

**North Carolina Community College System  
Learning Technology Systems Business Requirements**

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May 20, 2009

**Overview**

The North Carolina Community College System (NCCCS) Learning Technology Systems (LTS) Department provides e-learning infrastructure, resources, and support for 427,018 curriculum course enrollments and 63,406 occupational and continuing education enrollments across the state (2007-08 academic year, duplicated head count). Efforts of the LTS are based on

1. Innovative business requirements that have evolved over the past five years as the NCCCS has accommodated student demand for e-learning instruction;
2. Recommendations of the NC e-Learning Commission; and
3. The assumption that only through collaboration and realization of economies-of-scale solutions, can the NCCCS provide uniform, robust learning opportunities to all adult learners across North Carolina.

**Goals of Business Requirements for the Learning Technology Systems Department**

- Enhance “opportunity and access” of learning to NC adult learners
- Improve quality of instruction, learning content & delivery tools
- Ensure that NCCCS is a good steward of public money
- Network the 58 NCCCS institutions to realize economies-of-scale solutions

**Responsibilities of the NCCCS**

- Support community colleges
- Provide for community colleges what they cannot provide themselves
- Promote quality and assessment
- Maximize number/quality of flexible resources to colleges – establish a menu of compatible, integrated resources
- Establish a protocol that inexorably improves resources over time

**Learning Technology Infrastructure Objectives**

- Establish robust/uniform learning/teaching tools and resources state-wide
- Realize economies-of-scale in all investment of new public allocations
- Reduce duplication of development costs, networking, & effort
- Establish a culture of collaboration; Connect & integrate NCCCS with K-12 & UNC
- Adopt protocols that utilize an “alignment strategy” and “integrated functionality” to fully realize economies of scale while simultaneously upgrading learning/teaching technology System wide

**Business Requirements**

- Provide a basis for planning and resource management
- Comply with State and System visions & missions
- Provide a template for integration, coordination, and cost savings
- Collectively and over time serve to transform independent components into an integrated system of services/resources
- Provide NCCCS advantages in vendor contract negotiations by:

- Improving efficiency of vendor/client relationships & communications
- Fostering a culture of assessment
- Streamlining business processes
- Provide appropriate language for business analysts, legislators, and administrators
- All e-learning infrastructure, content development, and support components must support and/or be in alignment with
  - Recommendations of the NC e-Learning Commission & PreK-20 focus
  - An Alignment Strategy that places emerging e-learning infrastructure and support services of different educational entities on converging paths
  - Integrated Functionality concept
  - Good stewardship of public funds – reduce duplication of development costs
  - Spirit of collaboration and resource sharing
  - A Culture of Assessment

### **Goals of an Alignment Strategy**

- To replace institutional-centric (silo effect) instructional technology with System-centric instructional technology solutions
- To evolve procurement strategies that place institutions (and Systems) on converging technical paths utilizing the "best of breed" and/or best value technologies based on common standards and volume purchases/discounts; Contracts reflect true consortium solutions
- Emphasis placed on technology that promotes collaboration and sharing of resources while reducing duplication of time, effort, and cost
- Provide robust and uniform learning technology services to all community colleges
- Collaborate with PreK-20 North Carolina partners to establish technology platforms that support consistent, seamless instructional technology
- Establish partnerships with regional and national leaders in sharable instructional technology and systems
- Explore alternative solutions and economic models for mission critical technologies
- Transition from traditional proprietary to open source instructional technology and/or scalable, proprietary technology that accommodates consortium licensing & networked access
- Establish a state-wide Learning Object Repository for digital learning and teaching content
- Develop tracking of digital content use for ROI calculations
- Develop consistent policy and funding models that facilitate learning technology
- NCCCS staff will continuously evaluate current & emerging solutions
- Goal of single sign-on, permissions-based, ever improving array of applications
- All hosted applications to reside on the NC State "Backbone"

