year contract budget is $3.3M - with $550K in year one primarily supporting project planning and design, $1M in years two and three supporting deployment and migration, and $750K in year four supporting final deployment and operational transition. The NC state-funded School Connectivity Initiative (2005-2009) informs this budget, as the SCI comprised a substantially similar scope of work for the deployment of a comprehensive K12 statewide network infrastructure.

B. **MCNC** contract scope includes LEA infrastructure and application site surveys and engineering support for LEA cloud migrations. NC Information Technology Services (NC ITS) manages an existing services agreement between DPI and MCNC that is the contract vehicle here. The 4-year contract budget is $1.6M ($400,000 per year for 4 years). The budget is based on a proportional expansion of the existing services agreement to add cloud services and systems administration subject matter expertise.

C. **Cloud provider** contracts account for $11.2M of the contractual budget. Cloud providers will provide managed infrastructure, platform, virtual desktop, and related services in support of the NC Education Cloud environment. These providers will be selected through competitive bids managed according to state of NC procurement law. Budget here is based on statewide computing and storage infrastructure estimates. We estimate that we can replace 4000 existing LEA server instances with 1000 NC education cloud server equivalents to achieve the goals of the program. We apply a mix of small, medium, and large server costs across 1000 server instances. We apply estimated costs to migrate services to the cloud using per server and per application metrics. Rackspace, Amazon, and a host of others provide metrics for costing both server instances and migration costs. The cloud provider contract budget calls for a substantial one-time infrastructure deployment cost and initial migration expense within 12 months of the initiation of the project. Smaller one-time migration costs extend through the remaining three years of the deployment window. Note that a 30-36 month deployment window is specified as existing contracts, e-rate process, and other practical logistical matters drive the specific rollout schedule.

Cost estimates:
Year 1: $7.3 million; Year 2: $1.3 million; Year 3: $1.6 million; Year 4: $1 million

The total cost of all of the RttT Information Technology effort is shown below:

	Year 1	Year 2	Year 3	Year 4	Total
Total Direct Costs	$13,331,911	$7,938,540	$8,067,625	$5,301,300	$34,639,376

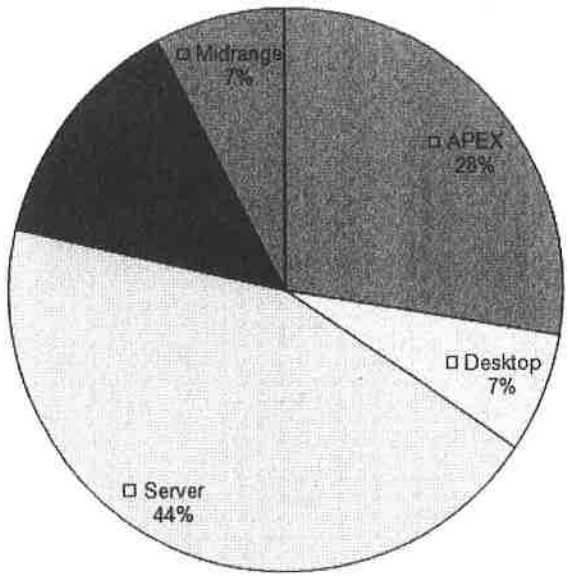
Section 6 - Application Portfolio

Management of the application portfolio is fundamental to streamlining our efforts to provide support. The next section describes the types of applications that are contained in the portfolio.

Current State of the Application Portfolio

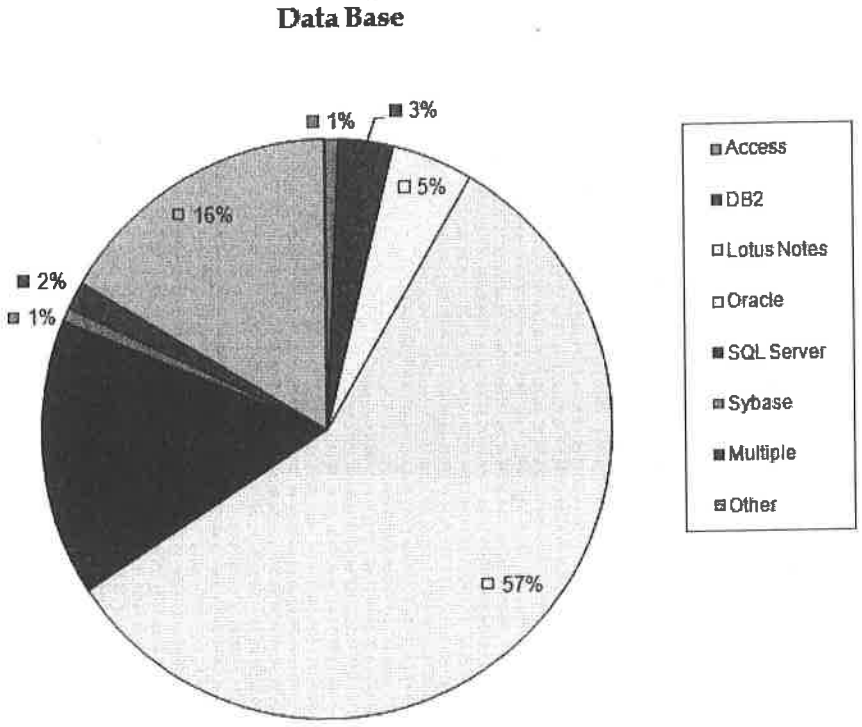
DPI currently has 159 applications in its portfolio. The following chart represents the percentage of applications per hardware platform and data base technology, respectfully. The supporting information used to produce these charts is located in the Appendix –Application Portfolio Supporting Data.

2010 Hardware Platform



From 2008 to 2010 the per centage of mainframe and midrange system applications have been reduced by 5 per centage points. This is due to the replacement of these applications with newer technology on the APEX platform.

Please see Apendix: Retired Legacy Applications List for details on the applications that have been replaced by APEX or other more current technologies.

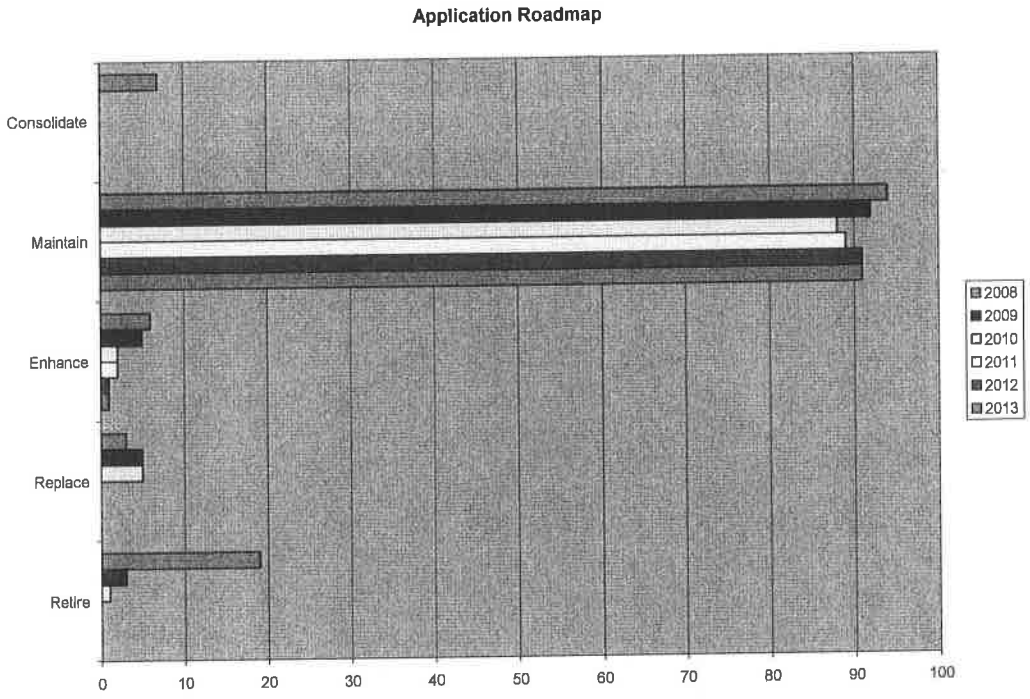


The data base technology direction has been towards Oracle based COTs systems and APEX development platforms. This direction will continue as we proceed through the next 24 months.

