CONNECTICUT STATE UNIVERSITY SYSTEM

INFORMATION TECHNOLOGY STRATEGIC PLAN

Central Connecticut State University

Eastern Connecticut State University

Southern Connecticut State University

Western Connecticut State University

Developing a State of Minds

Submitted to the CSU Board of Trustees
July 16, 2003
**Executive Summary**

**Introduction**

This plan is the result of work completed by four different groups and the assistance of one consulting firm (CIO WorldWide). Group work has been done by the CIO Council, the Council of Presidents, the IT planning task force and the Trustee ad hoc committee on IT. In general all have recognized some or all of the themes listed below and all focus areas have been discussed in at least two settings. The effort by the CIO Council was the most in-depth and included an environmental scan, a trend analysis, and a list of the current top ten IT initiatives.

The general themes behind the creation of the final CSU System Information Technology Strategic Plan included:

- Take advantage of synergies, opportunities for shared services, cooperation, collaboration, and cost savings afforded by the fact that we are one system
- Create Technology priorities to lessen the stress on our resources
- Create savings opportunities which will allow for investment in key projects
- Investments must position the system for the next generation of products
- Routinely redo the planning process

The key question to the IT strategic planning process is: “Can we craft a solution that provides flexibility to meet individual University missions while lowering the total cost of ownership and preparing us for the future?”

This plan provides an outline of an affirmative answer to the themes and question. The basic distribution of responsibilities is:

The Universities should take the lead in providing end-user support for academic purposes, in furtherance of achieving the highest priority strategic goal, that of enhancing faculty-student teaching and learning initiatives. Universities should initiate efforts to meet faculty- and student- specific technology needs. Universities should provide hands-on help to faculty, administrative staff and students during normal working hours. Universities should also provide hands-on support to the LAN and its users.

Working closely with the universities, the System Office should facilitate and assist these University activities, by seeking funding for initiatives, achieving economies of scale through purchase and distribution of standard hardware and software, providing supervision and management of the integrated WAN-LAN network, exercising an oversight and accountability function on behalf of the Board of Trustees, and providing, either through insourcing or outsourcing, help-desk support after normal working hours.
The plan identifies the IT mission and vision and outlines the roles of the University and the System Office IT units. In general the mission is to provide high quality, customer oriented services in a cost effective manner which supports achieving the academic and administrative missions and goals of the universities and the CSU System.

The strategic goals focus on areas that will allow for the proposed new Council on Information Technology to concentrate on efforts that are felt to be of the highest priority for the University system.

**Strategic Goals**

**I. Enhance Faculty-Student Teaching and Learning**

Each University will determine its priorities in introducing new academic technology initiatives. Moreover, there should be strong local support of academic information technology at each University, based on the view that student access and ease of use will continue to be overriding goals. The System Office can work with the universities to achieve this goal by seeking synergies, the opportunity for shared services, and cost savings, without adding non-productive steps and processes.

**II. Enhance the Security of Information Technology**

As part of good business practice, the CSU system must address security. Many issues associated with privacy must be addressed as well as issues of business resumption planning.

**III. Improve Network Infrastructure, Architecture and Management**

The CSU system currently runs a robust and successful network infrastructure. It took an early step in the direction of merging voice, data, and video. This has led to both technology opportunities and cost savings. With the technology improvement of wireless, increased speeds of wired, and greater consolidation of network services, it is critical that the CSU System review and adjust its infrastructure, architecture, and management approach.

**IV. Enhance the Use of Banner and Ensure that Banner Interfaces both Logically and Physically with Other Applications and Projects**

The CSU system took bold steps to move into an ERP (Enterprise Resource Planning) system environment when it moved to SCT’s Banner product. This strategic goal aims to insure that the system optimizes Banner’s functionality. It also is a request to have the current ERP architecture reviewed and adjusted to best position us for the future at the most competitive cost.
V. Retain and Train Staff

Like most entities that depend on technology, staff is the most critical resource. The CSU recognizes that technical staff who understand the university needs and history can contribute both functionally and technically. This is critical to the success of the CSU System; therefore the retention and development of staff is an important strategic goal.

VI. Plan for Future Cost-Effective Implementation of Leading Edge Information Technology

As new technologies are developed and become available, there is a need to plan collaboratively to identify them, assess their value for the CSU System, determine whether or not to procure them, and if procured, how they will be integrated into the existing infrastructure in a cost-effective and non-disruptive manner. Thus, key to the CSU System is an ongoing commitment to planning along with implementation of pilot program strategies. This activity calls for leadership, oversight, and accountability. It also demands more commitment to process and analysis prior to technology implementation.

