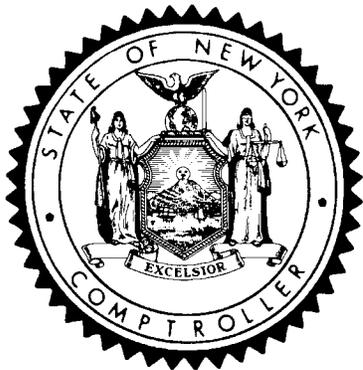


***State of New York
Office of the State Comptroller
Division of Management Audit
and State Financial Services***

STATE UNIVERSITY OF NEW YORK

**UTILIZATION AND CONTROL OF
SELECTED STANDARDIZED
COMPUTER SYSTEMS**

REPORT 99-S-41



H. Carl McCall
Comptroller



State of New York Office of the State Comptroller

Division of Management Audit and State Financial Services

Report 99-S-41

Mr. Robert King
Chancellor
State University of New York
State University Plaza
Albany, NY 12246

Dear Chancellor King:

The following is our report on the utilization and control of selected standardized computer systems at the State University of New York.

This audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 of the State Constitution and Article II, Section 8 of the State Finance Law. We list major contributors to this report in Appendix A.

*Office of the State Comptroller
Division of Management Audit
and State Financial Services*

August 7, 2000

Executive Summary

State University of New York Utilization and Control of Selected Standardized Computer Systems

Scope of Audit

The State University of New York (SUNY) operates 29 colleges and universities throughout New York State. SUNY System Administration provides overall leadership, oversight, and support services to the college campuses, while a Board of Trustees sets SUNY policy. SUNY System Administration maintains the standardized, university-wide system for the processing of finance and human resource transactions and information. The college campuses rely on a variety of computer application systems to meet their student information processing needs in the areas of student accounts, course registration, billing, collections, grades and financial aid. The purchased student information systems that are in use include the BANNER2000 Integrated Data Base System (BANNER), Oracle applications, and PeopleSoft applications. Home grown campus systems are also used for student information processing needs.

In our prior audit report (92-S-57), issued in November 1992, we concluded that SUNY could realize significant benefits and cost savings by establishing and adhering to policy supporting the use of standardized administrative computing systems throughout the University. Since that time, other reports from sources internal and external to SUNY have made similar conclusions.

Our audit addressed the following questions about SUNY's student information, finance and human resource systems for the period July 1, 1998 through February 29, 2000.

- ! To what extent has SUNY standardized computer systems for student information processing needs and for finance and human resource processing needs?
- ! What are the benefits and improvement opportunities associated with the utilization of standardized systems?
- ! Are college computer controls for BANNER adequate?

Audit Observations and Conclusions

SUNY has not established policy direction supporting the utilization of standardized systems for student information, finance and human resource processing throughout the University despite our prior audit report recommendations and various SUNY studies advocating such policy direction. We conclude that with appropriate leadership from System Administration and policy direction supported by the Board of Trustees, SUNY could make

considerably more progress toward the utilization of standardized systems with resultant cost savings and efficiencies. We note that the University, with support of the Board of Trustees, already moved in 1999 toward standardized telecommunication networks in an effort to provide all campuses with cost savings through aggregation of services. (See pp. 5-8)

SUNY has, however, supported the use of the BANNER system for student information processing needs. As a result, among the 15 campuses that use BANNER, efficiencies including software license discounts of over \$4 million, shared system enhancements, communication of best practices and the establishment of a Student Information and Campus Administrative Systems (SICAS) site to provide common software and support have been realized. However, such benefits could further accrue if other SUNY campuses also standardized on one application instead of maintaining unique purchased or home grown systems for student information processing. (See pp. 8-10)

Finance and human resource systems have generally been standardized for several years around the university-wide system supported by SUNY System Administration. However, the benefits associated with this system could be at risk. In the absence of policy direction for standardized systems, SUNY University Centers are independently pursuing projects to design applications that would “shadow” the university-wide system. Such “shadow” systems will require considerable resources to implement and each will require development of software interfaces to incorporate their information into the overall university-wide system. (See pp. 10-11)

Our audit also showed that certain necessary computer controls over BANNER processing were adequate at the seven campuses we examined, while certain other such controls were in need of improvement. We also made a recommendation for SUNY System Administration to advise the campuses, where appropriate, to correct BANNER computer control weaknesses. (See pp. 13-15)

Comments of SUNY Officials

SUNY System Administration officials do not agree with our recommendation regarding the development of policy directives to promote the utilization of standardized computer application systems throughout SUNY. However, the officials generally agree with our recommendations that address working with SICAS and the campuses to improve communication and computer controls. They indicate that actions have been or will be taken to implement them.

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Introduction

Background

The mission of the State University of New York (SUNY) is to provide the people of New York State with educational services of the highest quality. SUNY strives to ensure that its educational services are fully representative of all segments of the State's population; are as broadly accessible as possible; and are available in a complete range of academic, professional, and vocational post-secondary programs. To accomplish this mission, SUNY educates students at 29 State-operated college and university campuses. SUNY System Administration provides overall leadership, oversight, and support services to all campuses, while a Board of Trustees sets SUNY policy.

SUNY System Administration maintains the university-wide computerized system that processes financial and human resource information such as accounting, purchasing, and accounts payable transactions. This system interfaces with applications that are not university-wide, including campus-based student information systems that process student financial aid, class registration and payment data. SUNY is in the process of evaluating its university-wide system with a view to achieving more efficient operations.

