UCSB Audit and Advisory Services

Internal Audit Report

Student Information Systems Modernization Project
Project Progress Audit Follow-up

February 11, 2013

Performed by:
Sam Hartline, Principal Auditor

Approved by:
Robert Tarsia, Director

Report No. 08-13-0010

This page intentionally left blank.

University of California, Santa Barbara

AUDIT AND ADVISORY SERVICES
SANTA BARBARA, CALIFORNIA 93106-5140
Tel: (805) 893-2829
Fax: (805) 893-5423

February 11, 2013

To: Vice Chancellor Michael Young
        Student Affairs

Re: **Student Information Systems Modernization Project**
        Project Progress Audit Follow-up
        Audit Report No. 08-13-0010

As part of the fiscal year 2012-13 annual audit plan, Audit and Advisory Services conducted a limited scope field follow-up on our fiscal year 2011-12 progress review of the University of California, Santa Barbara (UCSB) Student Information Systems (SIS) Modernization Project. Enclosed is the report detailing the results of our review.

The primary purpose of this limited scope review was to follow up on the progress of the systems conversion phase of the SIS Modernization Project, primarily to examine whether reported progress and cost information remains accurate. The scope of the review was limited to activities and information related to the SIS conversion work, from the beginning of the conversion phase in February 2011, through December 2012.

Our review found that project progress and costs continue to be accurately reported, and sufficient processes for tracking, monitoring, and reporting project progress and costs appeared to remain in place, as reported previously.

We have included a copy of our detailed observations and management corrective actions. The cooperation and assistance provided by Student Information Systems and Technology and other Student Affairs personnel during the review was sincerely appreciated. If you have any questions, please feel free to contact me.

Respectfully submitted,

Robert Tarsia
Director
Audit and Advisory Services

Enclosure

cc: Chancellor Henry Yang
       Associate Vice Chancellor Ron Cortez, Administrative Services
       UCSB Audit Committee
       Senior Vice President and Chief Compliance and Audit Officer Sheryl Vacca
       Bill McTague, Executive Director of Resource Planning, Information Technology, and Sustainability, Student Affairs
       Lubo Bojilov, SIST Director, Student Affairs
       Diana Antova, SIST Database Management and QA Services Manager, Student Affairs

PURPOSE

The primary purpose of this limited scope review was to follow up on the progress of the systems conversion phase of the of the University of California, Santa Barbara (UCSB) Student Information Systems (SIS) Modernization Project, primarily to examine whether reported progress and cost information remains accurate. Our fiscal year 2011-12 progress assessment of the SIS Modernization Project (audit no. 08-12-0007) was issued on May 15, 2012.

SCOPE, OBJECTIVES AND METHODOLOGY

The scope of the review was limited to activities and information related to the Student Affairs SIS Modernization Project, from the beginning of the systems conversion phase in February 2011, through December 2012.

The objectives of this review were consistent with those of our 2012 audit, and included objectives for review of selected SIS project management processes, including practices for tracking and reporting project progress and costs. For this review, we refreshed our understanding of Student Information Systems and Technology (SIST) project management efforts and the status and progress to-date for the SIS Modernization Project. We also confirmed that the processes established for tracking and reporting project progress and costs remained consistent with applicable University of California (UC) policies. Our work included discussions with SIST and Student Affairs personnel, review of project reports, documentation, and other information, and attendance by the auditor at several of the project team's weekly status meetings. We did not perform work to determine whether the vendors engaged for the project have complied with the performance or billing terms of their contracts with UCSB.

This audit follow-up was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing.*

BACKGROUND

Replacement of the legacy student registration and admissions systems has been planned for a number of years. In early 2007, an SIS Strategic Planning group was formed to analyze the risks associated with the aging core student systems and suggest alternatives for replacement. In 2008, a subsequent decision to replace the SIS with a new, externally-purchased system was abandoned after determining that it would be cost prohibitive to fully adapt/integrate the current SIS structure with the selected system platform. Management subsequently decided to convert the systems to a modern platform, utilizing external vendors along with division technical personnel. The current Student Affairs SIS Modernization Project involves the conversion of 18 student information systems used by the Student Affairs Division, academic and other campus administrative offices, and current and prospective UCSB students. The project is divided into two phases: (1) the systems conversion phase, and (2) systems modernization phase. Table 1 outlines the current project timetable.