VII. Enhance Help Desk Services

It is recognized that through the use of technology both student and faculty are moving into non-traditional transfer of knowledge. Because the “any place, any time” paradigm is becoming a reality there is pressure on “quality any time help”. It is not reasonable to look to expand Help Desk capabilities to three shifts on each university. But clearly more needs to be available. This strategic goal seeks solutions for this growing need.

VIII. Achieve Efficiencies and Cost Savings

Develop a collaborative effort to achieve efficiencies and cost savings as regular business practice. This will require greater focus on project management, total cost of ownership (TCO) models, return on investment (ROI) approaches, and creation of clear processes for setting priorities. At the same time this strategic goal looks to establish purchasing approaches which allow the CSU System to take advantage of economies of scale. It also looks to insure the CSU System is aware of and can monitor IT purchases.

IX. Create a Council on Information Technology

As a first step to improve coordination, a Council parallel to other System Councils will be formed to provide advice and counsel to the Chancellor and System CIO concerning information technology, as outlined in the Personnel Policies for Management and Confidential Professional Personnel.
INTRODUCTION

This document is the “CSU System Information Technology Strategic Plan.” The CSU System is an entity composed of four universities (Central, Eastern, Southern and Western Connecticut State Universities), under the stewardship and policy direction of a Board of Trustees. As provided by statute, the Board of Trustees has appointed certain staff members (a System Office) to assist it. For clarification, throughout this document the terms “CSU System,” “CSU Systemwide,” “Systemwide,” and “System” all refer to the CSU System.

The roles of the System Office and the Universities, with regard to information technology (IT) have not been well-defined. This creates an unproductive tension and adversely affects programs. Areas in which the system office can provide value-added services must be identified. Universities must be given the ability to support their individual missions. The system must find a unity in its diversity.

The best way to find unity in the midst of the diversity that characterizes the unique missions of the Universities is to take advantage of the fact that the CSU System, under the policy direction of a single Board of Trustees, is a systemic entity that can take advantage of “synergies, opportunities for shared services, and cost savings.”

There is both need and opportunity to take advantage of these guiding principles. Consistent with national trends, and based on available data, information technology costs appear to have risen rapidly at the Universities since 1995, in part related to the implementation of an integrated administrative data system (Banner) and in part related to the increasingly pervasive use of information technology in teaching and learning. More expenses loom on the horizon as the needs of information technology users grow. Other trends include: limited staff resources, inadequate user support for labs, and lack of funds for academic initiatives.

To achieve the strategic goals and objectives specified in the University strategic plans – particularly to enhance faculty-student teaching and learning – major additional investment in hardware, software, and personnel will likely be required. This may be difficult to achieve without leveraging the synergies and opportunities for economies of scale available through the CSU System, acting in a unified manner as an entity. The CSU System can add value by taking advantage of the cooperation and collaboration that characterizes a system in which the parts work together smoothly (without adding steps that slow down processes and the achievement of business goals), realizing cost savings above and beyond those obtainable if each of the parts worked separately. Moreover, any investment that is made must position the System for the next generation of products, and beyond.

For products that are already in use at all of the Universities, there are opportunities available to investigate usage, generate Systemwide enhancements and/or programs, investigate cost efficiencies and/or provide needed redundancy.
For products contemplated for use in the future, such as Campus Pipeline and WebCT (where separate purchases indicate a belief by the Universities that these products will best serve their academic needs), the opportunity is available through the System to determine if an approach to implementation that involves collaboration and common action is more cost-effective and beneficial in the long run than an approach that involves independent action by individual Universities – and if so, to carry out that course. The question is, “Can we craft a solution that provides flexibility to meet individual University missions while lowering the total cost of ownership and preparing us for the future?”

An example under the new paradigm:

The Universities should take the lead in providing end-user support for academic purposes, in furtherance of achieving the highest priority strategic goal, that of enhancing faculty-student teaching and learning initiatives. Universities should initiate efforts to meet faculty- and student- specific technology needs. Universities should provide hands-on help to faculty, administrative staff and students during normal working hours. Universities should also provide hands-on support to the LAN and its users.

Working closely with the universities, the System Office should facilitate and assist these University activities, by seeking funding for initiatives, achieving economies of scale through purchase and distribution of standard hardware and software, providing supervision and management “end-to-end” of the integrated WAN-LAN network, exercising an oversight and accountability function on behalf of the Board of Trustees, and providing, either through insourcing or outsourcing, help-desk support after normal working hours.

