

The University of California Office of the President

Increasing Costs and Scheduling Delays Have
Hampered the UCPATH Project and Originally Anticipated
Savings Are Unlikely to Materialize

Report 2016-125.2

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August 24, 2017

2016-125.2

The Governor of California
President pro Tempore of the Senate
Speaker of the Assembly
State Capitol
Sacramento, California 95814

Dear Governor and Legislative Leaders:

As requested by the Joint Legislative Audit Committee, the California State Auditor presents this audit report concerning the University of California's (university) planned systemwide payroll and human resources system known as the University of California Payroll, Academic Personnel, Timekeeping, and Human Resources (UCPath). This report concludes that the University of California Office of the President has failed to keep UCPath on budget and on schedule, and that originally anticipated cost savings from UCPath's implementation are unlikely to materialize.

In 2011 the Office of the President estimated that the cost to implement UCPath would total \$306 million and it would be completed by February 2014. The Office of the President also projected that UCPath's implementation would save the university \$753 million, primarily from staff reductions. However, the project's cost has escalated and its schedule has slipped; the Office of the President's current cost projection is \$504 million and its planned implementation date is June 2019. Further, the full cost to the university to implement UCPath is much higher than the Office of the President has reported—an estimated \$942 million—when including the cost of the campuses' development activities, project financing, and a shared services center. Finally, because the planned staff reductions will not occur, the \$753 million in savings that the Office of the President anticipated would result from UCPath's implementation will not materialize.

Despite the significant departures from the originally estimated cost, schedule, and savings for UCPath, the Office of the President has not consistently informed the University of California Board of Regents (regents) of UCPath's challenges. For example, in July 2014, the UCPath project director told the regents that UCPath's cost estimate was \$220 million, yet the Office of the President's internal records from one month earlier show the project's cost estimate was \$345 million. In July 2017, the Office of the President expanded its project governance approach to establish instances in which it will update the regents. However, in our view, the governance does not go far enough in recognizing the regents' role as an oversight body. Moreover, weaknesses in the Office of the President's project management likely contributed to UCPath's escalating cost and schedule delays. For example, the Office of the President set aggressive schedules that were susceptible to delays caused by project scope changes or staffing constraints.

Respectfully submitted,



ELAINE M. HOWLE, CPA
State Auditor

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Summary

Results in Brief

The University of California (university) Office of the President has failed to keep its planned systemwide payroll and human resources system on budget and on schedule. The University of California Payroll, Academic Personnel, Timekeeping, and Human Resources (UCPath) system will replace the university's existing legacy system, which is several decades old and has been highly customized by campuses to the degree that the university is operating 11 different payroll and human resources systems. UCPath is the university's attempt to integrate these functions into one system.

In its initial business case for UCPath in 2011, the Office of the President estimated that implementing the project itself would cost \$170 million, and with other related costs, it would total \$306 million. It also estimated that the project would be completed by August 2014. However, as the project's cost has escalated and its schedule has slipped, the Office of the President has revised these estimates. The Office of the President currently projects the implementation cost of UCPath to be \$504 million—\$334 million over its original estimate of \$170 million—and it has delayed the date of UCPath's implementation by nearly five years, to June 2019. Moreover, the \$504 million estimate does not represent the full cost of the project because it includes just a fraction of the cost associated with the campuses' implementation efforts and a shared services center, known as the UCPath Center. The full cost to the university of adopting UCPath is likely to be at least \$942 million.

At the same time that UCPath's cost has increased, the savings that the Office of the President anticipated would result from UCPath will not materialize. The Office of the President conceived UCPath in 2009 and it later became part of its Working Smarter initiative, an effort it led to achieve administrative efficiencies systemwide by reducing costs or increasing revenues. The Office of the President's initial business case in 2011 asserted that UCPath would result in \$753 million in cost savings, primarily from staffing reductions at the campuses. However, the UCPath project director told us that the Office of the President no longer expects to realize those projected savings. Several campuses also reported to us that they do not anticipate the staff reductions that the 2011 business case promised. In fact, in a status update to the University of California Board of Regents (regents) in July 2017, the Office of the President did not discuss any offsetting savings but rather discussed creating efficiencies and avoiding costs.

Audit Highlights . . .

Our audit concerning the University of California's (university) planned systemwide payroll and human resources system, known as UCPath, and other information technology (IT) systems revealed the following:

- » *The Office of the President currently projects UCPath's implementation cost to be \$504 million—\$334 million over its original estimate of \$170 million—but the full cost to the university is likely to be at least \$942 million.*
- » *The Office of the President originally estimated that it would complete UCPath by August 2014, but it has delayed the implementation date by nearly five years, to June 2019.*
- » *The \$753 million in cost savings, primarily from staff reductions, that the Office of the President anticipated would result from UCPath's implementation, will not materialize.*
- » *Despite the significant departures from the original estimated cost, schedule, and savings for UCPath, the Office of the President has not consistently informed the regents of UCPath's challenges.*
- » *Weaknesses in the Office of the President's project management contributed to UCPath's escalating cost and schedule delays.*
 - *It set aggressive schedules that are susceptible to delays caused by project scope changes or staffing constraints.*
 - *It did not establish rigorous change management processes that would have allowed it to assess how changes to the project's scope would impact its cost and schedule.*

continued on next page . . .