In 1989, after issuing a Request for Proposal for a computer-based student information system, SUNY System Administration selected the BANNER2000 Integrated Database System (BANNER) to process student data at campuses. BANNER consists of five modules: Alumni-Development, Student, Financial Aid, Finance, and Human Resources. Another Request for Proposal was issued in the following year for the establishment of a Student Information and Campus Administrative Systems (SICAS) site. SICAS was to provide common software and support for the campuses utilizing BANNER, and was to develop and maintain SUNY-specific enhancements to BANNER. SICAS has been established on the SUNY Oneonta campus and employs a staff of nine. A Governance Board consisting of various campus officials is responsible for ensuring that the SICAS effort is consistent with SUNY policy and direction.

SICAS was initially funded by SUNY System Administration, but it is now supported from fees paid by member campuses. According to SICAS records for fiscal year 1999-2000, each campus utilizing BANNER paid approximately \$27,000 for SICAS membership. SICAS officials told us that this is a lower cost than an individual campus would have to pay to maintain its own information technology unit in support of a student information system. Each campus also pays SICAS for maintenance and support provided by Systems and Computer Technology Corporation, which developed BANNER. For fiscal year 1999-2000, the maintenance and support cost to

each member campus ranged from \$23,000 to \$54,300, depending on campus size.

As of February 2000, 15 SUNY campuses utilized the BANNER Alumni-Development, Student and Financial Aid modules; as well as the general ledger portion of its Finance module. The modules were used in the processing of student accounts, course registration, billing, collection, student grades and financial aid. The campuses do not use either the accounts payable and financial reporting portions of the Finance module or the Human Resources module, because these processing capabilities are already provided by SUNY's university-wide system. In our prior audit report 92-S-57, issued November 5, 1992, entitled "Further Standardization of Administrative Computing Systems Could Provide Substantial Savings," we found that SUNY had made progress in standardizing student information systems at the campuses, but further standardization and cost savings were possible.

Audit Scope, Objectives and Methodology

We audited selected aspects of the utilization of standardized computerized systems for student information processing needs and for finance and human resource processing needs throughout SUNY for the period of July 1, 1998 through February 29, 2000. For the same period, we also audited controls for BANNER at selected campuses. The objectives of our performance audit were to assess the extent that SUNY has standardized systems and to identify the benefits and improvement opportunities associated with the utilization of such standardized systems. Our objective was also to evaluate the adequacy of computer controls for BANNER. To accomplish our objectives, we reviewed SUNY's policies and procedures, applicable rules and regulations, and appropriate documentation. We also interviewed management and staff at SUNY System Administration and at seven colleges that we visited. The seven visited BANNER colleges were selected on a judgmental basis to include some small, medium and large colleges. The selected colleges were the College of Technology at Alfred (Alfred), the College of Technology at Delhi (Delhi), the College of Technology at Farmingdale (Farmingdale), the College at Geneseo (Geneseo), the College at Old Westbury (Old Westbury), the College at Oneonta (Oneonta) and the SUNY Institute of Technology at Utica/Rome (Utica/Rome). At each college, we reviewed selected BANNER controls. We also compared and contrasted BANNER's utilization among the seven colleges.

We conducted our audit in accordance with generally accepted government auditing standards. Such standards require that we plan and perform our audit to adequately assess those operations of SUNY which are included within the audit scope. Further, these standards require that we understand SUNY System Administration and college internal control structures and compliance with those laws, rules and regulations that are relevant to the operations which are included in our audit scope. An audit includes

examining, on a test basis, evidence supporting transactions recorded in the accounting and operating records and applying such other auditing procedures as we consider necessary in the circumstances. An audit also includes assessing the estimates, judgments, and decisions made by management. We believe that our audit provides a reasonable basis for our findings, conclusions and recommendations.

We use a risk-based approach to select activities for audit. We, therefore, focus our audit efforts on those activities we have identified through a preliminary survey as having the greatest probability for needing improvement. Consequently, by design, we use finite audit resources to identify where and how improvements can be made. We devote little audit effort to reviewing operations that may be relatively efficient or effective. As a result, we prepare our audit reports on an “exception basis.” This report, therefore, highlights those areas needing improvement and does not address activities that may be functioning properly.

Response of SUNY Officials to Audit

A draft copy of this report was provided to SUNY officials for their review and comment. Their comments have been considered in the preparation of this report and are included as Appendix B.

Within 90 days after final release of this report, as required by Section 170 of the Executive Law, the Chancellor of the State University of New York shall report to the Governor, the State Comptroller, and the leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons therefor.

Utilization of Standardized Computer Systems

In our prior audit report we recommended that SUNY System Administration establish executive-level policy directives, mission statements and projects promoting standardization of computer systems.

During this audit, we found that SUNY has taken some noteworthy steps to encourage standardized computer systems, such as co-funding BANNER costs and providing support services. These steps will be discussed later in this report, together with additional opportunities to achieve further cost savings and other efficiencies related to use of standardized systems. However, despite all of the benefits cited in our prior audit report, SUNY still has not established policy direction in support of the use of standardized computing systems throughout the University. Moreover, since 1992 SUNY has both prepared and commissioned reports that have continued to recognize and recommend that systems standardization could achieve cost savings. The following summarizes observations and recommendations from these reports.

In October 1995, a report submitted to the SUNY Board of Trustees by the Structure and Operations Planning Committee (Committee), entitled *Rethinking SUNY — Administrative Productivity and Management Initiatives*, noted that the implementation of BANNER “has been a significant benefit to the SUNY system as a whole in that required administrative programs can be programmed for all participating campuses in a single project. In the long run, significant savings can come from this as the numbers of participating campuses increases.” The report recommended that integrated student information systems should be extended throughout SUNY, and each campus should be reviewed to identify best practices and to promote greater efficiency by encouraging the use of common computer systems and standards. In addition, the report recommended a review of each organizational structure for computing at each campus, with a view to reducing administrative overhead where feasible.