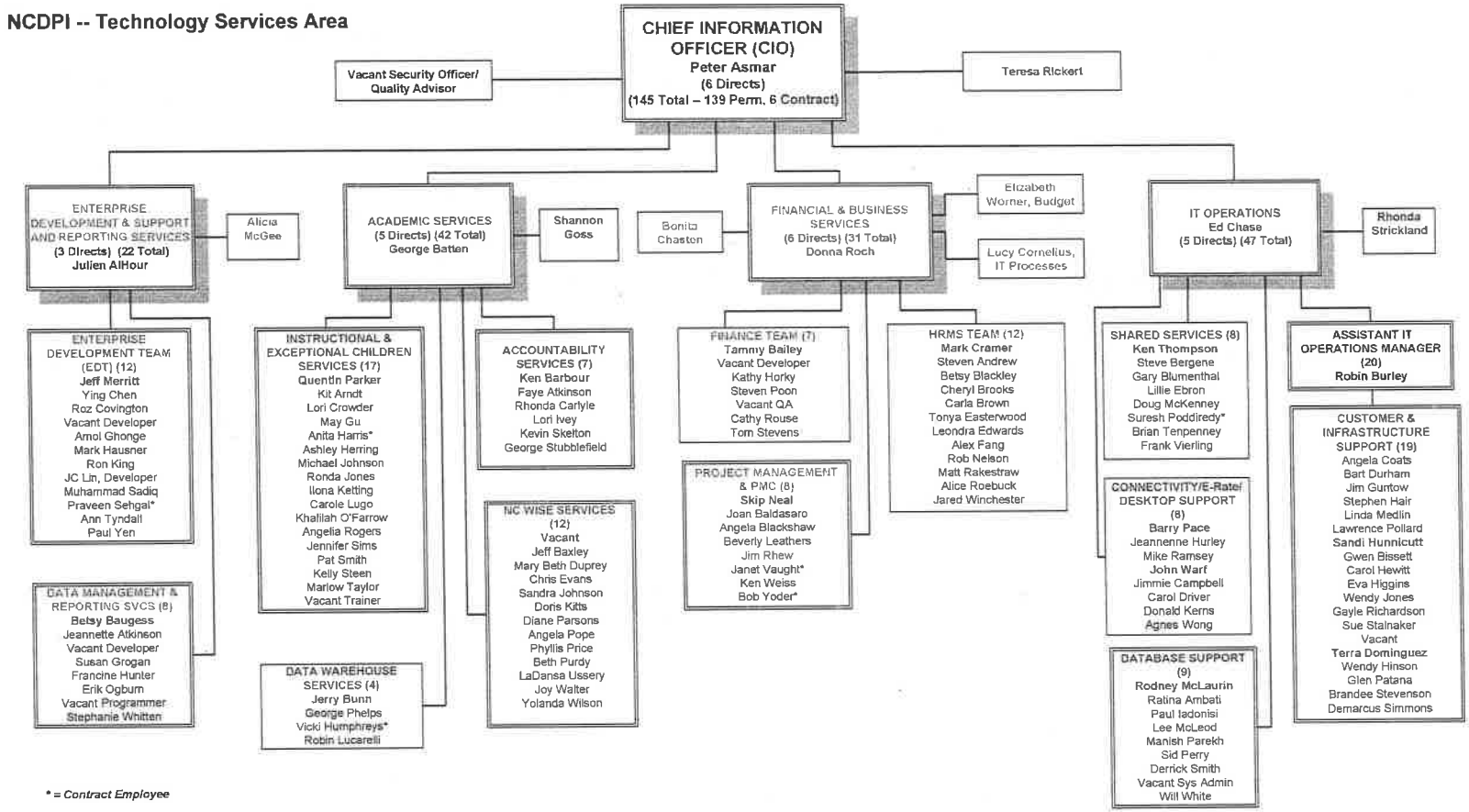
Production Application Portfolio Roadmap

The following chart displays the roadmap for current applications for the years of 2008 through 2013. The supporting information used to produce this chart is located in Appendix III –Application Portfolio Supporting Data.

This shift will occur as a result of legacy migration and the conversion of existing but undocumented desktop applications using technologies like Microsoft Excel and Access to the Oracle APEX technology. An additional factor in this shift will be the movement of applications currently housed on individual servers to virtualized environments as they rotate through their normal hardware refresh cycles.


Application Roadmap
Consolidate
Maintain
Enhance
Replace
Retire
0
10
20
30
40
50
60
70
80
90
100
2008
2009
2010
2011
2012
2013

Section 7 - IT Operations and Management Organization



The above diagram shows the current DPI Technical Services organization that supports our initiatives.

Section 8 - Human Resources

This section shows the allocation of skills and resources to each Service Delivery Team as they are applied to our IT Services organization.

Current Staffing Level

Staff Category	2008	2010
Permanent Employees	157	139
Contractors	36	6
Part Time Contractors	27	0
% FTE Reduction		-30%

Technology Services Division – 139 Permanent Employees, 4 FTE Contractors											
Service Delivery Teams	PfM	PM	Architect	Developer	System Admin	System Anal.	Trainer	QA Anal.	Service Desk	Admin Assis	DBA
Security Officer/Quality Advisor	1 Perm										
Finance/HRMS/PMO	1 Perm							1 Perm		2 Perm	
Human Resources			2 Perm	3 Perm		2 Perm	1 Perm	2 Perm	2 Perm		
Finance				5 Perm		1 Perm		1 Perm			

Technology Services Division – 139 Permanent Employees, 4 FTE Contractors											
Service Delivery Teams	PfM	PM	Architect	Developer	System Admin	System Anal.	Trainer	QA Anal.	Service Desk	Admin Assis	DBA
PMO/PMC	1 Perm	2 FTE Contract 5 Perm									
Academic Services	1 Perm									1 Perm	
Exceptional Children	1 Perm			3 Perm		6 Perm	5 Perm	2 Perm			
Accountability	1 Perm			4 Perm		1 Perm		1 Perm			
NCWISE	1 Perm					8 Perm		3 Perm			
Data Warehouse Services	1 Perm					3 Perm					
EDT and Reporting Services	1 Perm									1 Perm	
EDT	1 Perm	1 Perm	3 Perm	1 FTE Contractor 2 Perm				2 Perm			2 Perm
Reporting Services	1 Perm			6 Perm				1 Perm			
Operations	1 Perm									1 Perm	
Shared Services			2 Perm		1 Perm						

Technology Services Division – 139 Permanent Employees, 4 FTE Contractors											
Service Delivery Teams	PfM	PM	Architect	Developer	System Admin	System Anal.	Trainer	QA Anal.	Service Desk	Admin Assis	DBA
				1 FTE Contractor 4 Perm							
Connectivity/E-Rate/Desktop support	2 Perm				6 Perm						
Database Support	1 Perm				2 Perm						6 Perm
Customer & Infrastructure Support	1 Perm				5 Perm		5 Perm		9 perm		

Section 9 - Expansion Budget Requests

The following are requests for Expansion Budget to handle items that are beyond the above budgets. There are requests that are above and beyond the scope of the current staff and the Race to the Top Initiative funding.