The need to find ways to reduce costs is not confined to the CSU System. A story in a recent issue of the Chronicle of Higher Education emphasized that “tight finances are forcing colleges to rethink spending, particularly in areas like technology that take up increasingly large shares of budgets.” Some approaches that have been used include “work(ing) with other colleges to sign joint licenses for software,” “join(ing) purchasing pools for hardware and other IT expenses,” and “us(ing) ‘life cycle’ planning to centralize desktop purchases.” (Chronicle, October 4, 2002, pp. 39-43)

The following pages set out the detail of the Connecticut State University Information Technology Strategic Plan. Funding will be required to implement many of the processes and procedures that support the implementation of the Strategic Plan.
The Connecticut State University Information Technology Strategic Plan

Mission

The mission of the information technology units, at the System Office and at the Universities, is to provide high-quality, state-of-the-art, cost-effective information technology systems, services, computing facilities, and network infrastructure to support the Universities and the Connecticut State University System in achieving their academic and administrative missions and goals.

Vision

The CSU System’s vision for information technology is:

- the Universities and the System Office will work cooperatively and consultatively with each other to create a high-technology environment which will meet the System’s long-term strategy for information technology
- students and faculty will have available access to high-quality networks
- students and faculty will have available access to a baseline set of hardware and software tools
- the System will invest regularly, systematically and cost-effectively in the resources necessary to continually position itself for the long-term future
- all stakeholders will be able to share information in a secure and collaborative manner
- students and faculty will have access to extended learning opportunities through OnlineCSU and on-line support for on-ground courses
- the System Office and the Universities will work cooperatively to identify and develop solutions for common information technology needs that are beyond the scope of an individual university
- the System Office and the Universities will work cooperatively to seek, examine and seize opportunities to achieve economies of scale and other goals where the size and diversity of the CSU System can be used to common advantage
- the System Office and the Universities will work cooperatively to seek, examine and take advantage of opportunities for common information architecture concerning platforms, networks, applications and data that will be of benefit to the System

Roles

The role of each University and its IT unit is to:

- provide high quality end user support (balancing cost, quality and service)
- provide hands-on high quality support of the LAN and its users
- meet the needs of students, faculty and academic programs, as required by accreditation standards
- meet the requirements of directly supporting local clients: faculty, students and administrative staff
- be a change agent in evaluating, introducing and supporting the IT systems and processes utilized in the teaching and learning process of faculty and students
• develop staff to a high level of technical and interpersonal skills
• tailor its resources and staff to support the unique mission, strategic plan and featured programs of the university
• through user feedback, determine levels of user satisfaction, and improve to desired level

The role of the System Office and its IT unit, under the direction of the Chancellor and the Board of Trustees (as is the case in the functional areas of Finance, Academic Affairs, and Administration), is to:

• recommend to the Trustees, for their action, CSU System policies concerning information technology, with the advice and assistance of the Universities
• facilitate and assist the achievement of University goals, objectives and activities
• coordinate the cost-effective achievement of System strategic goals and objectives
• working together with the Universities, respond to user needs, as defined by needs assessments conducted at the Universities
• facilitate collaboration among the Universities and their IT units
• develop, recommend to the Trustees, and then facilitate the Board’s exercise, through the System Office, of a formal oversight and accountability function for information technology throughout the CSU System
• plan for the future, with the advice and assistance of the Universities, so as to maximize the possibility that the long-term impact of a decision or action is the most cost-effective and positive
• operate to accomplish those CSU System strategic objectives that require system wide action or management to achieve
• provide supervision and management of the integrated WAN-LAN network, working together with the Universities
• coordinate the implementation of activities necessary to accomplish those CSU System strategic objectives that do not require system wide action or management to achieve
• seek funding for initiatives
• achieve economies of scale through purchase and distribution of standard hardware and software
• provide, either through insourcing or outsourcing, help-desk support after normal working hours.
STRATEGIC GOALS

I. Enhance Faculty-Student Teaching and Learning

The top priority collaborative activity is the implementation of Faculty-Student Teaching and Learning Initiatives. Each University has a different academic history, direction and organizational relationship between faculty and students. Accordingly, it makes sense that each University will determine what its priorities will be in introducing new academic technology initiatives. Moreover, there should be strong local support of academic information technology at each University, based on the view that student access and ease of use will continue to be overriding goals.

Accordingly, the highest priority of the CSU System Information Technology Strategic Plan is to enhance faculty-student teaching and learning at each University, as the University determines. Overall, the System Office and the Universities can work together to achieve this priority by seeking synergies, the opportunity for shared services, and cost savings, without adding non-productive steps and processes.

