Information Technology Strategic Projects
2015-2020
Executive Summary

Overview: This project list represents a 5-year strategic plan for Information Technology Services at the Board of Regents (BOR). These projects are designed to create a federated system of constituent units with common areas of collaboration or collaboration suites. Many of the projects will be developed from pilots; to ensure the investment is sound, there is full commitment to change and adequate staff resources, and the initiatives will achieve their respective goals and objectives. These initiatives are designed to create strategic efficiencies and interdependency in technology among the constituent units. Some of the initiatives will require the same set of staff skills, which are limited due to their operational requirements. To be successful, the sequencing of initiatives and execution must be carefully planned to ensure technical staff are available and committed to the projects. Essentially, all projects will require presidential support and staff commitment, but not all projects will be implemented at every campus. Some of the initiatives will impact all members of the campus community and the BOR, such as campus networks upgrades. On the other hand, cross campus registration is a large and costly project with the potential to enhance course availability, but it may not prove to be a wise investment of scarce resources, since the potential impact on students is relatively low. Currently about 300 students cross register, this is the basis for using pilots to ensure adequate return on investment (ROI).

Finally, as this journey begins the development of an interdependent and federated system, it is important for the BOR to move towards standardization and common platforms. For example, as the system moves closer to a major strategic decision regarding ERP, common operational and third party platforms will create efficiencies and reduce operating, maintenance and acquisition costs. For example, the CCCs and two of the Universities use TouchNet, while two Universities use Nelnet. To a lesser extent, there is no standardization with regards to video conferencing (Cisco vs. Vydyo) and assessment programs with schools using a variety of platforms. This non-standardization will be costly in the future and will require strong presidential leadership to move to common platforms.

1. **Project**: Upgrade University Campus Networks, Telecom Systems (VoIP), Wireless for Seamless Access Across Campuses

   Current Situation: University networks, phone systems and wireless systems are at end of life (EOL), and our current phone system is 15 years old, with little or no VoIP, requiring a high maintenance and operational cost. EOL networks don't provide the necessary speed required to support student and faculty expectations, operating currently at 100 mb/ps at the desktop and 1 gb throughout the campus. There is limited wireless technology in the residence halls, which is detrimental to recruitment, retention and limits students' ability to be productive and socialize on campus. Older academic and administrative facilities don't have any wireless, only buildings constructed in the last 5 years. The college networks are in a similar situation, but some of these have been partially upgraded. The CCC project is currently over budget, out of scope, and behind schedule. There is no seamless access for students, faculty and staff throughout the constituent units. Video conferencing is used in limited applications within the system. Finally, a review of the fiber backbone is needed to ensure adequate support and the necessary redundancy or backup for the new network.

Proposal: Upgrade the networks to 10 gb on campus and in most sections of the LAN, with 1 gig to the desktop. Review fiber backbone to ensure it will support 10 gb network. Complete wireless throughout each campus, including outdoor open areas. Replace the existing digital voice switches with a VoIP system, which can be maintained at the local level, instead of waiting for the BOR to provide support. Video conferencing will allow the constituent units to share courses and reduce duplication of services and costs, at the discretion of the faculty and administration.

Value Proposition: This investment allows the campuses to compete in the market place. One of the first questions asked by prospective students is the speed of the network and the quality and extent of our wireless networks. The lack of robust network services in these areas negatively impacts our recruitment, retention and ability to graduate students. Many parents complain of high cell phone bills and most students are coming to campuses with tablets to research and socialize. Video conferencing of low-enrolled, duplicate programs will reduce costs and allow for timely graduation of students in these programs. An enhanced and secure network is the basis for all transactions and process on the campuses. Eliminate the auxiliary telecom system and transfer staff to constituent units, making Universities responsible for their networks and telecommunications systems.

One-time capital cost: $25M, quoted by Cisco.

Current Status: Elimination of CSU WAN completed, Elimination of Telecomm Charge Back System 60% complete, implementation of Networks and VoIP system 40%, pending additional Bond Funds.

OE Costs: Pending, current estimate is $2M if all network devices are covered with Smart Net, presently these costs are included in the capital investment for 3 years.

2. **Project**: Enhance Wide Area Network (WAN) & Disaster Recovery (DR). (WAN connects all 17 institution's Networks).

