

State of North Carolina



North Carolina Window of Information on Student Education: Wave 3



Nomination Category: Government to Government

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B. EXECUTIVE SUMMARY

The North Carolina Window of Information on Student Education (NC WISE) is the largest educational technology initiative ever undertaken in the history of the State of North Carolina. In North Carolina, funding for the public school system is a shared responsibility. The state pays for teachers, books, and certain administrative systems. Local governments are responsible for facility construction and operation. NC WISE had to meet the needs of both state and local governments for information.

The effort was to bring a centralized student information system to all of the public and charter schools in North Carolina replacing a 20 year old decentralized desktop system. This system would transform school business and insure that state education policy was enforced across all schools and the Local Education Agencies (LEA). Once started, the initiative underwent severe difficulties in cost and execution and was close to being canceled in 2006.

After the Department of Public Instruction took full control of the project in 2006, the Wave 3 initiative was kicked off in 2007 to meet a State Board of Education mandate of having NC WISE available throughout the state by June 30, 2009. Wave 3 started in May of 2007, deployment was completed in early March of 2009, and the initiative was closed on June 30, 2009. The completion of NC WISE brought immediate benefits at the local and state level. This is emphasized as 115 LEAs, 2043 Schools, and 1.8 Million students are now served by the system. The system ensured all schools and agencies supported by the system had standard reporting; utilized the standard transcript; courses and curriculums were in accordance with policy; and local, state, and federal reporting were centrally supported.

NC WISE provided significant business transformation allowing LEAs to utilize the Web to conduct school business from registrations to student performance. The system also allowed the state to move forward in instituting a Unique Identification System for all students and to grow beyond K-12 support to start enabling P-20 support and services in the development of a longitudinal data system with NC WISE being the authoritative source for student data.

In addition to its core student information system functionality, the system provides data as needed to other local and state government offices and most recently supported the Governor's monitoring of the H1N1 pandemic in the schools. In providing data back to the schools and LEAs on a regular basis, the system supports local systems that provide for school lunch, transportation, emergency alerts, etc. This demonstrates the versatility of the system in supporting not only school business and student performance but also the health and safety of our public schools.

In conclusion, the NC WISE system is a large enterprise system that is the cornerstone education system in North Carolina. Significant benefits in the centralized system have already been realized and as NC WISE integrates with other systems additional benefits will be realized.

C. DESCRIPTION

In 1999, the General Assembly of the State of North Carolina funded the North Carolina Window of Information on Student Education (NC WISE) program. This program was initiated because each Local Education Agency (LEA) was running a desktop based student information system using PCs running on Windows 98 called the Student Information Management System (SIMS). The SIMS system was costly to maintain across 2000 schools and 115 Local Education Agencies (LEAs). In North Carolina, funding for the public school system is a shared responsibility. The state pays for teachers, books, and certain administrative systems. Local governments are responsible for facility construction and operation. NC WISE had to meet the needs of both state and local governments for information.

NC WISE was to provide a centralized student information system that would replace SIMS. NC WISE is to date the largest education initiative undertaken by the State of North Carolina. The first rollout of NC WISE to North Carolina Public Schools occurred in 2004 designed to integrate all aspects of public school life from the classroom to the central office. The system is Web-based and centrally maintained for capturing, accessing and reporting a wide spectrum of student information.

The initial deployment of NC WISE was vendor controlled and ran into significant cost and deployment issues. By 2006 deployment and training only covered about 40% of the state with over \$250 million spent on the program. The program was nearly cancelled but efforts by the Department of Public Instruction, the State Board of Education, the General Assembly, and the state's Office of Information Technology Service agency led to the vendor contract being cancelled and a revitalized internal state run deployment and implementation plan was put into place.

Wave 3 was the major program initiated by the Department of Public instruction to complete the rollout and implementation of NC WISE. It was preceded by a smaller trial deployment called Wave 2. In 2009, NC WISE completed the statewide rollout which includes all of the state's 115 LEAs and 98 charter schools. NC WISE also supports the schools services of two state agencies: Department of Health and Human Services and the Department of Juvenile Justice and Delinquency Prevention. Wave 3 brought on 1104 schools, 40 LEAs, and nearly 650,000 new students. The effort used a "train the trainer" model and trained close to 100,000 North Carolina teachers plus administrative and support staff.