The systems are being converted from an outmoded mainframe platform that primarily utilizes ADABAS/Natural programming, to a Microsoft.NET/SQL server platform. One of the primary drivers for the project is the need to migrate the systems due to the obsolescence and planned replacement of the mainframe platform.

The major student systems included in the conversion phase of the project are the:

- SREG/SRTB/SR25 and Student Access and Reporting (STAR) Office of the Registrar systems.
- UADM/ADMS/STAB/CTAB systems used by Admissions.
- FAID/FAST/SFSO systems used by Financial Aid.
- GSFR/GDIV systems used by the Graduate Division.
- UCSB Security (USEC) system.
- CRES curriculum system.
- Student System Department Access (SSDA) system.
- IRES system used by Institutional Research and Planning.

The vendor selection, proof-of-concept, and contracting processes were conducted during the period of March 2010 through January 2011. The conversion phase began in early February 2011 and is currently slated to be completed, including systems testing, training, and production cut-over, by the "go-live" date of February 18, 2013. The production cut-over will require that all converted student systems be taken offline for six days; two of the six days are currently scheduled over a weekend. The modernization phase of the project will predominantly be performed by SIST, beginning shortly after the conversion phase and extending through fiscal year 2014-15.

Table 1	SIS Modernization Project Timetable for Key Milestones/Tasks [1]						
Milestone/Task	Initial Projected Start Date	Initial Projected End Date	Projected Start Date at 12/12/12	Projected End Date at 12/12/12	Actual Start Date	Actual End Date	% Complete at 12/12/12
Project Kick-Off	02/14/11	02/25/11	N/A	N/A	02/14/11	02/25/11	100%
Database Structure Conversion	04/01/11	05/17/11	N/A	N/A	05/06/11	05/23/11	100%
Data Migration	05/18/11	06/03/11	N/A	N/A	05/23/11	08/31/11	100%
Test Scripts/Cases Development	04/01/11	08/11/11	N/A	N/A	05/06/11	03/12/12	100%
Application Conversion	06/06/11	06/03/12	08/26/11	07/06/12	06/20/11	06/29/12	100%
Application Functional Testing (Vendor)	06/27/11	03/19/12	09/05/11	07/13/12	08/15/11	07/6/12	100%
Application Functional Testing (UCSB)	07/12/11	04/02/12	09/13/11	07/18/12	09/13/11	In Progress	95%
Integration/ Performance Testing	07/26/11	04/16/12	06/01/12	08/27/12	08/27/12	In Progress	95%
UCSB Acceptance Testing	03/27/11	05/21/12	10/30/12	12/24/12	12/17/12	In Progress	52%
Production Cut-Over	05/31/12	06/02/12	02/13/13	02/18/13	N/A	N/A	N/A
Go Live Date (Conversion Phase)	06/04/12	06/04/12	02/18/13	02/18/13	N/A	N/A	N/A

Source: Auditor Analysis of SIS Modernization Project Plans and Weekly Project Status Reports through December 12, 2012.

[1] The projected dates listed for those tasks in progress or not started are based on internal estimates that may change.

A broad-based, 17-member SIS Steering Committee is responsible for administrative oversight of the project. The committee includes representatives from Student Affairs administration, management and technical representatives from Student Affairs stakeholder departments, SIST management and project managers, the CIO and CISO from the Office of Information Systems and Technology (OIST), Graduate Division management, the Associate Director of Controls, and a faculty member. The SIST department is responsible for hands-on management of all aspects of the project, and SIST project managers are assigned to the SIS Implementation and Security Modernization Committees, the two primary project workgroups. Other project work groups include the Mainframe Conversion, Application Integration, Security Integration, Systems Engineering, User Interface/Standards, Vendor Coordination, and Quality Assurance committees. External IT service vendors are being utilized for much of the systems conversion process. SIST, and other Student Affairs personnel, are also responsible for certain system conversion tasks, as well as systems application functional, performance, and client acceptance testing; data migration; and the production cut-over process.

