UCSB Audit and Advisory Services

Internal Audit Report

Enterprise and Campus-wide IT Project Costs Fiscal Year 2015-16 Review

August 17, 2016

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Report No. 08-16-0016

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University of California, Santa Barbara

August 17, 2016

To: Elise Meyer, Director, Business Operations & Planning
         Enterprise Technology Services

         Distribution

Re: **Enterprise and Campus-wide IT Project Costs: Fiscal Year 2015-16 Review**
         Audit Report No. 08-16-0016

As part of the 2015-16 annual audit services plan, Audit and Advisory Services has completed an audit of IT project costs. Enclosed is the report detailing the results of our review.

The purpose of this review was to ensure that campus practices for estimating, tracking, charging, and reporting IT project costs are appropriate and consistent with best practices and University of California and University of California, Santa Barbara policies, procedures, and guidance. The scope of this audit was limited to the UCPath and FSIP projects. This audit was the second in a series of planned annual audits of costs charged to major campus IT projects.

We found that processes in place to accurately charge, track, and report project costs are sufficient to help monitor and control costs and ensure proper project management. We did find modest opportunities to improve contract terms and tracking of personnel effort.

Detailed observations and management corrective actions are included in the following sections of the report. The management corrective actions provided indicate that each audit observation was given thoughtful consideration, and positive measures have been taken or planned in order to implement the management corrective actions.

We sincerely appreciate the cooperation and assistance provided by Enterprise Technology Services personnel during the review. If you have any questions, please feel free to contact me.

Respectfully submitted,

Robert Tarsia
Director
Audit and Advisory Services

Enclosure

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PURPOSE

The primary purpose of this audit was to determine whether University of California, Santa Barbara (UCSB) practices for estimating, tracking, and reporting information technology (IT) project costs are appropriate and consistent with best practices and University of California (UC) and UCSB policies, procedures, and guidance.

This audit is part of the fiscal year 2015-16 audit services plan of UCSB Audit and Advisory Services. The audit is the second in a series of planned annual audits of costs charged to major campus IT projects.

SCOPE, OBJECTIVES AND METHODOLOGY

The scope of this audit included the UC Payroll, Academic Personnel, Timekeeping and Human Resources project (UCPath) and Financial System Implementation Project (FSIP). We selected these projects based on updates to a risk analysis of enterprise and campus-wide IT projects from our first annual audit of IT project costs, which considered project size, complexity, status, timeline changes, cost increases, and other factors. We selected samples of transactions from the period January 1, 2016, through March 31, 2016, for detailed review and testing.

The objectives of our review were to determine whether:

- Campus practices for estimating costs charged to the projects comply with applicable provisions of UC Policy BFB IS-10, *Systems Development Standards* (Policy IS-10*),* and best practices.

- Processes in place to accurately charge, track, and report project costs are sufficient to help monitor and control costs and ensure proper project management.

- Cost figures reported to management are accurate.

- Costs charged to the project are relevant to the project (e.g. included in the project budget).

- Underlying contracts or purchase orders were in place, current, and otherwise appropriate.

- Rates, prices, and quantities charged are correct.

- Goods and services were approved by authorized personnel.

To accomplish our objectives, we:

- Reviewed previous, related UCSB audit and advisory work (see Table 1).

- Reviewed UC and UCSB policies, best practices, and other guidance concerning IT project costs, including:

   o UC Policy BFB IS-10, *System Development Standards* (Policy IS-10).

   o *GAO Cost Estimating and Assessment Guide – GAO-09-3SP*, published by the Government Accountability Office (GAO).

- Interviewed key campus IT personnel to gain an understanding of campus practices for managing IT project costs.

- Updated a risk analysis of IT projects from our first annual audit of IT project costs to reflect current timeline and cost information and the results of our interviews and observations.

- Based on our risk assessment, selected two IT projects for evaluation: UCPath and FSIP.

- Evaluated processes in place to estimate, charge, track, and report project costs to determine whether they are sufficient to help monitor and control costs; ensure proper project management; and are consistent with applicable UC and UCSB policies, procedures, and guidance, as well as best practices promoted by the GAO.[1]

- Determine the accuracy of reported cost by reconciling total cost reported during the period evaluated with the general ledger.

- Performed detailed testing of a sample of project costs to determine whether:

  o Costs were relevant to the project (e.g. included in the project budget) and reported in the proper cost category.

  o The amount and types of costs were fully supported by the supporting documentation.

  o The supporting documentation was appropriate for the type of costs.

  o Underlying contracts or purchase orders were in place, current, and otherwise appropriate.

  o Rates and prices were correct per applicable contracts, purchase orders, payroll records, and other sources.

  o Quantities charged to the project were consistent with the invoices or other source documents.

  o There was sufficient documentation that goods and services were approved by authorized personnel and were appropriately received and signed for.