The Committee also recommended the extension of BANNER throughout SUNY as the “system of choice” for all of the campuses. It predicted that such an extension would lead to stabilization of software maintenance and development costs for SUNY, and asserted that the BANNER campuses are already reaping the savings and benefits of a collaborative development center for applications.

In 1996, SUNY System Administration commissioned an independent consultant to study SUNY’s university-wide systems. The resulting report, entitled *Project for the Development of a Technical Architecture and Standards for University-Wide Administrative Systems*, concluded that SUNY System Administration and the campuses should plan, prioritize, sponsor, and

execute information technology activities and initiatives by adopting a collaborative approach. It recommended that the campuses be financially and administratively encouraged to develop or purchase computer systems cooperatively if it would result in enhanced service, cost containment, and/or productivity; and that computing services be provided to all users in as cost-effective a manner as possible. The report pointed out that computer system standardization enables campuses to pool their resources and thus maximize the value that information technology can provide.

This report further determined that SUNY campuses could be grouped into two categories based on functional needs and capabilities. For example, categories included unified campuses (small to medium-sized colleges) and collaborating campuses (University Centers and Health Science Centers). Because unified campuses typically do not have sufficient revenues to support their own computing systems, the report proposed that these campuses share the same software package for student information systems and ultimately move toward a single integrated system for the administration of finance, human resource and student data.

The report suggested that because collaborating campuses have extended or unique functional needs beyond the basic needs of unified campuses, these campuses could work together by utilizing a package that might differ from the one used by the unified campuses. For economic reasons, it was recommended that one, or at most, two common software packages be selected for collaborating campuses. Finally, the report recognized that it is difficult to find a single technology solution to satisfy all needs, thus each campus should be given the opportunity to choose the group it belongs to.

In 1998, another study commissioned by SUNY System Administration, entitled *SUNY Colleges and University Business Systems (CUBS) — Combined Business and Student Systems Assessment*, concluded that there appeared to be no SUNY-wide strategy regarding the selection of business and student application packages. Instead, the study noted that selection had been based primarily on individual entity requirements, resulting in the following disadvantages:

- ! Vendor discounts have become more difficult to negotiate successfully.
- ! More interfaces to connect disparate systems need to be written and maintained.
- ! Cross-campus collaboration and best-practice sharing have become more difficult.
- ! SUNY-wide costs are higher.

To overcome these disadvantages and realize the benefits of systems standardization that have been pointed out to SUNY by various experts, continues to require the policy direction that we had recommended several years ago in our prior audit. Now, as then, it appears that concerns for campus autonomy and doubts that standardized systems can meet unique campus needs continue to impede a policy direction toward systems standardization. However, these concerns may be overstated. For example, while the BANNER system comes equipped with a range of processing capabilities, campuses can elect which capabilities are going to be implemented and can obtain BANNER enhancements to further customize for their operating environment. It is also noteworthy that the SUNY Board of Trustees recently moved toward the standardization of telecommunications networks when, in 1999, it adopted a resolution governing telecommunications infrastructure within SUNY. The resolution stated that SUNY will develop a cohesive strategy to allow the University to maintain leadership in this area and to develop standards that will provide all campuses with cost savings through aggregation of such services. We believe that this type of policy recognizes and promotes the efficiencies that can be realized through standardized technology.

(In their response, University Center at Albany and University Center at Stony Brook officials state that our report improperly concludes that a common administrative system could meet the needs of all of the campuses and System Administration. They point out that a variety of campus missions combined with local managerial authority make it impossible for a single, standard administrative system to meet the needs of all of the campuses. University Center at Albany officials further note that their view is supported by the study referred to in our report, which categorized campuses as either unified or collaborating.)

Auditors' Comments: We do not advance the concept of a one system fit for all of the campuses and System Administration. The study mentioned in our report does, in fact, suggest that campuses can be placed in either of two categories. However, the study goes on to state that the campuses in each of the categories should work together to acquire common software packages that meet the needs of each group. Furthermore, our report cites BANNER as an example where one system has been effectively customized by each user campus to meet the individual needs of its operating environment. We believe that our report clearly shows that cost savings and efficiencies in the use of other campus resources can be obtained (and, in fact, have been obtained by the BANNER campuses) when common software is acquired and modified accordingly. Our report endorses the concept that categories of campuses can work together to acquire common software which can then be customized to fit individual needs.

BANNER

As we reviewed the utilization of the BANNER system during this audit, we further identified the benefits that this standardized application has achieved for SUNY. In addition, we concluded that the benefits that have been realized from the standardized university-wide system for finance and human resources needs may be at risk.

SUNY campuses operate various student information systems including BANNER, PeopleSoft applications, Oracle applications, and home grown systems (See Exhibit A). We visited seven SUNY campuses (Alfred, Delhi, Farmingdale, Geneseo, Old Westbury, Oneonta, Utica/Rome) to examine the utilization of BANNER in such offices as Alumni, Admissions, Finance, Financial Aid, Registrar, Residential Life and Student Accounts/Bursar. In addition, we reviewed the April 1990 BANNER contract between Systems Computer Technology Corporation and SUNY and we reviewed System Administration and SICAS records pertaining to BANNER. From our visits and review of records, we conclude that the utilization of the standardized BANNER system has resulted in many benefits, but certain improvement opportunities also exist.