    Current Situation: WAN is saturated at 2 gb supporting the Universities and for the Colleges at 200 mb. Although they use the same provider, Connecticut Education Network (CEN), the WANs are separated and need to be joined to support other initiatives. Students and faculty constantly complain about bandwidth and administrators are concerned with having the production networks on the same connection as the residential networks. Furthermore, most campuses do not have a solid, industry standard backup strategy. Ideally, each campus would leverage the WAN to have redundant data centers for critical applications or in the cloud.

    Proposal: Refresh the WAN and join connections of all 17 constituent units directly to CEN for the Universities and to CEN through the BOR for the Colleges. Increase WAN speed, to 10 gb, along with associated firewalls and routers. Design the WAN to support specific administrative functions as encrypted transactions. This proposal allows and supports a new Disaster Recovery Strategy and federated student ID (a single ID across all 17 institutions), and provides faster Internet transactions to a client population living on the Internet. This initiative sets up the necessary backup and separate connections to residential and production networks.

Value Proposition: Creates a fast, secure, and backup DR function at sister institutions or Cloud Providers, leverage the WAN and eliminates single points of failure for critical applications that would damage the CSCU financial reputation and public image.

One-time capital cost: 350,000.00 per University, 174,000.00 per college.

Current Status: Universities will be converted to CEN by 12/15, Colleges are completed.

3. **Project**: Develop a Federated Student ID for Entire System

   Current Situation: Currently the community colleges and state universities have separate student ID systems that cannot be mapped to one another, e.g., student IDs in colleges are a chain of numbers with no indications of first or last names. This prevents students, faculty and staff at community colleges from accessing WIFI networks when they are on university campuses, and vice versa. These limitations directly restrict students, faculty and staff from being able to access resources at all CSCU institutions.

   Proposal: A federated student, faculty, and staff credentials will allow seamless network access across campuses.

   One-time capital cost: $750K

   Value Proposition: Eliminates costly overhead for administrating network accounts and provisioning accounts for applications.

   Current Status: RFP issued 11/15, Southern lead agency.

4. **Project**: Further Enhance Smart Institutions

   Current Situation: The initial $26.2m in base funding will establish the floor for classroom technology and allow for low-enrolled classes to be taught at multiple locations, at the discretion of the faculty and Provost, run as a pilot program. Additionally, the initial investment provides an influx of funds to support classroom technology that has traditionally been underfunded throughout the CCC and CSU. Using a grant process allows faculty to drive new technologies to support their respective teaching styles. The next level of investment will ensure full spectrum classroom technology is available in most lecture venue, allowing for video documentation of lectures to be available to students from a cloud based application on demand to their tablets from any location, again with faculty permission. This will enhance learning and review of materials, increase recruitment, retention and graduation rates. Currently, this capability doesn't exist on the campuses.

   Proposal: Equip a majority of classrooms with media equipment to capture lectures to be used by students during the semester to review and enhance learning outcomes. Lectures would be available through cloud services and on demand during the course of the semester. This becomes a menu for institutions to choose from in deciding what technology will best serve their students and faculty.

Value Proposition: Increased recruitment, retention and graduation rates, leveraging low enrolled programs and on demand access.

One-time capital cost: $20M, likely needed in 2017-2020

Ongoing impact on operating expenses: $100K in additional software licenses and hardware maintenance costs.

Current Status: Pilot phase completed, assessing results and moving to Phase I.

5. **Project**: Cross Registration, Degree Tracking, Proactive Advising

Current Situation: Currently, cross-registration of courses across campuses is only allowed between the community colleges, manually. Students from colleges cannot easily cross-register for courses from nearby universities, and vice versa, since the Universities require stricter Admissions requirements. Further, academic advising and degree tracking are mostly done manually or through different technologies, not bundled or in sync. For students that are falling behind on their academic plan and risking not completing their degree on time, there is no easy way to tell from their perspective or the advisors. This limits the ability for academic advisors to proactively intervene and help students to consider alternative options, e.g., taking online courses, cross-registering at other campuses.

Proposal: Set up DegreeWorks and Transfer Equivalency Module for Banner ERP, this will require TAP to be approved by the faculty. This application will help institutions to articulate transfer classes and manage transfer mappings, thereby laying the foundation for cross-registration and credit transfer. Additionally, this bolt-on would equip students and their academic advisors with the ability to evaluate their transfer records, document if a student is falling behind their academic plan, and present alternative options for completing a course. In parallel with this ERP integration, develop online portal to help students to cross-register between community college institutions, for general education courses. The cross registration electronically amongst community colleges will be run as a pilot to determine the overall value proposition of the initiative.