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

BACKGROUND

Project Cost Management is a method to measure cost and productivity through the full life cycle of enterprise-level projects. Beginning with estimating, actual historical data is used to accurately plan all aspects of the project. As the project continues, data from the estimate and other information is used to measure the cost and progress of the project. From project initiation to completion, the objective of project cost management is to deliver projects in a cost-effective manner.

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[1] We did not review the basis of project cost estimates for FSIP, because development of Phase I of this project was complete.

Table 1	Relevant Previous Work by UCSB Audit and Advisory Services		
Report Name		**Date**	**Audit / Advisory**
Enterprise and Campus-wide IT Project Costs		April 23, 2015	Audit
UCPath Limited Scope Project Progress Review		May 16, 2016	Audit
UCPath Cost Tracking and Reporting		May 1, 2014	Advisory
UCPath System Dependencies		December 2, 2013	Advisory
FSIP Limited Scope Progress Review		October 8, 2015	Audit
FSIP Testing Assistance		July 17, 2015	Audit
FSIP Limited Scope Progress Review		April 1, 2014	Audit
FSIP Project Progress Review		May 2, 2013	Audit

Source: Audit & Advisory Services

Best practices literature[2] describes common difficulties in cost estimating, including:

- Exclusion of known costs without adequate or valid justification.
- Use of historical cost data for computing estimates that is invalid, unreliable, or not representative.
- Not providing for inflation, or not uniformly treating inflation when it is included.
- Low estimates.

The cost estimating process should include the following:

- Defining a project plan.
- Determining the structure and breakdown of the work.
- Identifying ground rules and assumptions.
- Determining cost elements.
- Documenting the process.
- Reporting on updates to estimate.

Cost analysis is used to develop cost estimates and is defined as the effort to develop, analyze, and document cost estimates with analytical approaches and techniques; it is a tool for evaluating resource requirements at key milestones and decision points.

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[2] *GAO Cost Estimating and Assessment Guide* – GAO-09-3SP

UC Policy IS-10, Systems Development Standards

Policy IS-10, *Systems Development Standards,* describes standards for developing and maintaining computer applications for administrative purposes. These standards apply to any department or vendor engaged by the campus that undertakes development, installation, or maintenance of administrative applications. Table 4 lists the areas covered by these standards, which include regular status reporting and timekeeping.

Policy IS-10 includes the following requirements:

- A single entity must be assigned clear ownership of the project and be made responsible for making key decisions, such as determining budget changes. The policy also recommends having a project plan as part of project management to reduce the likelihood of major, unexpected cost overruns.

- Projects that require more than one year to develop and implement, or more than $100,000 in cost, must have a project plan, unless an exception is granted.

- The "administrative computing department" may require staff to report their time by project to their manager.

UCSB IT Projects

Campus IT projects in our review included[3]:

- FSIP, which entails the replacement of the campus legacy mainframe financial system with PeopleSoft Financials. FSIP Phase 1 encompassed deployment of general ledger, commitment control (budget), accounts payable, asset management, and project costing modules, as well as relevant interfaces with campus shadow systems.[4] Future phases will include the deployment of contracts, chart of accounts, grants management, billing, and accounts receivable solutions, as well as business process redesign/improvements and required integration with other key campus systems.

- UCPath, which is a UC Office of the President (UCOP) project. The goal of the project is to deploy a single payroll system and a single human resources system across all ten campuses and five medical centers that meets the core needs of each location, while capturing the efficiencies, improved data, and cost-savings associated with unified systems. UCOP chose the Oracle PeopleSoft Human Capital Management (HCM) platform for UCPath. UCSB's Enterprise IT Project Management Office (PMO), part of the Office of the Chief Information Office (OCIO), is responsible for leading the campus UCPath implementation. The organization is currently developing a new project plan, staffing model, and a budget and forecast based on a go-live date in spring of 2018.

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[3] Descriptions are based on information from campus information technology department websites.
[4] The cutover date for Phase 1 was July 1, 2015.

Table 2	Selected IT Projects Cost and Schedule Summary	
	FSIP (Phase I)	**UCPath**
Original Project Cost	$11,336,880	$8,053,914[1]
Current Projected Cost	$19,214,036	$12,834,935[3]
Increase in Cost	69%	59%[3]
Original Completion	October 2013	July 2015
Current Projected / Actual Completion	August 2016[2]	Spring 2018
Increase in Timeline	34 months	>32 months

Source: ETS
1: Original planned cost presented to the Chancellor on August 30, 2013.
2: Actual completion date includes stabilization period following July 1, 2015, cutover.
3. Presented to the project sponsors on February 18, 2015; currently undergoing review.