Benefits

- ! SUNY purchased software licenses for the first 13 campuses at a discount resulting in savings of about \$4 million. Combined savings of more than \$490,000 resulted for the latest three software licenses purchases for BANNER.
- ! Duplication of cost and effort were eliminated as SICAS developed software interfaces for BANNER on behalf of all user campuses.
- ! Maintenance and support service charges for BANNER remain fixed even as additional campuses opt to use BANNER.
- ! The establishment of Functional Area User Groups allows SUNY professionals from key administrative units at various campuses to collaborate in the identification of BANNER enhancements and to share ideas about resolving common problems.
- ! All BANNER users can use e-mail networks to communicate instantly with other SUNY users and with BANNER users located throughout the world.
- ! Customized enhancements created at one campus can be utilized at no additional costs by other campuses. For example, BANNER campuses currently use a screen created by one campus, which allows users to view a student's entire account and final balance due.

Improvement Opportunities

- ! The “forms” in BANNER permit users to conveniently view or to input, change, or delete BANNER data. Our review showed that many users among the campuses are not familiar with certain “forms” and the efficiencies that can be gained from using them.
- ! While SICAS makes enhancements to BANNER which can be used by any user campus, we noted that some user offices were not aware of these BANNER enhancements. For example, representatives at one campus were not aware that SICAS has enhanced BANNER to track student accounts that are in default and should be referred to the Attorney General. As result, this campus manually tracked this condition.
- ! One user maintained a manual process for tracking student transfer credit because of a concern that insufficient staff are available to establish this tracking on BANNER. However, when staff become available, establishing this tracking capability would be more efficient than a manual procedure. Another user maintained an independent computer application for recruitment because the user had not reviewed a viable option of using BANNER to perform this task.
- ! Although one campus had created a BANNER capability to view an entire student financial profile including financial aid received, net tuition owed, and course credit data, one other campus desiring this capability was unaware that it already existed.
- ! We noted that attendance at some BANNER user group meetings was poor. One particular user group had not met for several years.

The policy direction toward standardization that has been previously discussed in this report may ultimately be necessary before all of the non-BANNER campuses participate in this, or any other, standardized student information system and, thereby, maximize benefits throughout SUNY. However, in the interim, SUNY should work with SICAS to outreach to non-BANNER campuses in an attempt to further increase utilization of this standardized application. Such outreach could explain the benefits and functionality of this application and its adaptability to unique campus operation. SUNY should also work with SICAS to improve BANNER user communications and to encourage active participation in BANNER user groups.

University-wide System

Early in 1998, SUNY System Administration officials solicited three vendors to provide SUNY with proposals for a new university-wide system to replace the current one that is used in support of financial and human resource needs. However, as of January 1999, budget constraints have reportedly prevented

SUNY from proceeding with a new university-wide system. As a result, SUNY is assessing the existing system in conjunction with its users who are identifying improvements. However, the University Centers at Albany, Binghamton and Stony Brook are pursuing their own unique solutions in the areas addressed by the university-wide system. The University Centers at Albany and Stony Brook are developing PeopleSoft applications, while the University Center at Binghamton is developing an Oracle application. Accordingly, three separate enhancements to interface these new systems with the university-wide system will be needed and campus resources will be required for three major concurrent system development projects.

System Administration officials told us that they have encouraged the SUNY University Centers to work together to standardize their computing systems. Furthermore, they told us that University Center at Stony Brook officials had tried to prompt officials of the University Centers at Albany and Binghamton to collaborate on a common effort, but each expressed their own reasons for needing to utilize different approaches. Officials of the University Center at Stony Brook indicated that collaboration did not occur because all three centers were not at the same point in their decision-making, and because the centers were not required to join in a mutual effort. Accordingly, a concern expressed previously by SUNY that individual campuses would begin to implement and utilize their own financial and human resource systems and thus spend resources on “shadow systems” is becoming a reality.

(In response to our audit report, University Center at Albany officials and University Center at Stony Brook officials point out that they have shared certain information regarding implementation of their PeopleSoft projects subsequent to purchasing the software.)

Auditors' Comments: Such information sharing is a positive step. However, our report looked at the University Centers as a group and noted that they did not collaborate at the onset on the development or purchase of a financial and human resources system. Without such collaboration, the University Centers may not be able to maximize efficiency.

Recommendations

1. Propose to the SUNY Board of Trustees policy directives promoting the utilization of standardized computer application systems throughout SUNY.

(SUNY officials disagree with recommendation number 1 and respond that policy decisions and guidelines related to computer systems are administrative issues appropriately considered and dealt with by the Chancellor. They further indicate that they will continue to follow the strategy of promoting campus use of common business systems and University Center implementation of local systems that tie into central systems maintained by System Administration.)

Auditors' Comments: We believe that the issue of policy directives promoting the utilization of standardized computer application systems throughout SUNY may be appropriately addressed at the Board of Trustees level, in order to present a clear and authoritative direction for this initiative to develop to its full potential. In the absence of such a policy, we believe that the campuses may continue to make individual purchasing decisions which preclude or minimize the benefit of the efficiencies which can be realized when collaborative purchases are made.

We also reiterate that common software may need to be customized to meet unique campus needs and that various groups of campuses may require standardized software unique to their group.

Recommendations(Cont'd)

2. Work with SICAS to perform outreach to non-BANNER campuses in an effort to encourage these campuses to utilize BANNER.

(SUNY officials agree with recommendation number 2 and indicate that the SICAS Program Manager will take steps to perform the recommended outreach, including the identification and tracking of the status of non-BANNER campuses concerning their administrative system decisions.)

3. Work with SICAS to improve communications among BANNER campuses and to encourage the campuses to actively participate in BANNER user groups.

(SUNY officials agree with recommendation number 3 and indicate that through the SICAS Program Manager, several actions will be taken to improve communication among the BANNER campuses and to foster involvement in the BANNER user groups.)