Systemwide Strategic Objectives

- seek and secure funding for the various technology products that support teaching and learning initiatives at the universities.
- identify and review current software and hardware technology standards, and where appropriate, establish new technology standards
- develop a process to encourage more opportunities for collaboration and identification and incorporation of best practices
- determine the single established standard product in each software category to be made available through web access to every desktop or as part of the baseline toolkit on every desktop throughout the CSU System
- facilitate University deployment and support (at established service levels) of these standard products
- facilitate University deployment and support (at established service levels) of specialized software and hardware where appropriate and feasible to meet special academic needs
- facilitate additional creative opportunities for faculty by providing additional requested software products with the explicit provision that the cost and risk of implementing and supporting these products will be borne by the relevant academic departments, or when available, a fund for the exploration of new technology, authorized by the Board of Trustees in the System Office IT budget
- to the extent feasible, facilitate the deployment of standard hardware (including workstations and desktops) throughout the System to minimize hardware and software incompatibilities
- to the extent feasible, develop and implement a procedure for removal and disposal of outdated hardware and software throughout the System
- create a virtual trainer pool, to augment and leverage the skill resources of all the universities in the entire system in order to develop and maintain necessary skill sets and skill levels, and reduce training costs
II. Enhance the Security of Information Technology

Systemwide security of information technology is critical. Security includes, but is not limited to, such matters as password security, firewalls, protection of sensitive information, and prevention of physical theft.

Systemwide Strategic Objectives

- review all aspects of security (business, disaster recovery, managerial, operational, physical, and technical) Systemwide and provide specific recommendations for Systemwide implementation, including a plan for ongoing assessment
- facilitate the development of shared solutions and a protocol for access to the WAN
- purchase standard firewalls and virus protection throughout the System
- implement a standard response to security recommendations by the auditors
III. Improve Network Infrastructure, Architecture and Management

Assess, document, review and improve the current network infrastructure and architecture. For any desktop or workstation to function properly, there are many interconnected hardware devices and software programs that must function well, including “all components ‘end to end’ (i.e., PC originator to PC receiver). Additionally, adequate bandwidth to satisfy user needs is a requirement for the network, now and for the future.

Systemwide Strategic Objectives

- participate with the Commission on Educational Technology and the state’s Department of Information Technology to implement the Connecticut Educational Network, which will provide cost-effective and reliable bandwidth to the Universities and to all schools and libraries throughout the state

- subject to guidance as to best practices by a nationally recognized consultant, integrate the overall CSU network end-to-end, including the WAN and LANs, with management by System Office information technology staff, working together with the Universities, with particular focus on
  - reducing the complexity of the network and minimizing traffic delays caused by different services/features (both hardware and software)
  - enhancing the efficacy of troubleshooting and reducing the costs of troubleshooting
  - holding bandwidth requirements to the minimum through the use of common traffic monitoring and traffic shaping

- subject to guidance as to best practices by a nationally recognized consultant, utilize network management applications on the integrated network for remote implementation of desktop applications installations, patches, upgrades, software metering of licenses, remote control, inventory & asset management

- develop protocols to minimize risk to the network for testing new and proposed hardware and software for quality and compatibility to ensure interoperability, especially in those instances in which the hardware and/or software is proposed to be substituted for a similar item in the installed base

- optimize the Systemwide integrated network to minimize duplication and replication of hardware and personnel, taking into account the need at each University for local support

- optimize the Systemwide integrated network to provide for redundancy (taking into account the need at each University for local support) to avoid potential single points of failure and maximize business resumption
IV. Enhance the Use of Banner and Ensure that Banner Interfaces both Logically and Physically with Other Applications and Projects

Enhance the CSU System’s investment in Banner by utilizing more of its functionality, because it will provide service advantages to students and faculty.

Systemwide Strategic Objectives

- leverage the expertise in a niche area possessed by each university’s IT staff in using a particular function of Banner to produce various appropriate pilots or templates that can be used Systemwide
- develop a virtual pool of University and System Office IT applications developers and database administrators to augment and leverage support of Banner
- develop and implement a plan using internal and external resources (including a best practices approach) to review the current Banner architecture and make necessary changes to reduce stress to the network, reduce risk, and achieve a balance between service and cost-effectiveness
- work with functional areas to identify and create opportunities within those areas to improve service and achieve cost savings, through business process re-engineering
V. Retain and Train Staff

Review and improve methods for staff retention and training, so that the overall organization will be improved. Staff development (an informal process now) is an ongoing concern among the Universities but needs to be formalized systemwide. This concern was emphasized in a recent Gartner Group newsletter (SPA-17-3704, August 2002): among IT managers’ main concerns, “technology issues ranked lower than the human-resources-related concerns of staffing and training. 43% of survey respondents named skill availability as their main concern. 42% percent of survey respondents pointed to . . . training their application development staff in new technologies.”