SUMMARY OPINION

We found that processes in place to accurately charge, track, and report project costs are sufficient to help monitor and control costs and ensure proper project management. We did find modest opportunities to improve contract terms and tracking of personnel effort.

Audit observations and management corrective actions are detailed in the remainder of the audit report.

DETAILED OBSERVATIONS AND MANAGEMENT CORRECTIVE ACTIONS

A. Accuracy of Reported Costs

We found that cost figures reported to management for both projects have been accurate overall, and that costs charged to each project were relevant to the projects, consistent with underlying contracts, and properly approved. Rates and prices for costs charged to the projects were consistent with relevant contracts or other sources, such as payroll records. We did find modest opportunities to improve contract terms. The results of our testing are summarized in Table 3.

Table 3	Testing of Project Costs		
Testing		**UCPath**	**FSIP**
Project Costs			
1. The costs were relevant to the project (e.g. included in the project budget) and reported in the proper cost category.		✓	✓
2. The cost amount and type of costs agrees with the supporting documentation.		✓	✓
3. The supporting documentation is appropriate for the type of costs.		✓	✓
4. Underlying contracts or purchase orders were in place, current, and otherwise appropriate.		✓	✓
5. Rates and prices are correct per applicable contracts, purchase orders, payroll records, and other sources.		✓	✓
6. Quantities charged to the project are consistent with the invoices or other source documents.		✓	✓
7. There is evidence the goods and/or services were received/signed for.		✓	✓
8. The purchase or other transaction was properly approved.		✓	✓
Accuracy of Reported Cost Figures (Reporting vs. General Ledger)			
Results		✓	✓

Source: Auditor analysis
✓: Full compliance.

We found the following:

- The contract for the PeopleSoft license for FSIP does not include Appendix DS, *University of California Appendix - Data Security and Privacy.* This important contract appendix protects the University by describing the data security and privacy obligations of suppliers and their sub-suppliers that connect to UC information resources and/or gain access to non-public information.

B. Practices for Estimating and Tracking Project Costs

Our review highlighted opportunities to enhance practices for estimating and tracking project costs to help ensure alignment with Policy IS-10 and best practices. Table 4 summarizes the results of our evaluation.

Table 4	Practices for Estimating and Tracking Project Costs		
Policies and Best Practices		**UCPath**	**FSIP**
Policy IS-10, Systems Development Standards			
Regular Status Reporting		✓	✓
Project Timekeeping		Partial[1]	✓
GAO Cost Estimating and Assessment Guide, GAO-09-3SP			
Formal Risk Assessment		✓	
Sizing Method		✓	
Element of Cost (Number of licenses, infrastructure, personnel/labor, training, support, and others)		✓	
Assumptions for Estimating Project Cost [2]		✓	
Formal Documentation		Partial	
Cost Estimation Updates		Annually	

Source: Auditor analysis
✓: Full compliance with selected requirement and/or best practices.
Partial: Partial compliance with selected requirement and/or best practices.
1: No effort reports for ETS personnel working full time on one project.
2: These would define what the estimate includes and excludes.

Estimating Project Costs

We found the following:

- The projected cost of UCPath needs to be updated based on the new project timeline, and needs to be formally approved. ETS has already committed to addressing this issue, which we reported in our May 16, 2016, report, *UCPath Limited Scope Project Progress Review.*

Tracking Project Costs

We found that both projects have adequate processes in place overall to accurately charge, track, and report project costs. However, we observed opportunities to enhance the documentation and tracking of labor costs:

- ETS implemented a modified effort reporting process to document and track internal staff costs charged to projects. However, effort reports only include employees working on multiple projects. The exclusion of employees working full-time on only one project increases the difficulty of reconciling and tracking labor cost for both projects.

We also noted that costs for both projects are being tracked with a system of Excel workbooks. This process is time consuming, can be cumbersome, increases the likelihood of errors, and does not provide real-time information.

We recommend the following for both projects:

- Incorporate Appendix DS into the PeopleSoft licensing agreement for FSIP.

- Consistently use effort reports for all internal personnel working on these projects.

- Evaluate the cost-benefit of implementing a project cost management system to track and report IT project costs.

Management Corrective Actions

ETS will:

- Incorporate Appendix DS into the PeopleSoft licensing agreement for FSIP.

- Consistently use effort reports for all internal personnel working on these projects.

- Evaluate the cost-benefit of implementing a project cost management system to track and reports IT project costs.

Audit and Advisory Services will follow up on the status of these issues by November 1, 2016.