BANNER Computer Controls

When we reviewed the operation of BANNER at the seven colleges that we visited, we found that certain computer controls were adequate at each campus and certain other controls needed improvement at each campus. As a result, there is some risk that BANNER is not adequately secure to protect data and equipment. Exhibit B of this report shows the overall results of our review at the seven colleges. The following paragraphs illustrate certain observations from our BANNER control review.

- ! **Policies and Procedures** - Each campus should have thorough written policies and procedures that govern BANNER computer system security. We found that four of the seven campuses that we visited did not have adequate written policies and procedures regarding BANNER security. For example, four campuses did not have written policy requiring prompt notification to campus computer system administrators when BANNER users are terminated or are reassigned within the campus. Without such notification, these employees retain the ability to use BANNER even though their need for such ability no longer exists. As a result of our audit, officials at one campus told us that they have begun to develop a policy to deactivate employees from BANNER upon their termination.

- ! **Critical/Confidential Information** - Each campus should ensure that BANNER information such as student grades and financial aid is kept confidential and is accessible only to authorized employees. We found that the controls established by six of the seven campuses were generally adequate in this area.

- ! **Power and Security** - Campuses should protect the facility that houses BANNER computer equipment and the power sources needed to operate this system. Although all of the seven campuses that we visited utilized an uninterrupted power source that enables them to protect and control BANNER electrical power, we found that two campuses had not properly secured the rooms where their BANNER computer equipment was installed. Without adequate protection over computer facilities, there is an increased risk of theft, vandalism or unauthorized intrusion to data and systems.

- ! **Backups/Restoration** - All campuses should conduct regular tests of data backup and disaster recovery procedures for important systems to ensure the systems can continue to process correctly in the event of mishaps or disasters. We found that these BANNER procedures at four of the seven campuses we visited were not tested regularly.

This lack of testing lessens assurances that backup and recovery procedures will execute properly when the need to use them arises.

- ! **Passwords** - Campuses should require that employees periodically change their BANNER passwords, since keeping passwords a secret protects against unauthorized system usage. However, we found that the campuses did not require certain passwords to be changed on a regular basis. The campuses also did not expire certain passwords that had been unchanged for extended periods. Campus officials told us that they expect to be able to automatically expire passwords within the next year. As a result of our audit, two campuses told us that they plan to periodically remind users to change their passwords.

- ! **System Time Out** - When BANNER is on-line, but processes no transactions for a period of time, it should automatically shut down. This reduces the risk that unauthorized users may access the system to make improper transactions. We found that five of the seven campuses do not provide for this control. As a result of our audit, officials at two of the campuses told us that they plan to take steps to remedy this situation.

- ! **Reports of Unauthorized Access** - BANNER allows administrators to produce a report of unauthorized attempts to access BANNER “forms.” We found that two of the campuses we visited do not review their reports of unauthorized access attempts. These reports should be periodically reviewed so that campus officials can become aware of and can follow-up on potential attempts to circumvent system security.

- ! **Assigned Access Rights** - BANNER allows administrators to assign either data query or data update rights to individual users. Query access allows users to only view data, while update allows users to both view and change data. To maintain control over the system, users should be assigned the minimum amount of access necessary to accomplish their functions. At all of the campuses we visited, access was assigned according to groups that usually consisted of all employees working in a particular administrative office. Therefore, in some instances, some users had access beyond their needs. As a result of our audit, one campus began to review users’ access to verify that users have access only to the data they need to accomplish their work responsibilities.

Recommendation

4. As appropriate, advise BANNER campuses to take steps to correct the computer control weaknesses cited in this report.

(Campus officials generally agree with recommendation number 4. Officials from seven campuses we visited indicate that they have already taken actions to correct most of the computer control weaknesses cited in our report. In addition, SUNY System Administration officials indicate that they will take the necessary steps to monitor campus correction of the control weaknesses.)

State Operated Campus Student Information Systems

Banner/Plus Users	Banner Student	Banner Fin Aid	Banner Finance	Banner Alumni	Banner HR	SCT Plus	SICAS Member
State Operated Campuses							
Alfred	x	x	x				x
Canton	x	x	x	x			x
Cobleskill	x	x	x	x			x
Cortland	x	x	x	x			x
Delhi	x	x	x	x			x
Farmingdale	x	x	x	x			x
Fredonia	x	x	x	x			x
Geneseo	x	x		x			x
Morrisville	x	x	x	x			x
Old Westbury	x	x	x				x
Oneonta	x	x	x	x			x
Oswego	x	x	x	x			x
Plattsburgh	x	x	x	x			x
Potsdam	x	x	x	x			x
Utica/Rome	x	x	x	x			x
Other State Operated Campuses							
Albany							Converting to PeopleSoft
Binghamton							Converting to Oracle
Buffalo							Home Grown
Stony Brook							Converting to PeopleSoft
Brockport							Triton/Home Grown
Buffalo State							Converting to Oracle
Empire State							Datatel
New Paltz							Home Grown
Purchase							Home Grown
Health Science Center Brooklyn							Home Grown
Health Science Center Syracuse							Home Grown/RFP out
Environmental Science and Forestry							Home Grown/Syracuse University's
Maritime							Home Grown
Optometry							Home Grown
Ceramics							Alfred University's
Cornell							PeopleSoft

Summary of BANNER Controls at Selected Campuses

	Policies and Procedures	Critical/Confidential Information	Power & Security	Backups and Restoration	Passwords ^â	Access ^ã
Alfred	Needs Improvement	Adequate	Adequate	Needs Improvement	Needs Improvement	Needs Improvement
Delhi	Needs Improvement	Adequate	Needs Improvement	Needs Improvement	Needs Improvement	Needs Improvement
Farmingdale	Needs Improvement	Needs Improvement	Adequate	Adequate	Needs Improvement	Needs Improvement
Geneseo	Needs Improvement	Adequate	Adequate	Adequate	Adequate	Needs Improvement
Old Westbury	Adequate	Adequate	Adequate	Adequate	Needs Improvement	Needs Improvement
Oneonta	Needs Improvement	Adequate	Adequate	Needs Improvement	Adequate	Needs Improvement
Utica/Rome	Needs Improvement	Adequate	Adequate	Needs Improvement	Needs Improvement	Needs Improvement

^â This includes Passwords and System Time Out.