Value Proposition: Students will be able to use the application to determine if courses will transfer and in the future, cross registration will be incorporated. Academic advisors will be able to proactively intervene for students at risk of falling behind on their academic plans as well as to offer alternative options through cross-registration.

One-time capital cost: $4.3M, quoted by Ellucian

Ongoing impact on operating expenses: $300K/year in maintenance fees, quoted by Ellucian, incorporated into the capital expenditure for the first 3 years.

Current Status: Cohort 1 of DegreeWorks is in progress, there are 4 cohorts in total.

6. **Project**: Single/Automated Admissions and Financial Aid Process.

   Current Situation: Goal is to allow for a single admissions process and to streamline financial aid processing. Currently, these processes are manual or semi-automated with substantial staff support. Moving to a digital and automate process that integrates with Banner and the Common App would allow staff currently assigned to these labor intensive functions to be focused on student support within their functional area.

   Proposal: Leverage new technology in the market place and cloud services (e.g. FolderWave) to eliminate manual intervention regarding admissions and financial aid. Cloud services enable central processing of admissions materials and financial aid packages through a portal. The cloud services processes the material, digitizes items in paper form and places them in Banner through a secure feed. Admissions decisions would not be impacted and will remain with the campus staff.

   Value Proposition: Automates manual transactions and streamlines functionality in a single process. This software as a service allows staff to focus directly on value added functions related to admissions and financial aid. Possibly allows campuses to eliminate maintenance contracts with Banner Xtender software and dramatically reduces processing time allow faster transactions in both strategic functions (admissions and financial aid), which would improve student experience and better retain students during the application process.

   One-time capital cost: $.5M to set up FolderWave at designated institutions.

   Ongoing impact on operating expenses: Transaction based OE cost will be determined by the number of institutions that participate in project.

   Current Status: Phase I, Admissions module will be live for Southern and Eastern, under the pilot project in December 2015. Phase II is Financial Aid, project plan is under development.

7. **Project**: Enable Event Scheduling at CCC

   Current Situation: CCC Banner system is void of common scheduling software for events and academic functions, they process is separate and not aligned.

   Proposal: Conduct an RFP to develop a single and common academic and event calendaring system for the CCC Banner instance. This scheduling application will become the standard for the system.

   Value Proposition: No cross utilization of resources and eliminates manual scheduling of events.

   One-time capital cost: $450K, based on RFP and market indicators.

   Ongoing impact on operating expenses: $10K/year in maintenance fees, incorporated into the capital expenditure for 3 years.

Current Status: First 6 CCC campuses undergoing implementation. Product is being partially used at Central and Western. Eastern's implementation is underway.

8. **Project**: Move CCC Banner to Cloud

Current Situation: Presently, the CCC enterprise data center is a single point of failure, which would cripple the BOR and CCC operations. An alternative solution, should Cloud based services prove cost prohibitive is to leverage the increased speed of the WAN and install a replicated system of hardware and software at one of the 17 constituent units. Further the increased speed of the WAN allows for any strategic applications to be replicated at sister institution.

Proposal: Replicate CCC Banner in the Cloud or to a constituent unit leveraging the WAN.

One-time capital cost: 1.1m VMWare solution.

- **Ongoing impact on operating expenses**: OE expenses are incorporated into the capital investment.

Current Status: This project has been converted to moving all Banner instances (CCC and CSU, Convert COSC) to the cloud as the BOR migrates to Banner 9.x and integrate with CORE-CT.

9. **Project**: Establish a New Chart of Accounts in CCC Banner

Current Situation: Separate chart of accounts exit for constituent units, on 7 individual ERP Financial applications. This limits the BOR CFOs insight into financial operations and makes reporting impossible.

Proposal: Through a collaborative committee of CFOs and Deans of Admission, develop a new chart of accounts. Using the CCC Banner Financial Module, which is a multi-tenant single instance application, add an additional college to the tenant list called CSU and roll the required chart of account information from the 4 CSU schools to the new instances of CSU in the CCC Banner Finance Module. The same process would be done for the Charter Oak. Create an additional instance called the BOR and roll all the financial data up to this entity. Take the old BOR Banner Financial instance off line.

Value Proposition: Lays the ground work for possible future transition to a Cloud-based ERP, while providing a functional look a financials in a single instance. This initiative allows for reporting and data mining that currently doesn't exist.

One-time capital cost: $650K, quoted by Ellucian

Ongoing impact on operating expenses: No additional costs, quoted by Ellucian

Current Status: Business owner is unsuccessful in moving the project forward.

10. **Project**: Combine Library Databases.