Technical staff at the state level worked closely with each LEA and school to get their SIMS data prepared, cleaned up, and imported into the NC WISE system. In most cases this allowed for a direct cutover from SIMS to NC WISE. When warranted, schools were allowed to operate a dual system for a short period of time to insure school business processes were not negatively impacted as conversions were conducted during the school year. NC WISE is composed of three basic components: (1) Electronic Student Information System (eSIS) allows individual schools to manage student information from the teaching staff up through school administration of school

districts, between schools within a district and to universities and colleges in North Carolina. (2) Electronic Data Interchange provides the capability to electronically transmit all student instructional records, transcripts and demographic information between school districts, between schools within a district and to universities and colleges in North Carolina. (3) Uniform Education Reporting System (UERS) transfers information from the local school district to the North Carolina Department of Public Instruction (NCDPI) supporting statewide funding of LEAs.

Essentially, NC WISE integrates all aspects of public school life from the classroom to the central office. NC WISE provides standardized course coding, curriculum, grading scales, scheduling, and transcripts to all schools ensuring that State Board of Education standards are being followed and met.

As a Web-based system, the total hardware footprint of NC WISE is comprised of 220 servers consisting of production, support, and other auxiliary systems. The tiers in production are respectively the Web Tier, Application Tier, and Database Tier. Data is stored in Oracle databases attached to SAN storage. The total NC WISE data footprint (production and non-production) is close to 11 Terabytes of data. The hardware is Sun Microsystems Intel based systems using Redhat Linux and Sun Solaris systems.

Being in operation as a centralized statewide student information system since March of 2009, NC WISE supports 1.8 Million K-12 students in North Carolina. During the peak reporting periods that encompass report cards, progress reports, and other school reports, the system produces over 200,000 reports per day in electronic format. There are multiple two week reporting periods throughout the school year where that high level of activity occurs. In addition, the system collects daily attendance and absences throughout the school day resulting in the NC WISE web tier receiving over 30 million web transactions per school day.

D. SIGNIFICANCE

The significance of NC WISE is not only encompassed by its core functionality of being a student information system that supports LEAs in registration, course code selection, standard curriculums, reporting and electronic student record transfer, it is the state's authoritative source for student data.

The availability of centralized student data has provided extended service to the LEAs and schools. NC WISE data extracts allow LEAs and schools to input NC WISE data into their support systems enhancing their services with up to date and accurate student data in such areas as: (1) Transportation, (2) Four-year Planner Systems, (3) Hand Held Student Location Devices, (4) Emergency Alert Systems, (5) Food Service System and (6) Point of Sale Systems.

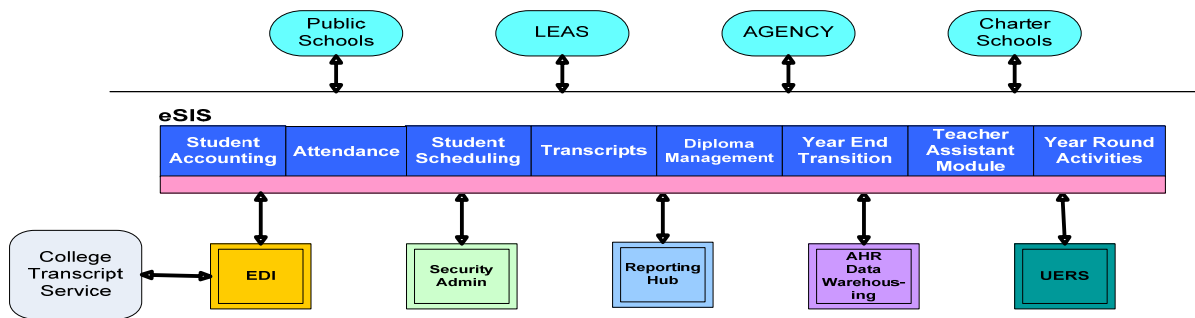
The NC WISE solution is improving and will continue to improve in its software performance as staff continues to meet the needs of the LEAs, Schools, NC Legislature, Governor's Office and the State Board of Education. An example of this alignment is the ability of the state to provide 21st Century Systems which is a State Board of

Education goal. The system is currently being integrated with the new statewide longitudinal data warehouse and Unique Student Identification system that will serve students statewide from Pre-kindergarten through Grade 20, that is: P-20 instead of just K-12. The system also provided daily updates at the request of the Governor’s Office in 2009 reporting on school absences to monitor the H1N1 flu pandemic.

NC WISE data is also used by researchers and educators from the schools to across the state. This data includes student performance, health, and disciplinary information that are used to improve school services, school safety, and student performance.

A key significance of NC WISE to the LEAs was business transformation whereby consistent state school business processes were put in place. From the description of the project this can be put in context with the solution architecture shown in Figure 1:

Figure 1: NC WISE Solution Architecture



E. BENEFIT OF THE PROJECT

The total cost of the Wave 3 initiative was \$8,573,970 consisting of contracting support staff and internal state resources. Contract support utilized technical personal for system and data support plus trainers who provided the key business transformation effort in the schools. This transformation allowed schools to move from the older SIMS system to NC WISE ensuring that North Carolina school business objectives were met. The annual financial benefit per fiscal year through cost avoidance and benefits received from Wave 3 is over \$16 million at both the school and LEA level. Tables 1 and 2 below depict School and LEA cost avoidance respectively.