» *Of the three campuses we reviewed concerning their IT contract management, two of the campuses had vaguely worded deliverables for milestones, hindering them from effectively measuring whether the vendors had met their obligations for payment.*

In addition to not keeping the regents apprised of the uncertainty associated with the announced \$753 million in savings, the Office of the President has only rarely apprised the regents of schedule and budget changes. As a result, the regents have not had the opportunity to participate in critical project decisions. This lack of transparency is particularly troubling in light of UCPath's importance to the university system, its soaring cost, and its delayed implementation. The reporting lapses occurred in part because until recently, the Office of the President lacked criteria defining the circumstances that warranted updates to the regents. Although the Office of the President expanded the UCPath governance structure in July 2017 to include updating the regents when the project's cost increases by more than \$20 million or its schedule is delayed by more than three months. However, the planned communication is one-way only: apprising the regents of progress rather than engaging them in decision making. This governance approach, although expanded, does not go far enough in recognizing the regents' role as an oversight body.

This sort of oversight is particularly important because we identified weaknesses in the Office of the President's project management that likely contributed to UCPath's escalating cost and schedule delays. For example, our information technology (IT) project management expert identified that the Office of the President set aggressive schedules for the UCPath project that are susceptible to delays caused by project scope changes or staffing constraints. In addition, the Office of the President did not establish rigorous change management processes that would have allowed it to assess how changes to the project's scope would impact its cost and schedule. Notwithstanding its project management weaknesses, the next important UCPath milestone is a multicampus deployment the Office of the President currently has scheduled for December 2017, and it will serve as an indicator of the project's ability to meet its current budget and schedule goals.

In addition to the UCPath project, we reviewed three campuses' management of their contracts for campus-specific IT systems. Although we found that each campus reviewed and approved vendor invoices before payment, two of the campuses had vaguely worded deliverables for milestones, an approach that does not align with industry best practices. Because the contracts provided insufficient detail about the deliverables for milestones, the campuses could not effectively measure whether the vendors had met their obligations for payment.

Selected Recommendations

Regents

To ensure that they can exercise necessary oversight, the regents should develop by December 2017 status reporting standards for the university's significant IT projects that the Office of the President and the university locations must follow.

Office of the President

To ensure that it fully reports the cost of IT projects, the Office of the President should develop by December 2017 cost reporting guidelines for UCPath and other significant IT projects. These cost guidelines should identify cost categories at both the Office of the President and university locations to ensure that the Office of the President's estimates capture and communicate all development and implementation costs. In addition, the Office of the President should produce cost reports to share at least quarterly with stakeholders.

To ensure that it consistently follows best practices related to project management, the Office of the President should develop and implement guidelines for IT project development by June 2018. The guidelines should apply to IT projects undertaken by any university location with a cost estimate of \$5 million or more. The guidelines should include, but not be limited to, advising project managers on ensuring that schedules are realistic and implementing rigorous change management processes that establish a means of assessing the implications of changes to a project's scope, cost, and schedule.

The Office of the President should require by December 2017 that all university locations follow the best practice of including well-defined deliverables in contracts related to the development of IT projects.

Agency Comments

In its response to the audit, the regents stated that they welcomed the constructive input on IT project oversight and agreed to implement the recommendation in the time frame specified. Similarly, the Office of the President stated that our recommendations are helpful and constructive and align with its efforts to improve the university's operations, policies, and transparency. The Office of the President agreed with most of the recommendations in the report and expressed its intent to implement them.

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Introduction

Background

Founded by the Legislature in 1868 as a public, state-supported, land-grant institution, the University of California (university) is an extensive business enterprise. It has 10 campuses, five medical centers, numerous auxiliary organizations, and more than 200,000 employees. It is also involved in the management of three national laboratories and several research centers. Each year, it receives more than \$30 billion in revenues from a variety of public and private sources, including \$3 billion in state funding and \$10 billion generated from its medical centers.