^ã This includes Reports of Unauthorized Access and Assigned Access Rights.

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and Forestry
Farmingdale
Fredonia
Geneseo
Institute of Technology
at Utica/Rome
Maritime
New Paltz
Old Westbury
Oneonta
Oplometry
Oswego
Plattsburgh
Potsdam
Purchase
Ceramics at Alfred University
Agriculture/Life Sciences
at Cornell University
Human Ecology
at Cornell University
Industrial/Labor Relations
at Cornell University
Veterinary Medicine
at Cornell University

HEALTH SCIENCE CENTERS
HSC at Brooklyn
HSC at Syracuse

**COLLEGES OF
TECHNOLOGY**
Alfred
Canton
Cobleskill
Delhi
Morrisville

COMMUNITY COLLEGES
Adirondack
Broome
Cayuga
Clinton
Columbia-Greene
Corning
Dutchess
Erie
Fashion Institute
of Technology
Finger Lakes
Fulton-Montgomery
Genesee
Herkimer County
Hudson Valley
Jamestown
Jefferson
Mohawk Valley
Monroe
Nassau
Niagara County
North Country
Onondaga
Orange County
Rockland
Schenectady County
Suffolk County
Sullivan County
Tompkins Cortland
Ulster County
Westchester

July 17, 2000

Mr. Jerry Barber
Audit Director
Office of the State Comptroller
The State Office Building
Albany, New York 12236

Dear Mr. Barber:

In accordance with Section 170 of the Executive Law, we are enclosing the comments of State University of New York regarding the draft audit on the Utilization and Control of Selected Standardized Computer Systems, State University of New York 99-S-41)

Sincerely,

Enclosure

**State University of New York
Utilization and Control of Selected
Standardized Computer Systems
99-S-41**

General Comments

State University of New York at Albany

The audit advances the concept that a common administrative system can and would meet the needs of all of the campuses and System Administration. What the audit report fails to recognize is that each of the campuses is unique in terms of its character, its culture and its size, and most of all its mission. While the campuses certainly are units of the same system, with common governance vested in the Board of Trustees, and subject to the same compendium of laws, policies, rules and regulations, and while it's true that all of the campuses generally perform most of the same kinds of functions, the individuality of each campus' mission, together with the broad managerial latitude accorded each campus president, accounts for the tremendous variation on how things actually get done. And, because of these mission variations and local managerial authority, we don't all do the same things, or follow a common set of operating procedures. Consequently, a single, standard administrative system simply can't meet the needs of all the campuses.

It should also be noted that we did examine SCT's BANNER product. Having concluded about three years ago that our legacy systems didn't well support the strategic academic and research goals of the University, the campus made a decision to replace its administrative systems with an integrated vendor package that would include student, financial and human resources administration. An RFP was written and issued in early 1997. After careful review and evaluation of the three proposals, PeopleSoft was selected as the only product that provided most of the required end-user functionality. Further, it was built with the latest technology tools that would give us the flexibility to add our remaining requirements with relative ease. In marked contrast, we found that BANNER, though adequate for smaller campuses, lacked much of the functionality needed to effectively support a large, complex, research university, even with extensive customizations.

In essence, the system needs of the University Centers are much different from the needs of the smaller campuses. This was borne out by a study commissioned only a few years back by System Administration in which a well-known consulting firm reached a similar conclusion, coining the terms "unified" and "collaborating" campuses.

We would also like to clarify the commentary on pages 8 and 9 that suggests that Albany and Stony Brook haven't collaborated on their PeopleSoft projects. That suggestion is not accurate. Since the beginning of our implementation in May 1998, the Albany Campus has collaborated with Stony Brook whenever possible. Since Stony Brook was ahead of us in their implementation timeline, they were able to provide us with more assistance than we could provide them. Our Stony Brook colleagues did share their Chart of Accounts structure for the financial applications, giving us a starting point for ours. In addition, they gave us a copy of their Human Resource (HR) system, complete with their customizations. This provided an

excellent reference for our HR team as they began our implementation. In return, we shared with them our design for loading APC (Application Processing Center) records and they have shared their programming to apply across-the-board salary increases to the HR system. In regards to the financial applications, Stony Brook has developed a budgeting module that they are willing to share with us if we are interested. So, while we haven't been working side-by-side with Stony Brook every step of the way, there have been many opportunities to share the work being done and we expect that there will be even more in the future.