Table 2 SIS Modernization Project Costs					
Cost Category	**FY 2010/11** (Actual)	**FY 2011/12** (Actual)	**FY 2012/13** (Estimated)	**FY 2013/14** (Estimated)	**FY 2014/15** (Estimated)
External (Out of Pocket) Costs					
Planning	$ 40,000	$ 0	$ 0	$ 30,000	$ 0
Infrastructure	153,588	134,054	210,000	210,000	170,000
Licensing	27,379	36,958	89,519	132,500	157,500
IT Service Vendors	660,701	462,159	1,412,606	25,000	0
Additional Staff/Backfills	268,291	588,862	771,443	612,308	549,154
Travel/Training	6,735	38,605	35,000	25,000	15,000
Supplies/Materials	8,454	57,680	25,000	10,000	10,000
Contingency (10-20%)	0	0	127,178	156,721	180,331
Subtotals (External Costs)	**$ 1,165,148**	**$ 1,318,318**	**$ 2,670,746**	**$ 1,201,529**	**$ 1,081,985**
Total External (Out of Pocket) Costs: $ 7,437,726					
Internal (Student Affairs Admin/Technical Staff) Costs					
Administrative and Project Management	$ 48,000	$ 51,000	$ 75,000	$ 75,000	$ 75,000
Infrastructure/Network Architects/Engineers	30,250	42,900	$ 195,000	150,000	115,000
Software/Integration & Database Developers	195,000	401,940	888,000	848,000	816,000
Quality Assurance & Functional Experts	53,463	105,525	490,000	469,000	402,500
Benefits (25%)	81,678	150,341	412,000	385,500	352,125
Subtotals (Internal Costs)	**$ 408,391**	**$ 751,706**	**$ 2,060,000**	**$ 1,927,500**	**$ 1,760,625**
[1] **Total Internal (Admin/IT Staff) Costs: $ 6,908,222**					
[2] **Project Costs Grand Total: $ 14,345,948**					

Source: Auditor Analysis of the SIS Modernization Project budget as of November 20, 2012.

[1] Internal Admin/IT costs are based on estimates consistent with University benchmarking practices.

[2] For purposes of comparison to project costs reported previously, additional SIS modernization costs of $832,365 for fiscal years 2008-09 and 2009–10, incurred prior to the application conversion phase, were not included in this total. Including these costs brings the project costs grand total to $15,178,313.

Table 2 summarizes actual and projected costs over the life of the project. SIS Steering Committee responsibilities include establishment, review, and approval of the project budget and modifications, and any significant changes in project status and use of other project resources. The Implementation and Security Modernization workgroups meet weekly and, along with information and input from meetings of other project managers and work groups, review project status in order to determine significant issues that will require modifications to the committed resources. Weekly meetings are generally held by the Student Affairs Executive Director for Resource Planning, Information Technology, and Sustainability, the SIST Director, and other project managers, and include review of project status updates, actual costs to date, and any proposed budgetary modifications. All project resource modifications and significant changes in status require review

and approval of the Steering Committee. The Executive Director keeps the Vice Chancellor for Student Affairs apprised of the project's status and other significant matters on an ongoing basis.

Student Affairs procured the services of two professional IT service vendors, Ateras, contracted specifically for the SIS Modernization Project, and SYZYGY, contracted through the UC Office of the President for systemwide IT services. Ateras is the vendor performing the conversion of the systems to the Microsoft.NET/SQL server platform, and providing an application programming interface between the converted code and the existing externally interfaced systems. SYZYGY is assisting SIST in the creation and ongoing operation of the systems conversion logical partitioning, and the creation of scripts and processes necessary to provide Ateras with file layouts and data and source code through the duration of the project.

UC Business and Finance Bulletin IS-10: *Systems Development and Maintenance Standards*, establishes UC policy and standards for developing and maintaining computer applications for administrative purposes. The standards apply to large, complex applications that are essential to the operations of the campus. The guidelines indicate that the standards generally apply to the development of systems that are estimated to take more than one year to develop and implement, or systems that cost greater than $150,000.

SUMMARY OPINION

Our review found that project progress and costs continue to be accurately reported, and sufficient processes for tracking, monitoring, and reporting project progress and costs appeared to remain in place, as reported previously. Also, project management practices in place at SIST appeared to remain consistent with requirements of UC Business and Finance Bulletin IS-10.