Table 1: School Cost Avoidance from SIMS to NC WISE Per School

Annual Material Savings Costs	Amount	Total
Annual Backup Supplies	\$150	
Reporting Supplies	\$600	
Data Storage	\$45	
Maintenance	\$100	
		\$895

System Access Savings	Adjusted School Rate	Hours/Day	Days	Amount	Total
Reduced Manual Calculations	\$13/hr	1	60	\$780	
Real-time Access	\$13/hr	4	240	\$12,480	
(Above includes automated and real time access and calculations for grade book functions, attendance tracking, athletic eligibility, discipline, etc. access by teachers, principals, guidance counselors, etc.)					
					\$13,260
Total Annual School Savings Benefit					\$14,155
Total for 1104 Schools					\$16,627,120

Table 2: Annual LEA Cost Avoidances from SIMS to NC WISE

Annual Material Savings Costs	Amount	Total
Reporting Supplies	\$600	
		\$600

State Reporting Savings	Adjusted LEA Rate	Report Build Frequency	Avg. Hrs Spent Per Report Build	Total Cost
Principals Monthly Report (PMR)	\$15/hr	9	8	
Student Activity Report (SAR)	\$15/hr	5	8	
Drop Out Rate	\$15/hr	5	8	
Exceptional Children	\$15/hr	2	8	
Hope Scholarship	\$15/hr	1	8	
Others	\$15/hr	8	8	
Total		30	8	\$3600

Annual LEA Savings Benefit				\$4,200
Total 40 LEAs				\$144,000

Total Statewide Annual System Benefit: (\$16,627,120 + \$144,000) = \$16,771,120

The Department of Public Instruction also received an immediate cost savings of \$25,000 by not addressing SIMS calls through the Service desk. With School, LEA and Agency savings, the \$16 Million was readily obtained with the first year of deployment.

NC WISE significantly supports the NASCIO's 2010 priorities as follows: **(1) Budget and Cost Control:** *managing budget reduction, strategies for savings, reducing or avoiding costs, activity based costing* -- NC WISE provides a single infrastructure that allows Operations & Maintenance (O&M) costs and project costs to be controlled more efficiently at the state level and reduces the cost to each LEA by providing consolidated services. Wave 3 was able to reduce its budget costs by over \$3 Million during implementation. **(2) Consolidation:** *centralizing, consolidating services, operations, resources, infrastructure, and data centers* -- NC WISE centralized the state's student information system infrastructure. **(3) Shared Services:** *business models, sharing resources, services, and infrastructure, independent of organizational structure* -- NC WISE created a shared student information system that allows all LEAs, government entities, educators, and researchers to use the same system for reporting and policy enforcement. **(4) Broadband and Connectivity:** *strengthening statewide connectivity, broadband and wireless* -- NC WISE pushed forward the state's E-Rate Project insuring that each LEA has sufficient connectivity and bandwidth to use NC WISE along with other networked instructional services such as North Carolina Virtual Public School courses. **(5) American Recovery and Reinvestment Act:** *execution, support, reporting, data management* -- NC WISE has supported ARRA initiatives within the Department of Public Instruction by providing needed student data. **(6) Security:** *risk assessment, security safeguards, enterprise policies, employee education, data protection, insider threat* -- NC WISE as a statewide enterprise education system has implemented appropriate security controls to insure proper usage at the local, LEA, and state levels. This is augmented by meeting FERPA and HIPPA requirements. **(7) Transparency:** *open government, performance measures and data, accountability, access to government data* -- NC WISE improved availability of student data and accountability for that data making it available to government agencies and support services as required. **(8) Infrastructure:** *data centers, infrastructure investment, critical infrastructure protection* -- Wave 3 provided a statewide infrastructure that can grow and adapt to a growing student population and change government needs that arise at the state and federal level. **(9) Health Information:** *architecture, assessment, partnering, implementation, health information exchange, technology solutions* -- NC WISE maintains student health information as well as the ability to determine school absentee rates. This provided an important service to state government during the H1N1 pandemic. **(10) Governance:** *improving IT governance, data governance* -- NC WISE has significantly improved school business which assists LEA boards in decision making. It also assists with education governance at the state level insuring that state funding is accurately provided to schools and policy decisions can be supported with data driven decisions. The NASCIO goals could not have been realized without Wave 3 providing a centralized state student information system.