State University of New York at Stony Brook

Stony Brook continues to support initiatives to reduce effort and cost through standardization and collaboration on information systems projects where such efforts can be implemented in a manner that meets our own campus needs and those of other participating campuses. In that spirit, Stony Brook has actively sought collaboration with other campuses on the selection and implementation of an integrated administrative information system. The following points are examples of this effort:

- In 1995, when Stony Brook embarked on an 18-month selection process for an integrated administrative information system, we seriously evaluated and considered the BANNER application and the support available through the SICAS site as well as PeopleSoft and TRG Inc. In the evaluation process, the team discovered that the BANNER product lacked true integration, particularly between the various modules. The result of this deficiency would necessitate running a large number of batch processes to keep the modules in synchrony. This was particularly true in their finance and human resources modules. In evaluating the student product, the team found that it was host-based technology that was no better than our current legacy system. Given these limitations, the product was not selected.
- As noted in the draft report, during the selection of the vendor for its own system, Stony Brook actively sought collaboration with two of the other University Centers. While such collaboration on the acquisition of the system did not occur due to differing timing of the individual campuses, Stony Brook and Albany have both acquired the PeopleSoft application and are actively collaborating during the implementation phase to take advantage of each others' experiences and progress. Stony Brook's earlier implementation of PeopleSoft human resources enabled Albany to accelerate the implementation of their human resources system. Stony Brook and Albany have also collaborated on:
 - Chart of accounts setup for finance
 - Development of the Application Processing Center loading process (in progress)
 - Accounts payable processing (in progress)
 - Sharing of Stony Brook's newly developed Form I budgeting program (in progress)
 - Sharing of information on maintenance releases of the software (in progress)

- The TCO (Total Cost of Ownership) is an important factor in the acquisition and maintenance of a packaged solution like PeopleSoft. The cost of acquiring the software is small, almost insignificant, compared to the cost of implementing a complex administrative system. As discussed above, to minimize TCO, Stony Brook and Albany have agreed to adopt an implementation strategy that minimizes the number of customizations to the base system. In addition, both institutions have plans to share the development and maintenance of customizations that are necessary to implement their respective systems.

We do not believe that a centralized model for a student system would save any appreciable resources. Since all SUNY institutions differ in terms of their mission, programs and structure, each implementation would have to include the setup and maintenance of academic structures, academic and fiscal policies, program/plans, calendars, course catalogs, and many other facets of the implementation that would be unique to an institution.

State University College at Oneonta

As one of the charter members and host campus for the SICAS program, we concur with many of the audit's observations concerning the cost-effectiveness of the SICAS program. Indeed, we believe SICAS is one of the more successful multi-campus initiatives in technology ever attempted in SUNY.

At the same time, given the increasing heterogeneity of SUNY and a history of unsuccessful initiatives to mandate common information systems across SUNY, we also recognize that the System needs to approach issues of uniform information systems with great caution. Moreover, we believe that the SICAS multi-campus structure and the BANNER software could provide an excellent platform for the development of more effective business systems for the current SICAS campuses as well as an incentive for other campuses to join.

Recommendations

Office of the State Comptroller

1. Propose to the SUNY Board of Trustees policy directives promoting the utilization of standardized computer application systems throughout SUNY.
2. Work with SICAS to perform outreach to non-BANNER campuses in an effort to encourage these campuses to utilize BANNER.
3. Work with SICAS to improve communications among BANNER campuses and to encourage the campuses to actively participate in BANNER user groups.

State University of New York

1. Policy decisions and guidelines related to computer systems is an administrative issue appropriately considered and dealt with by the Chancellor. Given the range in the complexity and missions of the campuses, administrative computer systems must support their varying requirements.

Consistent with the *Rethinking SUNY* theme of, "... empowering campuses to directly manage more of their academic and financial affairs...", System Administration has worked with the campuses to identify areas where standardization can be effectively implemented without infringing upon necessary local decision making. As mentioned in the Audit, a Coopers and Lybrand study recommended that most campuses should continue to use common business systems, whereas the University Centers could benefit from the implementation of local systems that tie into central systems maintained by System Administration. System Administration continues to follow this strategy.

2. The SICAS Program Manager will take the following steps to perform the recommended outreach:
 - Identify and track the status of non-BANNER State-operated campuses concerning their administrative systems decisions.
 - Work with SCT to develop attractive contractual terms for the BANNER products.
 - For campuses that are considering the acquisition of systems, assist them in identifying the cost and support advantages of a BANNER acquisition, and encourage them to build these advantages into their evaluation methodologies.
 - Assure campuses in the acquisition stage of the existence of extensive SICAS Center support for the BANNER transition and conversion, and illustrate successful campus use of these services.
 - Provide this information and support in a pro-active manner, not waiting for the campuses to request it.

3. Through the SICAS Program Manager, the following actions will be taken to improve communication among the BANNER campuses and foster involvement in the Functional Area User Groups (FAUGS):
 - Encourage System Administration staff participation in these groups.
 - Work with the SICAS Program representatives and the FAUG chairs to make these groups lively conduits for information concerning BANNER and its SICAS-generated enhancements, enhancing the perception of their effectiveness.
 - Establish and maintain SICAS membership in and relationships with SUNY professional organizations (e.g. SUNY Registrars Association, SUNY Campus Admissions Professionals, SUNY Bursars Association, SUNY Financial Aid Professionals, the SUNY AIRPO chapter for Institutional Research Professionals) to encourage communication and take advantage of existing meeting venues.
 - Hold a yearly SICAS-sponsored conference at which the FAUGS can meet.
 - Encourage the use of SUNY-supported video conferencing facilities.
 - Enhance and expand the SICAS Web server to include coverage of FAUG activities and issues.

Office of the State Comptroller

4. As appropriate, advise BANNER campuses to take steps to correct the computer control weaknesses cited in this report.

State University College of Technology at Alfred

4. Policies and Procedures (page 10)
 - A form has been developed that requires department head signature authorizing access to selected data forms for each employee who is a Banner user.
 - Alfred State is referred to on page 10, Policies and Procedures, as...*one campus told us that they have begun to develop a policy to deactivate employees from BANNER upon termination.* This policy has been developed and a system is in place whereby Human Resources (or designee) notifies the Director of Computing Services when an employee leaves State service. User accounts and access are terminated at the appropriate time.

Backups and Restoration (page 10)

- All Alfred State Banner data is backed up nightly. While we have not recently attempted to restore from a backup tape, in all instances within the past 10 years when a restoration was required, it was successful. We will test the backup and restoration procedures on an annual basis, or at any time changes occur in the backup procedures.