Audit observations are detailed in the remainder of the audit report.

DETAILED OBSERVATIONS AND MANAGEMENT CORRECTIVE ACTIONS

A. Project Plan and Progress Reporting Follow-Up

The review found that an approved, adequately detailed, and periodically updated SIS Modernization Project plan remained in place through December 2012, and included a relatively clear timetable and schedule indicating all major project tasks, responsible party (i.e., UCSB or vendor), project interdependencies, and duration of the task or activity. We found that project reporting against the plan continues to appear accurate.

The project began in early February 2011, with June 4, 2012, established as the initial projected completion, or "go-live" date for the conversion phase of the project: There have been schedule changes since that time:

- As of July 30, 2011, the projected completion date had been moved forward to July 6, 2012.
- By March 2012, the completion date was projected to be September 18, 2012.
- In April 2012, the project completion date had been revised to August 27, 2012, with a vendor systems conversion and testing completion date planned for June 18, 2012.
- In June 2012, the project completion date was revised to December 31, 2012.

Vendor systems conversion and testing was subsequently completed on December 17, 2012, and in late November 2012, the completion date was revised to February 18, 2013.

According to SIST management, there are various reasons for the fluctuation in project completion dates. During fiscal year 2011-12, external vendor employee retention issues, a shortage of technical personnel in the job market with sufficient expertise to fill vendor and SIST employee vacancies, and the addition of database structure improvement tasks to the project were the primary reasons for the project delays. Additionally, until the project conversion work began, the complexity of certain applications to be converted and application interdependencies and systems integration requirements were not entirely apparent, and contributed to project delays.

SIST management explained that the most recent delays in the project largely related to additional complexities discovered in Admissions applications; dependencies of the applications on other SIS and central campus business systems were discovered that were unknown before the project's application conversion phase began. The time needed for conversion of the Admissions applications was underestimated and, in retrospect, SIST management said the applications should have been scheduled earlier in the conversion phase of the project.

SIST management remains confident in the vendor's expertise and ability to deliver.

B. Project Budget and Cost Reporting Follow-Up

SIS Modernization Project external and internal costs are currently projected to total approximately $15.1 million over the life of the project. The current SIS Modernization Project budget appears to be complete and adequately detailed, and reporting of IT service vendor costs incurred to date appeared accurate (see Table 2 for actual and projected costs for the project through fiscal year 2014-15). Overall, it appears that the project budget monitoring, modification, and approval processes in place at Student Affairs, as detailed by management, continue to provide an appropriate level of authorization, oversight, and resource control.

C. SIS Modernization and FSIP Teams/Stakeholders Coordination

The campus is also in the process of implementing a new financial system. The Financial Systems Implementation Project (FSIP) is being led by the Administrative Systems Program Management Office (PMO). According to SIST management, there will be a higher level of required coordination with the PMO and planning groups for the FSIP once the FSIP fit-gap analysis is complete.[1] At that time, an evaluation of the required interfaces between the two systems can be adequately performed, and FSIP plans and requirements can be better factored into plans for the remaining phases of the SIS Modernization project.

We noted that there are currently processes in place for ensuring communication and coordination between the separate units responsible for these two critical campus systems. For example, we were advised that the Director of Administrative Services Information Technology (ASIT) sits on the Mainframe Conversion Steering Committee, and SIS Modernization Project plans are provided to, and discussed periodically with, this committee. SIST personnel also indicated that SIST has been keeping up with FSIP plans via the PMO website and campus communications. Audit and Advisory Services will review this area at an appropriate time to ensure that coordination between the SIS Modernization Project and FSIP management, teams, and stakeholders is optimized.

Management Corrective Actions

As noted above, there will be a higher level of required coordination with the FSIP once the FSIP fit-gap analysis is complete. The purpose of this will be to ensure that project schedules for each project are well coordinated.

Audit and Advisory Services will follow up on this issue by September 1, 2013.

---

[1] Fit-Gap Analysis includes identifying key data or components that fit within a business system and gaps that need solutions. According to the PMO Director, the FSIP fit-gap analysis is currently being performed.