Current Situation: The Community Colleges have 12 separate library systems from one vendor, all maintained on a server at the BOR ITS; the CSUs have a single shared system from a different vendor, hosted by the vendor. The two systems are legacy systems and are not integrated which limits cooperative resource sharing, and impedes collaborative projects and workflow. It also requires CSCU students to learn two library systems when they move from the CCs to the CSUs.

Proposal: Centralize the libraries on one of the two existing systems and upgrade to the vendor's latest software, or select other appropriate system. Vendor hosted.

Value Proposition:

- Eliminates separate and redundant systems and server maintenance at BOR ITS;
- Creates a seamless system for student use of library collections across the CSCU system.
- Improves ease of access to library resources for students, faculty, and State Library users;
- Achieves efficiencies in workflows and processes;
- Increases depth and diversity of library collections;
- Fosters collaborative CSCU library initiatives;
- Expedites sharing of physical library resources through efficient delivery mechanism;
- Enhances use of library spaces statewide;
- Aligns library services with multiple Transform CSCU 2020 initiatives.

One-time capital cost: $1.54M, quoted by Library Council

Ongoing impact on operating expenses: After the library systems are combined, the annual maintenance cost of the shared library system will be reduced to $300K/year.

Current Status: RFP completed, awaiting contract award.

11. **Project**: Data Warehouse/Data Mining Tool

Current Situation: The BOR has separate ERP suites with no combined data warehouse or standard reporting tool. Creating a centralized data warehouse will allow data driven decisions across the system.

Proposal: Conduct an RFP to develop a single data warehouse to roll common data elements to the repository for data mining and data driven decisions.

Value Proposition: Allows for data driven decision quickly and efficiently across our 17 institutions.

One-time capital cost: $2M, quoted by Ellucian

Ongoing impact on operating expenses: $100K/year in maintenance fees, quoted by Ellucian

Current Status: Business owner completed governance structure and briefing stakeholders.

12. **Project**: Virtual Desktop Initiative

   Current Situation: The BOR currently purchases most computers with Bond funds. These funds are restrictive and increase the cost of desktop purchases by making them a capital expense. Further, the security risk for most administrative systems is large; using the VDI strategy reduces acquisition, operating, maintenance and security costs.

   Proposal: Replace all administrative and where applicable, academic computers with VDI.

   Value Proposition: Enhanced physical and virtual security, lower acquisition cost, lower operating, security and maintenance costs.

   One-time capital cost: $8M, which includes purchasing the server, 10,000+ terminals, and VDI licenses.

   Ongoing impact on operating expenses: Personnel (part-time) and security costs for desktop support can be reduced as virtual desktops are easier to maintain and help desk support can be provided virtually. Security concerns are drastically reduced through this program.

13. **Project**: Move CSU ERP to cloud and possibly combine ERP suites / cloud-based ERP

   Current Situation: The ERP suite is located in 7 separate instances in 7 locations, with some form of redundancy. This requires layers of server administrators and applications support to operate the suite. Moving to the cloud allows for these staff to continue providing some level of support to the suite and additional support to other administrative computing areas reduces risk and ensures availability.

   Proposal: This would be the final project in the ERP sequence after the chart of accounts, federated ID, and moving the CCC Banner to the cloud. The current Banner maintenance contract will expire in 2019. In 2016, we should begin an RFI process to determine if moving to a cloud-based ERP suite is cost effective. The scope of work for the RFP and the response will determine if the application will be a single suite for the BOR constituent units or multi suite. As we own a perpetual license to Ellucian's ERP suite, it is likely that Banner will continue to be the most cost effective ERP solution than switching to a different platform by a different vendor.

   Value Proposition: Eliminates single points of failure, reduces risk, provides timely end of contract transition and cuts capital cost for number hardware platforms. Allows for the possible re-deployment of staff resources to support other administrative functions.

   One-time capital cost: $20 - 40M, estimate provided by Ellucian

14. **Project**: Layer Strategic Applications with 24 hour Technical Support

Current Situation: There is no network support for campuses during non-business hours. This is problematic as the CCC campus run on an 18 hour basis and the Universities run on a 24 hour basis.

Proposal: Contract with a network operations center (NOC) to support and monitor the network during non-business hours.

Value Proposition: Ensures network is monitored and supported after hours, eliminating or reducing outages that would cause the cancellation of classes or activities.

One-time capital cost: None

Ongoing impact on operating expenses: $300K in additional maintenance contracts, as quoted by Cisco partners.