Reports of Unauthorized Access (page 11)

- Computing Services will post a message on our daily computer announcement window once per semester to remind Banner users to change their passwords.
- Computing Services will review the reports of unauthorized access attempts on a weekly basis.
- In cases where Banner is on-line, but processes no transactions for a period of time, a passworded screensaver will activate. Once activated, unauthorized persons will not be able to access Banner at an unattended computer.

Assigned Access Rights (page 11)

- At Alfred State, it is up to the department head to determine appropriate access for each of their employees. To date, this has been a practical and efficient way to manage forms access, and we have no plans to change this procedure, unless directed to do so.

State University College of Technology at Delhi

4. Policies and Procedures

Formal policies regarding logical security and access controls are being developed. The Human Resources personnel have been directed to include Computer Center notification of an employee departure as part of the standard procedure for employees leaving the College.

Critical/Confidential Information

All policies are currently under review.

Power & Security

The door to the Computer Center is now closed and locked. Entry to the Center is now controlled by Computer Center staff.

Backup/Restoration

Our disaster plan is under review. Testing of full restoration procedures continues to be a challenge due to the time required to conduct a full restore and the lack of available mainframe time on which to test the procedures. The only option currently available would be to delete the current production system and restore it. The risk of losing data to test the full restoration procedure far outweighs the risk of relying on partial restoration testing.

Passwords

Password enforcement is being reviewed for improvement. Other Banner campuses will be contacted to learn how the problem of idle user passwords has been addressed.

Access

The College will take appropriate action to ensure access to Banner files is limited to only those employees whose duties require such access. The College will incorporate timely review of Banner reports to identify and correct attempts to circumvent system security.

Other Application Controls

Appropriate offices have been notified in writing to review and document override reconciliation procedures.

State University College of Technology at Farmingdale

4. Policies and Procedures

We have addressed policy and procedure issues by creating a new user access form which has both an Acceptable Use Policy and Banner Security Policy incorporated in the document. We are requiring all users to complete and return the form to our Systems Manager. We have also placed various user policies on our website and we plan to incorporate policies in various campus publications.

Critical/Confidential Information

We have begun to address the critical/confidentiality requirements. We have placed confidentiality statements on appropriate printouts and forms that address FERPA confidentiality requirements. In addition, we have begun e-mailing all Banner system users informing them of the confidentiality of the information they access. Our plan is to e-mail this information to all users on a regular basis. And, finally, our Registrar is sending correspondence to all supervisory personnel reminding them of their responsibility as they relate to confidentiality and acceptable use issues in their respective areas.

Passwords

We have not yet been able to deal with issues of system time outs and password expirations. The next release of Banner will assist us with the password expiration issues, but we will continue to search for a satisfactory resolution to the system time out problem.

Access

To address the issue of access, our Data Base Manager now generates reports of unauthorized access for review on a daily basis. In addition, we are training supervisory staff through user groups in an effort to clarify assigned access.

State University College at Geneseo

4. Policies and Procedures

The College agrees. The College will continue its review and update of written policies and procedures regarding the utilization and controls of the BANNER System.

Access

The College agrees. With the implementation of the Graphical User Interface ("GUI"), an additional layer of security has been introduced which controls access to BANNER through the network security system. This innovation adds another layer of security that enhances controls to the BANNER System.

Access to BANNER forms will continue to be reviewed and monitored with department heads to insure employees have access to forms that are required to perform their job functions.

State University College at Old Westbury

4. Passwords

- We will begin to notify Banner users that passwords must be changed at three (3) month intervals.
- As the campus maintains compliance to the Internal Control Act, Banner users are required to shut down system when computers are unattended.

Access

- We currently review reports on-line each month.
- We established different levels of access to the Banner System. For new employees and employees who get reassigned, Banner access is reviewed to re-establish systems network security.

State University College at Oneonta

4. Policies and Procedures

We have procedures in place that preclude a breach of our BANNER database, but they are not documented. We will work on documenting our procedures for both of the above referenced items.

Backups and Restoration

We routinely back up our BANNER database and store backup files in a separate building on campus. At Oneonta, the recommendation was to store our backup files off campus at a secure fireproof site. The College has recently acquired an offsite facility formerly designated as a Civil Defense Bomb Shelter. We are currently investigating using this facility as our offsite storage area.

Access

Reports have been developed by Computer Services and provided to the College Registrar/FERPA and the Director of Accounting Services who oversees Internal Control. Both are working with the campus BANNER User Committee to insure users have appropriate access to perform their functions and to eliminate access to forms users do not need.

State University Institute of Technology at Utica/Rome

4. Policies and Procedures

The policies and procedures inherent in the software release control to who has access to what data for the specific function. The Banner software is set up to allow access only to those who have specific functional assignments designated by the Database Administrator. Accountability is a mainstay of the software. Therefore, we did not see the need to further define policies and procedures already defined by SCT.

Backups and Restoration

The College has made a concerted effort to back up the system nightly, with the backup stored in the Facilities Building. We have had two incidents of system crash, and have been backed up and running in a matter of hours.

Passwords

The passwords are under control; the system time out is supposed to be a part of the new release of Banner this year. We will institute the system time out aspect when available with the new release.

Access

We will be more diligent in our maintenance of system access in the future.

State University of New York

4. The SICAS Program is a support and service organization, funded through voluntary membership, and thus is not an appropriate organization to monitor or oversee campus implementations of Banner. This role is appropriately fulfilled through the normal monitoring of audit recommendations by SUNY System Administration. SUNY System Administration will take the necessary steps to monitor campus correction of these computer control weaknesses.