- NC Wise Parent Assist Module
- Building Wiring Upgrade
- NC Wise Disaster Recovery

NC WISE Parent Assist Expansion Budget

NC WISE Parent Assistant
(title of request)

John R. Wetsch
(person making request)

TS Business Services
(division)

What *(describe request)*

The NC WISE Parent Assistant Module (PAM) is a module already provided by NC WISE. This request provides a statewide method to deploy this software for parents to be able to check online student progress relating to grades, attendance, and demographic information.

Why *(explain why this request needs to be funded)*

In LEAs where PAM has been piloted the system has become a cornerstone for school, LEA and parent communication with direct impact to student progress and retention. This is also a request that is of high demand from the LEAs. Failure to deploy this NC WISE module will result in LEAs spending funds on their own PAM software and infrastructure when this software is already paid for and licensed through DPI. LEAs implementing their own PAM could easily invest up to $100K **each** to procure software, hardware, and support to implement their own Parent Assistant.

Cost and how determined	**2011-12**	**2012-13**

(enter amount requested for each biennium)	$ 790,641	$ 790,641

Cost estimates based on Hardware requirements. PAM software is already licensed. The cost for DPI is to set up a statewide PAM infrastructure. Hardware costs over 4 years are $1.5 million. Hardware estimates are attached. Personnel other than internal resources are not included. Estimate attached in the appendix.

Consequences of Lack of Funding

Significant parent demand and LEA demand for 21st century systems with access to current student data is further limited. This is the 3rd budget expansion request which has not been funded although strong SBE support has been given each year.

History *(if expanding a current initiative describe previous funding and outcome)*

In FY 2009 PAM was proposed and an RFI was done to implement a best of breed system at a cost of $1.4 million. In a NC WISE presentation to the General Assembly's Technology Committee a committee member asked when a parent assistant type module could be in place. An expansion request was submitted but was not funded. Another expansion request went was submitted for FY 2010. Due to continued state budget issues this budget request was denied. In the interim DPI successfully deployed 2 PAM pilots in Winston-Salem Forsythe and Guilford County Schools and it was met with great success. Funding an resource availability (hardware and personnel) have limited any further PAM expansion.

Building Wiring Upgrade

New Education Wiring Upgrade
(title of request)

Peter Asmar
(person making request)

Technology Services
(division)

What *(describe request)*

Category 5e - 6e cabling for employees within the New Education building. Located at 301 N. Wilmington Street. (Re-wire with current cabling and remove legacy wiring)

Why *(explain why this request needs to be funded)*

We have moved forward with the technology we use on a daily basis to support Public Education in North Carolina. As we have done this the infrastructure has remained the same. With the announcement of Race to the Top funding, DPI will be focused on utilizing, supporting and operating 21st Century Tools and Applications. Without the proper wiring in place users are experiencing latency within the network that leads to a simple e-mail send/receive costing an employee up to 5 minutes. This is directly due to "Bandwidth Capability" of the legacy wiring. DPI has invested significantly to put the appropriate hardware in place, however, without the wiring the end users will not be able to utilize the tools Required to fulfill our Race to the Top responsibilities.

Cost and how determined

	2011-12	2012-13
(enter amount requested for each biennium)	$ 589,210	$ -

Cost was determined by filling the "Structured Cabling" worksheet as supplied by State ITS. This is actual cost, with the removal of the legacy wiring included.

Consequences of Lack of Funding

DPI's ability to support 21st Century learning and Race to the Top will be limited by 1990's infrastructure. This will significantly impact users ability to access and use the tools required by these 21st Century Goals, as set by the Governor and State Board of Education.

History *(if expanding a current initiative describe previous funding and outcome)*

This is the 3rd time we have submitted this request for funding.

NC WISE Disaster Recovery

NC WISE Disaster Recovery Expansion Budget Request
(title of request)

George Batten
(person making request)

Technology Services
(division)

What *(describe request)*

North Carolina's NC WISE solution is in need of a viable and realistic disaster recovery plan. The state's approximately 2500 public schools and 100 charter schools can not operate without the student information system being readily available. Also, with the added reporting requirements of ARRA and RttT, not having data available to submit reports could result in penalties or loss of funding.

Why *(explain why this request needs to be funded)*

The NC WISE solution's current disaster recovery plan is to stand-up new equipment once a disaster is experienced. Once the hw is purchased and built-out, the data will be restored from tape. The procurement process alone would take weeks - an unacceptable amount of time to the LEAs. Also, the NC WISE data is used by many other systems that are critical to the operation of the schools: school bus service, child nutrition services, medical records, exceptional children and many more. Without NC WISE availability, the students of North Carolina would not receive the services that are required by law and to which they are entitled. Further, the state and federal reporting would be severely impacted by delays causing North Carolina to be in jeopardy of losing funding from the federal government and LEAS from receiving funds from the state government.

Cost and how determined	**2011-12**	**2012-13**
(enter amount requested	$3.08M	

for each biennium)

The Production environment supporting the LEAs, the EUS environment that allows the Service Desk to support the LEAs, and one small TST environment was used in the calculations. Also, any other servers required to communicate with other systems or monitor the PROD system have been recommended for DR. No training environments, development environments, new release environments or other support environments have been included. Also, the staff time to build out the environments has been added. Since the hw should be a replica of the PROD hw, the staff/contractor time should be relatively low as we have the configurations already established in the PROD environment. The hw costs are for the following environments: PROD, EUS, TST, INF and PSS for a total of $3.076M. The staff/contractor time = 500 hrs X $85/hr (contractor) = $42,500. The total DR expansion request is $3.08M. **Please note:** NC WISE has just moved to new hardware. Once adequate data is collected, it could be possible to scale down the hw (and costs) needed for the PROD environment.

Consequences of Lack of Funding

- Funding impacts from the federal and state governments.
- Children not receiving child nutrition services and/or the schools not receiving re-imbursement for expenditures.
- Transportation services impacted as student addresses not available to other systems.
- Exceptional children not receiving the appropriate and required accommodations for tests, etc..
- Huge workload increase at the LEA and school level due to manual workarounds AND the data entry required once the system is available again.

History *(if expanding a current initiative describe previous funding and outcome)*

Because NC WISE is now fully deployed across the state, DPI and Technology Services must make sure NC WISE is available to all schools at all times. Before full deployment, a full disaster recovery plan was not absolutely essential or provided for in the budget.

Section 10 - Appendix

This section of the document covers

- The DPI organization and governance structure that is being implemented to support Race to the Top
- The portfolio of projects that are part of the foundation
- The portfolio of production applications
- The applications that have been retired since the last plan was submitted in 2008

Race to the Top Organization

This section describes the overall organization that is being implemented by the RttT Business Owners. It describes the Business Owner Roles and IT Governance oversight for the RttT Initiative.