### **Integrated Functionality** – process of migration to instructional technology solutions that

- Are standards-based
- Are scalable
- Are open source or licensed via aggregate FTE/enrollment basis
- Vendor interoperability
  - Open APIs, available to all NCCCS vendors
  - Avoid "vendor lock-in" situation in which a single vendor has exclusive contract with NCCCS
- Provide a menu of learning/teaching/sharing resources in which
  - All e-learning infrastructure/support components must be compatible

- Collective components will form a menu of solutions to maximize flexibility and increase choices for colleges, departments, and instructors

### **Culture of Assessment**

- All aspects/components of NCCCS e-learning/distance learning infrastructure will undergo an assessment process to ensure accountability and document performance
- A “culture of assessment” is now the goal of the LTS and will form the foundation of how e-learning/distance learning infrastructure, content development, and support services evolve over time – based on the effectiveness of existing assessment protocol of Library Automation and Cataloging Services

### **Balanced Learning Technology Infrastructure**

Six resources are required by all comprehensive community colleges to fully support learning technology. Should any of the six not be present, support for learning technology is jeopardized. These resources must be “balanced” and compatible.

#### **Six Resources Required at all Community Colleges**

1. Data network and broadband connectivity
2. Instructional content
3. Ability to deliver content
4. Support services for students, instructors, and support staff
5. Means to collaborate and communicate at departmental, discipline, and college levels
6. Library automation and cataloging services

#### **Six Resources Required to Support Community Colleges at a Systems Level**

1. Broadband connectivity
  - a. Expanding NCCCS data network
  - b. Improved connectivity in local & regional service areas
  - c. Access to state backbone
2. Learning & teaching content
  - a. Capacity to develop and deliver digital learning content (VLC courses & Learning objects)
  - b. Use of commercial learning content (example: NROC)
  - c. Use of STEM supplements (example: LateNiteLabs)
3. Delivery vehicles
  - a. Course management system (Blackboard & Moodle) to conduct online teaching & learning
  - b. Learning object repository for cataloging, accessing, acquiring and sharing content
  - c. Collaboration tools – webinar & communication resources (Elluminate & Wimba)
4. Support services
  - a. Online help desk (students)
  - b. Professional development (VLC & NC-NET)
5. Collaboration
  - a. Establish best possible planning, support & infrastructure
  - b. Realize economies of scale (VLC Development and Support Centers)
  - c. Ensure proper spending of public allocations
6. Library resources
  - a. Library automation services – SIRSI/CCLINC

- b. Cataloging services
  - i. Original cataloging
  - ii. Authority records
  - iii. Cataloging training
  - iv. Help desk services

**Current Level of Six Resources System-wide**

1. Upgraded broadband connectivity – base level 100Mbps per main campus
2. VLC development centers and purchase/adoption of commercial learning objects
3. NCLOR, Bb contract and Moodle initiative
4. Online Help Desk for students and faculty/staff professional development via NC-NET & VLC
5. Elluminate/Wimba & expanded NCIH sites & virtual conferences/meetings
6. Adjusted instructional resources budget

**Basis for Change: A Dynamic Business Requirements Strategy**

All learning technologies adopted now and in the future will be

- Compatible
- Standards based
- Scalable
- Open source or licensed through true consortium contracts, resulting in substantial cost reductions
- Hosted centrally or regionally on the NC backbone (via MCNC, ITS, or higher education hosting centers)
- Based on identified common needs & solutions & networks
- Established by workgroups, “People networks precede technical networks”
- Established with collaboration incentives
- Established with shared resources

**Example: North Carolina Learning Object Repository**

- Centralized on state backbone
- Economies of scale savings – hardware, software license, IT support
- System-wide, state-wide distribution
- Standards based – can “federate” with other state & regional LORs
- Developed by PreK-20 leadership group
- Contract and scope of project created for total PreK-20 expansion
- CMS independent learning content repository
- Reduces cost/effort of duplication
- Enables educators to share work
- Based on quality standards
- Supports individual, group, & commercial items and/or collections