Systemwide Strategic Objectives

- review IT positions at each university and in System Office IT (possibly by contracting with a consultant). The review would involve:
  - evaluating the skill sets, training needs, and staff development necessary at each location if other strategic initiatives noted here are undertaken and achieved
  - developing an industry-recognized methodology and an ongoing process for evaluating skill sets and the appropriate allocation of these resources if the other strategic initiatives are undertaken and achieved, so that staff resources can be better utilized
  - developing (in conjunction with the Council on Employee Relations (CER)) strategies to provide career paths for IT staff
  - recommending the creation of opportunities for IT staff to apply their skill sets to academic initiatives
  - recommending revisions, if any, to existing compensation structure where significant changes in skill sets are identified and where changes in the environment since the last review of IT positions in 1999 are evident
  - maintaining a common salary structure throughout the System,
VI. Plan for Future Cost-effective Implementation of Leading Edge Information Technology

As new technologies are developed and become available, there is a need to plan collaboratively to identify them, assess their value for the CSU System, determine whether or not to procure them, and if procured, how they will be integrated into the existing infrastructure in a cost-effective and non-disruptive manner.

**Systemwide Strategic Objectives**

- identify protocols to improve the distribution of applications to desktops
- develop a formal oversight and accountability function, through the System Office IT unit, with input from the Universities, for information technology throughout the CSU System
- develop a CSU System Enterprise Web Strategy, focusing particularly on portals, course software, and other information resources, as well as an appropriate architecture to support these and other applications
- develop and employ “total cost of ownership,” “return on investment,” risk analysis and other contemporary methodologies for evaluating alternatives prior to making commitments to embark on a new direction in information technology or to purchase and implement critical products
- develop a collaborative process for investigation of new and emerging technologies, development of RFPs, and evaluation of vendors
- continue to assess the possibility of cost savings through the use of shared service agreements with vendors as an alternative to in-house services
- develop a protocol to ensure that new IT products are compatible with the integrated network and with the IT infrastructure generally
- pilot new products, before deciding whether to standardize across the System
- encourage pilots and exploration of new technology that could have a benefit for the System through a fund established in the System Office IT budget authorized by the Board of Trustees
VII. Enhance Help Desk Services

This goal provides for the enhancement of all help desk services.

Systemwide Strategic Objectives

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<th>Objective</th>
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<tr>
<td>• enhance local support at each University to provide “hands-on” Help Desk services during regular work hours</td>
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<td>• evaluate current Systemwide Help Desk services to determine the type and length of services needed</td>
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<tr>
<td>• after normal work hours and on weekends, provide shared Help Desk services (either insourced or outsourced, depending on which is most cost-effective) for all information technology, using standard help-desk software</td>
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VIII. Achieve Efficiencies and Cost Savings

Stakeholders all agree that there needs to be a collaborative effort to achieve efficiencies and cost savings in information technology, not merely in the current fiscal climate, but as regular business practice in all economic times.

**Systemwide Strategic Objectives**

- Develop policies and processes that will help weave activities that will lead to efficiencies and cost savings into the daily lives of all stakeholders
- Train the System Office information technology staff to the highest levels of project management
- Develop and implement a more formal project development model to be undertaken by the System Office IT unit that includes
  - project planning
  - RFQ/RFP processes and development
  - proposal evaluation processes using contemporary methodologies such as
    - “total cost of ownership”
    - “return on investment”
    - “business necessity”
  - negotiation and contract development
- to take advantage of economies of scale, purchase all software licenses and hardware through state contract, a higher-education purchasing consortium, a Systemwide negotiation or a Systemwide competitive process, as appropriate,
- establish and implement protocols for sharing information about desired purchases and actual purchase prices
- establish and implement protocols for reporting all IT purchases
- purchase all IT hardware, software, and consulting services, that are required by statute to be competitively bid (currently in excess of $10,000), through centralized purchasing at the System Office, unless otherwise authorized by the Chancellor
- Examine other organizations’ processes and methodologies for procurement and incorporate best practices across the CSU System
- continue to assess the possibility of cost savings through the use of shared service agreements with vendors as an alternative to in-house services
IX. Create a Council on Information Technology

It is critical that the advice and counsel of the universities concerning the direction and implementation of information technology be secured.

- Create a Council on Information Technology, comprised of university CIOs, parallel to the other advisory councils established by the Board’s personnel policies, to provide advice and counsel