INSERT RttT NEW ORGANIZATION AND GOVERNANCE

Project Portfolio (PPM)

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
eSIS: Transportation Information Management System (TIMS) Enhancement	Software Development	$100,000 - $500,000	The modification of the current eSIS transportation screen and the addition of a new role that would allow the LEA_TIMS Coordinator to update the student's address without giving them more access to the system than needed. The current eSIS transportation screens will need to be modified to accommodate the needs of the NC DPI Transportation Department and TIMS.	The project goals are to ensure: - That a process for requirements management, enhancement budget management and configuration management and change management is fully documented, communicated, published and followed - Training for selected enhancements is planned, staffed and executed according to plan - modifications to software are acceptable and implemented in timely fashion. - modifications of the eSIS software for enhancements to TIMS	The proprietary system of eSIS requires a vehicle that will allow the CCB and internal DPI data stewards to request and receive enhancements to the product. The approved program budget for NC WISE contains $1,000,000 (CCB and DPI each will have $500,000) per year for enhancements. The strategy is to allocate specific funding AAL for solutioning of business requirements. The solutions will be individually funded through distinct contracts for each enhancement.	0	01/05/2009	02/28/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
Computerized Instructional Management System (CIMS Pilot)	COTS - Less than 20% Modification	$500,000 - $3,000,000	The business goals for this project are to: - Meet Perkins IV reporting requirements using a new and improved testing solution - Provide a vendor supported software as a service and hosted solution - Analyze results of a pilot and make a decision to either do statewide implementation or look for another solution - Empower LEAs, teachers and students to excel in a global 21st Century environment by advancing in technology skills - Revolutionize Career and Technical Education by providing the tools and services that enable educators to better and more effectively manage the process of test generation, test administration, data collection, data validation, data reporting, item bank creation, item bank reliability, and item bank validation - Replace multiple applications by streamlining CTE business processes	Provide a mechanism, a web-based Commercial-off-the-Shelf (COTS) Service Computerized Instructional Management System to maintain curriculum and track student performance data to enable the CTE business area to analyze the pilot results and make a decision on statewide implementation. CMS software is 11 years old and is not a viable option at this time. CTE Support Services consultants would like to replace the CMS Software with a new web-based application that will provide - Online and paper based(bubble sheets) customization of testing and assessment - Itembank creation as well as storage and test generation management that will allow teachers to develop test by objectives to include powerful data analysis features for state and local reporting - Parent Notification	The proposed strategy is to issue a solicitation for the pilot, select a vendor, and execute the pilot. At the end of the pilot, a go/no go decision will be made by Career and Technical Education stakeholders and DPI Agency stakeholders concerning a statewide implementation. Career and Technical Education solicited 24 high schools across the state to participate in the pilot. DPI will purchase service licenses for approximately 21,000 students and 384 teachers, 18 Instructional Management Coordinators. 9 LEA administrators and 22 DPI CTE consultants. The high schools selected to participate in the pilot consist of five small, five medium and five large schools across the state and one LEA (Cumberland County). The pilot will begin in January 10 and end in June 10. The vendor will provide a commercial-off-the-shelf solution to include training at the pilot sites or providing training materials for train the trainer. Since a COTS solution will be sought, hardware will not be required. At the end of the pilot, a go/no go decision will be made by Career and Technical Education stakeholders and DPI Agency stakeholders. The vendor will be required to	4,522,796	05/01/2008	08/31/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
			(CMS 95, TestMate Clarity, Scan and Score, Internet Date Exchange for Accountability) Research has shown a need for a Computerized Instructional Management System containing maximum capacities in the following areas: - Manage and distribute item banks - Online management of regional, state, and local assessments - Provide the capability to import and export data to external systems on a student, at an LEA, state, and school level - \Perform basic analysis on student assessment data	- Grading Features • Development of teacher plans/lessons - State and local assessments - State and local reporting - Scan and score both interim assessments and post assessments - Provide the capability for data import sand export of individual student data - Basic statistical analysis - Flexible print options	adhere to and meet the state's security requirements in protecting student data following FERPA and NCPI2 regulations. The vendor will also be required to provide a technology roadmap in the event this becomes a statewide implementation. NC Trust is an identity management solution that will be implemented for the pilot project. The Computerized Instructional Management System will consist of - Test Generation - The test generation component is used to compile test items from various itembanks. Once a test is compiled, the delivery mechanism allows it to be shared or published in order for it to be administered to students. - Test Administration - The test administration component allows the test to be administered to its intended recipient. - Itembank Development - The itembank development consists of test question or test items that are categorized by the objective of a course. The itembank development and distribution component allows itembanks to be created and distributed for use in the compilation of a			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
					test. - Roster Management - Roster Management is used to filter students by course. This will allow instructors the ability to manage students within the assigned course. - Score -The test scoring component will be used to score test based on the point value assigned to test items. Performance measures related to a test item, such as how many students missed an item, will be captured using the reliability feature. - Reporting - The reporting component will be used analyze student data at LEA, course, and section, and other levels. The CIMS plans to use the following integration styles of the ESB: - Q1/10 Managed File Transfer , Data Transformation and Workflow Management - Q1/10 Publish/Subscribe			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
CEDARS - Data Warehouse	COTS - Greater than 20% Modification	> $3,000,000	The current system is ineffective for a data-driven decision making environment. To empower the administrators with the data they need to impact their work, the information processing framework must be changed to accomplish the following goals. - Reduce Duplication of Data Collection Effort - Reduce IT Costs within DPI by minimizing the level of effort required to produce federal data collections - Improve Information Access - Improve Data Quality and Audit Capability - Deliver data warehouse to enable cross system reporting - Ensure user authentication and authorization through the use of NCID - Ensure Privacy and Confidentiality of Information - Establish the ability within DPI to support the CEDARS data warehouse	Goals for this project are: - Identification of all data elements required to produce the EDEN Data submission (EDFacts). - Definition of interfaces for all source systems (roughly 23 systems) to CEDARS that are required to produce the EDEN Data submission (EDFacts) and 10 high priority DPI reports. These source systems will be data mapped in agency enterprise metadata repository (MDR). - Implementation of the BASE SLDS data warehouse. - Integration with the Unique ID Service for Education. - Utilization of Oracle technologies in the development of the CEDARS data warehouse.	Award a vendor contract to help DPI build and implement the CEDARS (Common Educational Data Analysis and Reporting System) data warehouse. To do so, DPI will work with the vendor to identify and confirm EDEN data reporting requirements (EDFacts) at the data element level, identify authoritative source systems for each of the data elements, and build the CEDARS data warehouse. At the end of this project the CEDARS data warehouse will be used to create the EDFacts report to fulfill federal EDEN data reporting requirements. After completion of an additional CEDARS project (the CEDARS Reporting Project), the data warehouse will ultimately be used to conduct value-added research at a state and local level that utilizes linked, longitudinal data from elementary, secondary and post secondary institutions, on students, teachers, staff development, tutoring, facilities, financials, extracurricular activities, early childhood experiences, programs, initiatives and interventions. The CEDARS Data Warehouse will leverage the CEDARS Reporting project to produce the federal	48,399,899	01/02/2008	11/30/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
			- Provide the ability to produce the federal EDEN reports is a Data Warehouse goal; however the CEDARS Reporting Project covers the actual reporting requirements		EDEN reports			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
Consolidated Federal Data Collection - CFDC 100	Software Development	$100,000 - $500,000	The business goals of the Consolidated Federal Data Collection project is to create a data repository that will collect data deemed mandatory for federal reporting, elements of which may/are not currently being collected for Education Data Exchange Network (EDEN) and the Consolidated State Performance Report (CSPR) or by NCWISE/SIMS. The project will also provide a roadmap by which paper-based data collections will be transitioned into an electronic and consistent format, and existing data collections transitioned into more acceptable technologies for yearly collection for the following: 1. Title I, NCLB School Improvement List 2. Non Title 1 School Improvement List 3. Eligible School Summary Report 4. Title I, LEA Improvement 5. Title 1 Part A, Student Participation 6. Title I, Part D, Neglect	The project goals are to iteratively develop a seamless, web-based application for collecting mandatory data elements for federal reporting, currently required for EDEN and CSPR, not collected in NC WISE, SIMS, or any other authoritative sources of data while - creating a user friendly application that will improve 100% of federal data collection efforts for each program area - improving resource efficiency by 85% - completing the project for a cost not to exceed $500,000 - to completing the project no later than 06/30/2009. - receiving no customer complaints within the first 6 months of production	The proposed strategy for the system is to develop a web based application for several Title program areas to an ORACLE APEX environment hosted at ITS. The project plan will be completed as well as a project schedule detailing milestones and deliverables date for each team member. This project will be developed in a shared hosting environment and resources. The developers will use Oracle APEX and the system will be tested by our QA and FSA to ensure accuracy. Incremental development will be conducted to ensure the project team meets the customer timeline for each application. A trainer will be assigned to assist with training and helpdesk task. Lessons learned document will be completed at the end of the project.	2,375,000	08/11/2008	10/29/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
			and Delinquent Students, 7. Title VI, Rural, Low-Income Schools Program (RLIS) 8. Title III, Professional Development 9. Title I, Schools Identified for Improvement 10. Title X, Part C, Homeless Data Collection 11. Title I, Part D, Neglected and Delinquent Students 12. Title I, NCLB, Public School Choice 13. Title I, NCLB Supplemental Education Services, 14. Title I, NCLB Targeted Assistance Schools (TAS), 15. Title III, Immigrant Data Collection					