**Example: SIRSI/CCLINC Consortium**

- Fully functional, expandible Integrated Library System serving 46 community colleges
- Prototype for NCCCS consortium solutions – identified by ITS as “best legacy consortium” in NC
- Customized RFP vendor selection process progressing to consortium contract and organization
- Economies of scale savings – hardware, software license, IT support
- Integrates/supports Cataloging Services

- Streamlines library services
- Excellent example of vendor/client cooperation/collaboration
- 99.99% up time record
- Mature resource complete with assessment strategies and client-controlled governance

### **Funded Infrastructure Components 2008**

<b>Bandwidth</b>	<b>Content</b>	<b>Delivery</b>	<b>Support</b>	<b>Collaboration</b>	<b>Library Resources</b>
<sup>3</sup> <i>Data capacity</i>	<sup>2</sup> <b>Learning objects</b>	<sup>4</sup> <b>Blackboard</b>	<sup>4</sup> <b>Online Help Desk</b>	<sup>2</sup> <b>VLC expansion</b>	Books, e-books, journals
<i>Centralized services</i>	<sup>2</sup> <b>Learning modules</b>	<sup>1</sup> <b>Moodle</b>	<sup>2</sup> <b>Online orientation</b>	<sup>6</sup> <b>SIRSI/CCLINC</b>	digital content & learning objects
<i>*LEA, CC &amp; UNC partners</i>	<sup>2</sup> <b>Online courses</b>	<sup>1</sup> <b>Elluminate</b>	<sup>2</sup> <b>VLC staff development</b>	<b>2+2</b>	<b>NCLIVE</b>
<i>Satellite campuses</i>	<sup>1</sup> <b>Curriculum Pathways</b>	<sup>6</sup> <b>ITV Video services</b>	<sup>5</sup> <b>NC-NET</b>	<sup>5</sup> <b>NC-NET</b>	Other Instructional resources
<i>*Regional networks</i>	<sup>1</sup> <b>LateNiteLabs</b>	<sup>1</sup> <b>NCLOR</b>	<sup>1</sup> <b>LEARN NC</b>	<sup>1</sup> <b>NCLOR</b>	Help Desk
<i>Uniform services</i>			<i>TLT (UNC) Collaborative</i>	<sup>1</sup> <b>Open Source Collaborative</b>	
<i>Future expansion at local level</i>			<sup>4</sup> <b>LTS Staff Positions</b>	<sup>4</sup> <b>Virtual Computing Lab</b>	
			<b>2+2</b>	<sup>1</sup> <b>LEARN NC</b>	

<sup>1</sup>**2+2 Funding**

<sup>2</sup>**Virtual Learning Community Funding**

<sup>3</sup>**Broadband Connectivity Funding**

<sup>4</sup>**Expansion Budget Funding**

<sup>5</sup>**NC-NET (2+2) Funding**

<sup>6</sup>**Previously Funded**

### **North Carolina e-Learning Commission Phase Two Recommendations**

- Recommendation #2: Provide comprehensive e-learning opportunities for all North Carolina Citizens...and ...ensure coordination and seamless access to all e-learning opportunities for all citizens
- Recommendation #9: Establish the NC Learning Object Repository (LOR) to support PreK-20 e-learning
- Recommendation #12: Identify and implement a common online learning platform LMS (CMS) statewide
  - Must contain multimedia, collaboration tools and assessment tools
  - Must support interactive learning objects, and have tracking capabilities
  - Must accommodate age appropriateness and be easy to use by all including developmentally and intellectually challenged users
- Recommendation #13: Exercise economies of scale purchasing to reduce the cost per student in all instructional technologies

- Negotiate single contracts for all instructional and distance learning technologies with licensing determined by an FTE/enrollment formula encompassing all educational systems
- More flexible procurement, including multi-year contracts to maximize cost effectiveness
- Invest in appropriate “open source” learning technologies to eventually replace proprietary systems and avoid escalating costs