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
GMS 100 - Comprehensive Continuous Improvement Planning (CCIP)	COTS - Less than 20% Modification	$500,000 - $3,000,000	The business goal of the project is to implement a system that enables the LEAs and schools to minimize data entry process, manage funding allocation, manage improvement plans, reduce application processing, evaluate needs assessment, decrease duplication, reduce transaction period and expedite the application process to all K-12 Public Schools and Charter Schools in North Carolina. LEA and schools will have a single source to manage all improvement activities required for application submission, allocation and reporting. LEAs will have the ability to enter improvement strategies once linked to different plans and applications. They will also be able to reduce their processing time, which will provide the ability for LEAs and schools to focus on improvement strategies instead of manual plans and application processing. Our long-term strategy is to have all state and federal easily accessible for federal and state reporting.	The goal is 1. to acquire a copy of the Utah's Consolidated Application (UCA) code, which contains (a) Formula and Competitive Funding Application, (b) Financial Management Tool and (c) Comprehensive Planning ; 2. to conduct a proof of concept consisting of standing up the UCA application in the DPI existing environment, implement components, and validate that the application functionality meets the business needs; and 3. if the technical proof of concept is successful, implement the Consolidated Application (Entitlement Grants) for A. Program Monitoring and Support - Title I, Consolidated Application - Migrant Education Program (MEP) - Rural Education	The Consolidated, Comprehensive Improvement Planning (CCIP) application is a unified application and verification system that consists of two parts: the Planning Tool and the Funding Application. The Planning Tool contains the goals, strategies, action steps and district goal amounts for all grants in the CCIP. The Funding Application contains the budget, budget details, nonpublic services and other related pages. There are six Funding Applications in the CCIP: Consolidated, Competitive, Student Intervention, Career-Technical and Adult Education, Adult Basic and Literacy Education and Community School. The proposed strategy is to conduct a proof of concept to deploy CCIP. The intent of a proof of concept is to provide minimal technology demonstration of the Ohio Department of Education CCIP product modified to represent it as the NC Education equivalent to the Ohio product. This proof of concept will be a technical capability demonstration designed to prove that we can deploy, and the business can use the Ohio product. No integration with other systems will be	2,041,667	05/01/2009	06/30/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
				Achievement Program (REAP) - Small Rural Schools Achievement Program (SRSA) - Neglected and Delinquent (N&D) - 21st Century Community Learning Centers (21st CCLC) - Homeless Education B. Exceptional Children - Exceptional Children - IDEA 611, - Exceptional Children - IDEA 619 - Exceptional Children - Sliver C. Career Technical Education - North Carolina Career and Technical Education State Basic Grant - North Carolina Career and Technical Education College Tech Prep Grant 4. Fiscal Processing Requirements – The extent to which the eGrant web application	performed within the proof of concept. The application will not be modified from the current code-base provided by Ohio with the exception of cosmetic changes to items such as screen titles, application title. Report titles may be covered if time permits. No changes will be made to screen or report data contents under this proposal. Servers will be virtual servers at ITS or part of the existing database servers in the APEX environment. One of the servers will provide application services, while the other will provide SQL Server Database services. Data from other systems will not be integrated with the application during the proof of concept. This strategy includes implementing the application with a sole source support contract with HMB Vendor to assist with the installation, configuration, and modification. The vendor will be available for limited pre-sales support questions. If the proof of concept realized and a decision is made to move forward, this product will be implemented to the remaining business entities at DPI. A contract will be made with the vendor for the technical integration, customization, training and full implementation of the			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
				must function either as a grants management system 5. Competitive Grants – Features identified by DPI subject matter experts as necessary for DPI's application and approval process for those grants that will be part of the Competitive Grants group. These features could include, but are not limited to: grant application content, approval steps at the school district and DPI level, allocation methods, revision policies, security access, and electronic communication policies. 6. Planning Tool - – Features identified by DPI subject matter experts 7. Integration with required DPI Applications such as Managed File Transfer System (MFTS) for data required, and NCID User Authentication	application to the remaining business entities at DPI. This project will comply with NC security standards and use the Managed File Transfer System (MFTS) for data integration.			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
NC WISE 2nd Generation	COTS - Greater than 20% Modification	> $3,000,000	- Improved Service: A current, up-to-date application environment and overall system architecture to support a level of overall service improvement in terms of day-to-day business activities as well as system availability and performance. - Reduced Cost: Less complexity in terms of the number and types of servers to reduce overall annual hardware, operational and support expenses. - Flexibility of service configuration/adjustments to enhance the agency ability to adapt more quickly to school business needs, both at the LEA/school level, as well as within DPI.	- Replace current SIS application environment with a more scalable, flexible, robust and cost effective application/architecture that will meet the current and future school business needs	- Develop overall project plan - Define, develop and publish an RFP describing current and future requirements specific to services and user population/load as well as training and rollout requirements. - Contract with vendor of student information services/tools to provide design, specification and development of project deliverables. - DPI will provide the production hardware and software environments (based on vendor sizing recommendations), but the vendor will provide the initial design environments. - Configure/install all DPI development and test environments - Test all delivered core functionality - Test all NC Enhancements - Test all application integration points - Configure/install all DPI production and support environments (Training, Infrastructure, etc.) - Load test all key	70,689,100	07/01/2008	09/30/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
					components - Train NC WISE Staff in new SIS - Train Pilot User Group in new SIS - Initiate new SIS Pilot Program - Evaluate/adjust based on pilot results - Train User Population in new SIS - Deploy at first available non-impacting window (Target: Summer of 2011)			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
NC 1:1	Infrastructure	> $3,000,000	1. Provide teacher and principal professional development to help identified districts take advantage of 1:1 computing within their school. This includes providing initial and on-going professional development for teachers and principals. 2. Enable adequate connectivity within the schools as needed. 3. Provide needed support staff in each of the 8 schools to ensure high-quality instruction using the resources provided by external organizations. 4. Provide funding for additional classroom tools at each school to help teachers and administrators provide better instruction to students. 5. Provide advice and guidance with respect to 1:1 policies including, but not limited to, student home use policies and acceptable use policies.	1. Identify, establish, and provide professional development resources to participating schools. 2. Establish and manage a process for allotting funds to schools to support 1:1 computing in their classrooms. Allotted funds may be used by the school to provide new resources for students and teachers, to ensure adequate connectivity, to support professional development/teacher quality, or to support other aspects of the local 1:1 school computing program. 3. Establish a mechanism to ensure adequate program evaluation. Up to $100,000 of the identified state funds may be used to contract with an independent research organization to study the effectiveness of this pilot program on student achievement, to complete a cost-benefit analysis, to make recommendations for improvements in the program and to make	This effort uses a board of directors structure. This board, called the NC 1:1 Steering Committee, consists of representatives from each of the partner organizations: NC DPI, SAS, New Schools Project, Friday Institute, and Golden LEAF. One school principal and one district Technology Director also sit on the Committee. The Committee meets at least once a month to discuss project needs, resolve issues, and make decisions about how to meet project goals. Each partner organization offers expertise in certain areas and is providing some level of in-kind services to support the project. Specific roles for each partner are defined below in Project Organization and Roles. Decision-making is done by consensus whenever possible. Ultimate project decision-making authority rests with NC DPI management, with the exception being that NC DPI cannot make decisions about the level and use of external funds. Professional development is the exclusive domain of the Steering Committee. PD discussions and decisions are carried out by the Team using a consensus-building model. Connectivity discussions are the domain of the Steering Committee,	285,660,412	07/18/2007	07/30/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
				recommendations regarding the possible continuance or expansion of the program. 4. Assist schools in developing and putting into practice policies needed to support 1:1 computing. 5. Provide a central clearinghouse of information for use by the pilot schools. The information included will support the program in the schools by providing policy information, position descriptions or personnel recommendations, lists of available on-line software and hardware resources that can be used to support 1:1 learning effectively. 6. Maximize local control in decision-making about what resources are needed for schools within the bounds of what is specified in legislation and what allows for adequate program evaluation. 7. Facilitate development of a network among the participating teachers	but day-to-day responsibility for connectivity activities are handled by Friday Institute technical staff to ensure appropriate coordination with overall state-wide school connectivity efforts. A sub-committee for communications and marketing handles public relations for this effort and consists of representatives from New Schools Project, SAS, and Golden LEAF. This sub-committee discusses public relations issues with the Core Team, again using a consensus decision-making process to finalize decisions. A sub-committee for evaluation handles detailed program evaluation discussions and decisions. This sub-committee consists of representatives from NC DPI and the Friday Institute. Evaluation discussion are also held with the Committee, and evaluation decisions are made in the best interest of the program based upon standard evaluation criteria for scholarly research to ensure adequate controls and objectivity. Friday Institute evaluators are not part of the Core Team and are intentionally kept independent from the Core team and project decision-making. Funds will be distributed to the schools via the usual allotment process.			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
				and administrators and help them to take advantage of the broader 1:1 school and teacher communities. 8. Maximize allotments to the schools to provide as much funding as possible to directly support the program. 9. Provide a contract Instructional Director to support professional development of teachers and administrators in the schools.	Controls are in place to ensure appropriate use of funds using NC DPI Financial Services budgeting processes. A chart of accounts for the project is in place to clarify for schools allowable uses of funds. Schools provide a budget narrative to specify what funds will be used for, then funds are allotted to the schools.			

2008 NC Department of Public Instruction
Agency IT Plan

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
NC WISE 2008 Hardware Upgrade	Hardware Procurement	> $3,000,000	The goal of NC WISE is to provide a satisfying experience to our users as they continue to use NC WISE in their day-to-day operations in the LEAs. We desire to secure the added CPU capacity and bandwidth such that each LEA, regardless of size or economic status, will have the same access to the state's implementation of NC WISE for their student's information. We also need the additional hardware to maintain adequate training databases so that LEAs will have access to training databases that are reflective of their user roles as they train their personnel: data manager, LEA coordinator, Nurse, Counselor, principal, etc. This hardware is also needed as NC WISE has many requests for copies of data from internal and external groups.	The goal of this project is to secure new hardware to replace the existing hardware infrastructure of the NC WISE solution so that our customers will be guaranteed a productive and satisfying experience as they use the state's Student Information System - NC WISE.	The strategy employed for this project will be: 1. Project plan development 2. Utilize ITS Procurement Process 3. Contract with ITS for equipment 4. Build out NCWISE environments in the EDC and WDC 5. Test - Capacity - Recovery - Backups 6. Cut-over 7. Post production rollout monitoring	27,306,371	05/28/2008	09/30/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
AHR State Rollout	COTS - Less than 20% Modification	> $3,000,000	This project will provide LEAs and charter schools a robust and comprehensive ad hoc reporting solution according to user requirements. The solution to date has delivered approximately 1100 data fields identified in the Ad Hoc Reporting requirements documents. This project will extend this capability state-wide. The project will also position AHR to replace the Reporting Hub system over time, which contains more than 300 distinct reports, many of which will be replicated in the new reporting system.	1. Provide enhanced ad hoc reporting capability. 2. Roll AHR out to NC WISE LEAs starting in Winter, 2010 3. Upgrade current architecture to support state-wide user load.	Contract with vendor of standardized reporting tools to provide the project deliverables under existing sole source contract already approved by ITS procurement. DPI has provided the vendor with information on anticipated user population (now and future). DPI will provide the production hardware and software environments, but the vendor will provide the state-wide environment design and specification.	22,397,500	06/06/2008	12/31/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
CEDARS - Reporting	COTS - Greater than 20% Modification	$500,000 - $3,000,000	Provide DPI users with the ability to run EDEN and the 10 standard, high priority agency reports from the CEDARS data warehouse.	- Issue an RFP to a vendor to deliver the scope of the project. - Build the EDEN and 10 high priority DPI reports from the data in the CEDARS data warehouse that will be used by DPI personnel.	Send out an RFP as part of Data Warehouse project that requests optional solutions and tools to meet Data Warehouse Reporting needs. Depending on responses from the RFP, DPI may exercise other options such as contract hires or internal development of reports utilizing current licensed products. - build the EDEN Reports and 10 high priority agency reports based on DPI specifications.	22,381,861	07/09/2008	05/31/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
CECAS 2.0	COTS - Less than 20% Modification	> $3,000,000	Provide a state-wide EC solution to manage all Exceptional Children Processing such that the solution: - Ensures optimal use of scarce educational funds .- CECAS will be a state-provided "infrastructure" application reducing overall support costs to the state. - Provide flexibility to meet changes in Federal mandates, such application releases would be timely, general application maintenance upgrades. - Provides constant state of system compliance with Federal and State regulations. - Improves system availability to users with higher quality application upgrades and releases. - Promotes a high rate of adoption of CECAS and consistent EC processes across the state.	Provide the required system that meets all mandatory requirements on schedule and within the project budget. Perform on-time, accurate status reporting. Successfully manage project-related issues and mitigate project risks.	This project will be initiated through an Intent to Contract with a Sole Source Justification for CORE Educational Consulting Services Inc. (ECS). The project will be implemented in a modular manner beginning with the Race/Ethnicity changes due to the need to coordinate the changes with other applications. Form conversions to the .NET framework will precede a hosting environment upgrade that will include an upgrade to SQL 2008. Other modules will be serially developed in a priority that will be determined as the project proceeds. The preliminary rollout plan will be in the following order: New EC Forms, Indicator report 11, Ad Hoc reports, user Interface Revamp, NC Wise Integration, Random Sample Module, Advanced Administration Module, and NCID Authorization/Authentication. Each module will be implemented in a test system and then in production (at ITS) following vendor, DPI, and user acceptance testing. When modules are implemented in production, they will be available to LEA users on a state-wide basis. There is NO pilot effort involving a limited number of LEAs prior	19,069,864	09/01/2009	10/31/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
					to roll-out. The project will be managed by a DPI Project Manager utilizing custom Project Management Institute (PMI) processes and deliverables. In addition, the project will adhere to the Project Portfolio Management (PPM) processes and procedures required by North Carolina Enterprise Management Office (EPMO) and Information Technology Services (ITS). A custom Software Development Lifecycle (SDLC) will be utilized to analyze, design, develop, test, and implement the application. In addition, Quality Assurance (QA) activities will be performed throughout the project to ensure that development activities performed comply with all quality procedures and standards established.			

2008 NC Department of Public Instruction
Agency IT Plan

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
eSIS: NC Transcript	Software Development	Part of Program - <$500,000	To have the students' printed transcripts include all scores for included tests and recorded exemption codes for included tests.	the project goals are to insure: - all changes to eSIS follow established configuration management processes - Training if required is planned, staffed and executed per plan - modifications to the software are acceptable and implemented in a timely fashion - modifications to the eSIS software for the NC Transcript Enhancement	The propriety system of eSIS requires a vehicle that will allow the CCB and internal DPI data stewards to request and receive enhancements via approved program budget for NC WISE which contains $250,000 per year for enhancements. This budget will be used for funding aal for solutioning of business requirements. The solutions will be individually funded through distinct contracts for each enhancement.	0	04/01/2009	11/02/2009

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
Licensure Automation System	Software Development	$500,000 - $3,000,000	The DPI is seeking a new licensure system solution to address the inefficient business issues listed above that were identified as a result of the business workflow analysis. The goal of this initiative is to include, but not be limited to applying for a license online, checking the progress of an application, viewing and printing the license, reviewing and updating individual licensure profiles, using digital signatures and receiving processing fees online. The DPI is interested in a web based licensure solution to import and store information and to automate the completion, submission and routing of licenses.	The scope of the Licensure Automation System is to procure and implement a web-based solution with workflow capabilities to enable LEAs, schools, and teachers to minimize paper applications, expedite submission of applications, minimize data entry by office staff, and reduce status inquiries by applicants who strive to obtain a North Carolina teaching license. This solution should be simple enough for non-technical users to create and submit a licensure application. The solution should also be easy for non-technical users to save copies of each application request submitted for their own files. Training will be required for the DPI business users and for those that will be supporting the solution. In addition, the solution should have the capacity to integrate with the current LMS system, HRMS, UID and Lic-Sal. Finally, the solution should have capabilities to	The proposed strategy for achieving this request is to publish a Request For Proposal (RFP). Stakeholders are responsible for participating in Requirements gathering to ensure that the requirements published in the RFP are flexible and meet the needs of the business. The RFP will be designed to provide pricing by functionality. This will allow us to prioritize the functions that are needed and are affordable. The project will follow the project management standards as directed by the DPI BPMO. We intend to take a Limited Production implementation approach. The Licensure processing specialists will receive manual applications via mail and will use those applications to enter information into the new solution as though they are entering them as the teacher that is making the application. This will insure that the new solution meets the necessary business rules and will also provide feedback for the QA and training for the DPI staff that will use the system. We intend to roll out the web-based solution state-wide. The incremental roll out will be the part of the solution that will integrate	6,084,052	05/01/2009	09/01/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
				import and store information and to automate the completion, submission and routing of license requests.	with internal DPI solutions such as HRMS, UID and CEDARS.			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
NC WISE eSIS 12.1 Upgrade	Infrastructure	$500,000 - $3,000,000	- Lower monthly support/maintenance costs - Increased functionality/features - Fixes to existing problems/deficiencies in eSIS 9.1 - Compliance with new Federal Race/Ethnicity Regulation	It is the goal of NC WISE to provide a satisfying experience to our users as they continue to use NC WISE in their day-to-day operations in the LEAs. We desire to secure the added CPU capacity and bandwidth such that each LEA, regardless of size or economic status, will have the same access to the state's implementation of NC WISE for their student's information. We also need the additional hardware to maintain adequate training databases so that LEAs will have access to training databases that are reflective of their user roles as they train their personnel: data manager, LEA coordinator, Nurse, Counselor, principal, etc. This hardware is also needed as NC WISE has many requests for copies of data from internal and external groups.	- Upgrade/install all releases from 9.1 to targeted Upgrade version (inclusive) - Test all core functionality - Test all NC-specific CRs and Enhancements - Test all other service impacting Enhancements - Load test all key components (procurement) - Ensure good workflow between various functional teams (QA, Training/Curriculum, Services Interfaces) to maximize limited time window - Modify and function test all add-on functionality from IBM from prior eSIS releases - Deploy at first available non-impacting window (November or December public school breaks)	2,625,000	08/10/2009	02/28/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
DPI ARRA Reporting		< $100,000	Collect and report the required data elements (including those not currently collected) quarterly to FederalReporting.gov. Respond to the governors request for monthly reporting. Insure the collected data is complete and accurate. Failure to report will result in loss of funding for the grants so non-compliance is not fiscally sound.	Develop a small application to aggregate the data elements into a database table or database view. Extract the elements into an XML format (as defined by the recipient reporting data model). Automate the process as much as possible to allow for monthly and quarterly submission. Piggy back on a BUD release to collect the currently uncollected data elements. Roll out BUD to Charter schools (who do not currently use BUD)	Using the Recipient Reporting Data Model, identify the data element in an existing collection. Define a file layout for existing identified sources which can be imported into an APEX/Oracle data base. The primary source of data is BUD. Add additional elements to BUD to ensure all required elements are collected. Mimic the Recipient Reporting Data Model in a table or a view in the Oracle DataBase. Produce an output XML file to match the XML version of the Recipient Reporting Data Model. Note O&M only 3 years (capitalization period 36 months). DPI ARRA Reporting will be retired when the reporting requirement is over, in 3 years.	3,520,000	08/03/2009	07/30/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
Child Nutrition System Server and OS Upgrade	Infrastructure	Part of Program - <$500,000	Successfully refresh environment used to host Child Nutrition System to ensure continued operation of the application.	- Refresh the system hardware. - Successfully upgrade the Child Nutrition System platform to newer levels of Microsoft server OS and SQL. - Migrate the Child Nutrition System to the new hosting environment.	The project will engage ITS to supply a refreshed hosting environment. This environment will be 3 tiered with virtual servers and updated levels of OS and SQL. A Test environment that mirrors the production environment will also be created at this time. (The Current Test environment is on the vendor's machines) Colyar Consulting will be engaged to port their application to this new environment. Depending on the effort required, the work will be funded out of the current maintenance agreement, or a contract amendment will be used. The existing environment will not be brought down until the new environment is successfully verified and accepted. At that point the users will be moved over to the new environment. This will limit the amount of "down time" for the application.	5,371,875	10/16/2009	12/15/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
HR Portal - Phase I	Software Development	< $100,000	The business goal of this project is to become an "Employer of Choice" – through a favorable first impression – first point of contact is a 21st Century recruitment process which is fast, reliable, and responsive. The Human Resources Department seeks to eliminate the employee recruitment paper-process and implement an online application system for recruitment.	Phase I of this project will provide the following: - the ability for HR staff to post/manage online vacancies - the ability for applicants to complete online employment application - The ability for HR to review and screen potential candidates; then email qualified applications to the appropriate Hiring Manager.	A custom Software Development Lifecycle (SDLC), utilizing rapid application development, will be the method to analyze, design, develop, test, and implement the application.	380,952	10/28/2009	09/30/2010

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
Child Nutrition DCV ETL	Infrastructure	< $100,000	- LEAs are reimbursed $2.70 per student per day for students that are certified as illegible for free lunch and $2.30 per student per day for students that are certified as illegible for reduced lunch. Increasing the frequency of the certification process to daily from monthly has the potential to increase the reimbursements amounts to the schools. - Create a delightful experience for the user.	The scope of the project will involve the modification of the customized software application DCV (The Direct Certification Verification process) to automate the loading of DPI NC WISE and DHHS data on a daily basis. DPI and DHHS data will be cleansed, matched on common data elements, merged, and stored in an Oracle data repository using customized business rules. In addition to the modifications in loading the data, the user interface "front end" will be modified keep data in the "Current Match" tab until the data is downloaded. At that point, the data will be moved to the YTD tab. This project will conform to the State of North Carolina Technical Architecture and DPI Enterprise Architecture. The project will be hosted at ITS. This project will not interface with any other DPI applications including the Child	- Strategy – Engage the TS Enterprise Development Team (EDT) to make modification to the DCV application automate the loading of the DCV application with DHHS and NC WISE data - Modify front end of application to adapt for daily data loading and certification - provide modifications requested by application owner - Use PM practices and work with EPMO to drive project	0	04/01/2010	07/30/2010

2008 NC Department of Public Instruction
Agency IT Plan

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
				Nutrition Technology System. All functionality contained within the Child Nutrition Technology System is considered out of scope for this project.				

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
School Connectivity: NC Education Cloud Planning	Infrastructure	Part of Program - <$500,000	DPI proposes the deployment of an NC Education Cloud as a core platform for shared services across the education enterprise.	The Friday Institute will lead the planning, pilot, and initial deployment work associated with the NC Education Cloud. Specifically Phil Emer will direct and lead the completion of the work deliverables with support from Lee Sartain.	1. Collaborate with DPI, LEA's, and MCNC to develop, populate and deploy a sustainable database of school connectivity. The database will provide; loop capacity, internet bandwidth capacity, NCREN backbone connection details, and related data. The database will be searchable as the authoritative source of up to date connectivity information. Primary uses of the database will be for upgrade planning both as a result of local usage patterns and related to the deployment of common infrastructure and services statewide. Upon completion of the database of the operational database Phil Emer will collaborate with DPI and ITS to specify requirements for MCNC related to the ongoing maintenance, reporting and populating of the database. 2. Collaborate with DPI, ITS LEA's, and service provider community to develop and deploy NC Education Cloud services. Education Cloud services will support both DPI-managed administrative systems and LEA-hosted and managed systems. (While there is a clear requirement to' identify' additional target infrastructure and cloud services for deployment;	2,000,000	03/12/2010	07/29/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
					Any new initiatives would need to be examined and approved by DPI Leadership, OSBM and ultimately the General Assembly as an Expansion Item to our Budget). An RFP would be developed to procure the cloud services for pilots. 3. Assist DPI Connectivity Services team in documenting process and best practices for moving forward in the operating phase of SCI - which begins July 1, 2010. This will include practices related to LEA e-rate support; supporting municipal and LEA operated wide area network infrastructure models; processes for continuous monitoring of connectivity services and supports; developing and optimizing relationships with ITS and legislative oversight groups and departments.			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
WCPSS and CMS NC WISE Integration	Infrastructure	> $3,000,000	A primary focus is to avoid/minimize the impact on WCPSS and CMS day-to-day business operations and the way WCPSS and CMS conduct business. This means WCPSS and CMS will continue to perform work from the central office. However, processes that impact state standards, such as reporting, need to be reviewed. Business process obstacles that arise during the planning process will be addressed by the full transition team for resolution prior to system transition. Obstacles that arise that result in operational cost increases to WCPSS and CMS or DPI will be funded by their respective organizations.	The main goals of the project are: - To incorporate the WCPSS and CMS student information systems into the statewide NC WISE system. - To avoid/minimize the impact on WCPSS and CMS day-to-day business operations and the way WCPSS and CMS conduct business. - To create one single authoritative source for all student information in the state of North Carolina which includes WCPSS and CMS - WCPSS and CMS eSIS student information systems will be integrated with the other state-wide systems as Data Center 18 in the Western Data Center, which is in close proximity to Charlotte, NC. - Ensure operational, data, and performance requirements of NC DPI and WCPSS and CMS are met. - Eliminate the cost of	The High Level Steps for this project are: 1. Obtain Executive sponsorship to approach from NC DPI and WCPSS and CMS. (Completed) 2. Complete Project Schedule, Gap Analysis, Business Process Modifications (BPR), and Costing 3. Complete Business and Technical Requirements 4. Duplicate Student Resolution 5. Data Readiness and Porting to NC WISE 6. Build Hosting Solution 7. Test and Implement Business and Technical Solutions 8. Go Live -- Production	4,618,424	06/08/2010	09/30/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
				doing work in triplicate, once for DPI, once for WCPSS, and once for WCPSS and CMS, for every new DPI initiative. Saving over $245k/year internal cost. - Enable RttT through full integration of WCPSS and CMS eSIS systems for one state-wide, fully auditable system. RttT funding ($400M) is at risk without this capability.				

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
Computerized Instructional Management System	COTS	> $3,000,000	The business goals for this project are to: - Meet Carl D. Perkins Career and Technical Act of 2006 reporting requirements using a new and improved testing solution - Provide a vendor supported software as a service and hosted solution - Do statewide implementation of the solution piloted last year - Empower LEAs, teachers and students to excel in a global 21st Century environment by advancing in technology skills - Revolutionize Career and Technical Education by providing the tools and services that enable educators to better and more effectively manage the process of test generation, test administration, data collection, data validation, data reporting, item bank creation, item bank reliability, and item bank validation - Replace multiple applications by streamlining CTE business processes	Provide a statewide mechanism, a web-based Commercial-off-the-Shelf (COTS) Service Computerized Instructional Management System, to maintain curriculum and track student performance data. CMS software is 11 years old and is not a viable option at this time. CTE Support Services consultants would like to replace the CMS Software with a new web-based application that will provide - Online and paper based(bubble sheets) customization of testing and assessment - Itembank creation as well as storage and test generation management that will allow teachers to develop test by objectives to include powerful data analysis features for state and local reporting - Parent Notification - Grading Features - Development of teacher plans/lessons	There will be a statewide implementation of the CIMS application that was piloted earlier this year. ITS will provide the hosting services. DPI will purchase service licenses for approximately 350,000 students. The vendor will be required to adhere to and meet the state's security requirements in protecting student data following FERPA and NCPI2 regulations. The vendor will also be required to provide a technology roadmap. NCID is the required Identity management system for this rollout for administrators and teachers. Student authentication will initially be provided by the vendor's application. The Computerized Instructional Management System will consist of - Standards Library - provides the ability to import the NC CTE Standard Course of Study curriculum standards and allows items to be attached to standards within the item bank - Item Creation - provides the ability to create item banks including images, addendums, and a variety of question/score types - Test Generator - provides the ability to create either manual or auto/randomly	20,724,054	07/06/2010	01/31/2011

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
			(CMS 95, TestMate Clarity, Scan and Score, Internet Date Exchange for Accountability) Research has shown a need for a Computerized Instructional Management System containing maximum capacities in the following areas: - Manage and distribute item banks - Online management of regional, state, and local assessments - Provide the capability to import and export data to external systems on a student, at an LEA, state, and school level - Perform basic analysis on student assessment data - Provide numerous reports	- State and local assessments - State and local reporting - Scan and score both interim assessments and post assessments - Provide the capability for data import sand export of individual student data - Basic statistical analysis - Flexible print options	generated tests based on a set of standards - State Assessment - provides the ability to administer/scan/score State created tests - District Assessment - provides the ability to administer/scan/score LEA created tests - Classroom Assessment - provides the ability to administer/scan/core teacher made tests and quizzes in the classroom' - Online/Offline Testing - provides the capability to perform online test administration - Report Portal - provides access to class based reports for all assessment types - Report Engine - provides advanced analysis for performance reporting at the State, Regional, LEA, School, Class, Student, AYP Subgroup, Standard, etc. levels - Multi-year Analysis - provides the ability to track assessment data over time beginning in the pilot year - The CIMS plans to use the following integration styles of the ESB: Managed File			

Project Name	Type of Project	Project Class	Business Goals	Project Goals	Proposed Strategy	Total Benefits	Start Date	End Date
					Transfer , Data Transformation and Workflow Management			