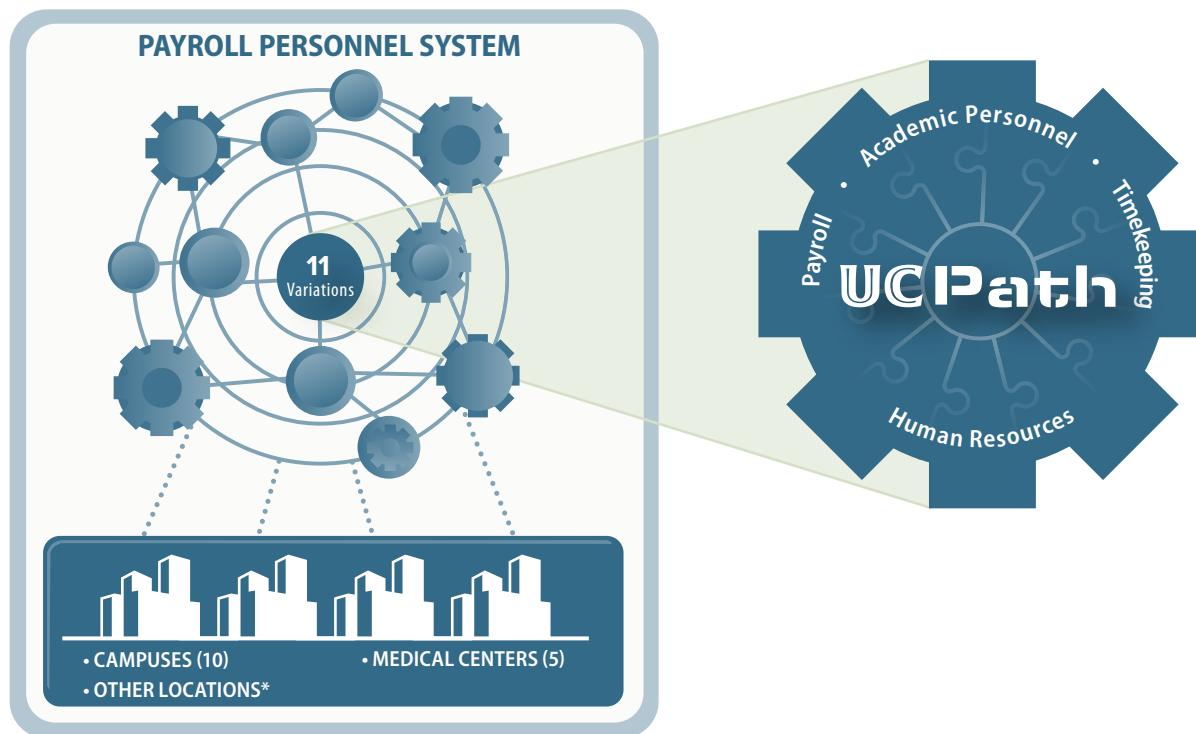
The California Constitution established the university as a public trust to be administered by the University of California Board of Regents (regents). As a result, the Legislature's oversight of the university is limited to certain circumstances, such as specifying provisions that the university must meet before it can spend state appropriations. The head of the university is the president, to whom the regents have granted full authority and responsibility over the administration of all the university's affairs and operations. In 2010 the regents passed a policy directing the president to achieve administrative efficiencies which included, among other initiatives, designing and implementing new information technology (IT) systems, such as student information systems, financial systems, human resources systems, and payroll systems. The California Department of Technology does not oversee development of the university's IT projects. Rather, the university follows its own policies.

The Office of the President Intended UCPATH to Replace the University's Outdated Payroll System and Achieve Significant Cost Efficiencies

The Office of the President intends for its Payroll, Academic Personnel, Timekeeping, and Human Resources project, or UCPATH, to integrate numerous payroll and human resource functions into one system. The Office of the President conceived UCPATH in 2009, and it became a part of its Working Smarter initiative, an effort led by the Office of the President to achieve administrative efficiencies systemwide by reducing costs or increasing revenues. As Figure 1 on the following page shows, the Office of the President anticipated that when fully operational, UCPATH would replace its existing Payroll/Personnel System (legacy payroll system), which has evolved into 11 variations in use across the campuses. In its 2011 business case supporting the implementation of UCPATH, which was created two years before the current university leadership took office, the Office of the President noted that the legacy payroll system was

more than 30 years old and was at significant risk of breakdown because of its aging technology. The legacy payroll system also has serious limitations, including high maintenance costs, limited reporting functions, reliance on manual processing, and inadequate capability for the university's current payroll environment. In 2011 the university awarded a contract to Oracle Corporation (Oracle) to develop UCPATH. At the time, the Office of the President estimated that development of UCPATH would take three years and would cost \$170 million to implement, and with other related costs, the project would total \$306 million.

Figure 1
The Office of the President Envisioned UCPATH as a Systemwide Payroll and Human Resources IT Solution



Sources: California State Auditor's analysis of the PPS Initiative: Final Report, dated August 2011, and other university publications.

* The other locations include the following: Lawrence Berkeley National Laboratory; Associated Students of University of California, Los Angeles; Division of Agriculture and Natural Resources; Office of the President; and Hastings College of Law.

The Office of the President also envisioned that UCPATH would allow it to restructure the number of staff handling payroll and human resources tasks systemwide. Specifically, the Office of the President assumed that UCPATH would allow it to reduce

the number of employees performing those tasks from 2,743 to 1,224 full-time employees, which would result in significant savings for the university. In fact, 90 percent of UCPATH's projected \$753 million in savings was based on this staff reduction and on the creation of a shared services center, known as the UCPATH Center. The Office of the President intended the UCPATH Center to take over payroll and human resources functions for all university employees from all university locations.

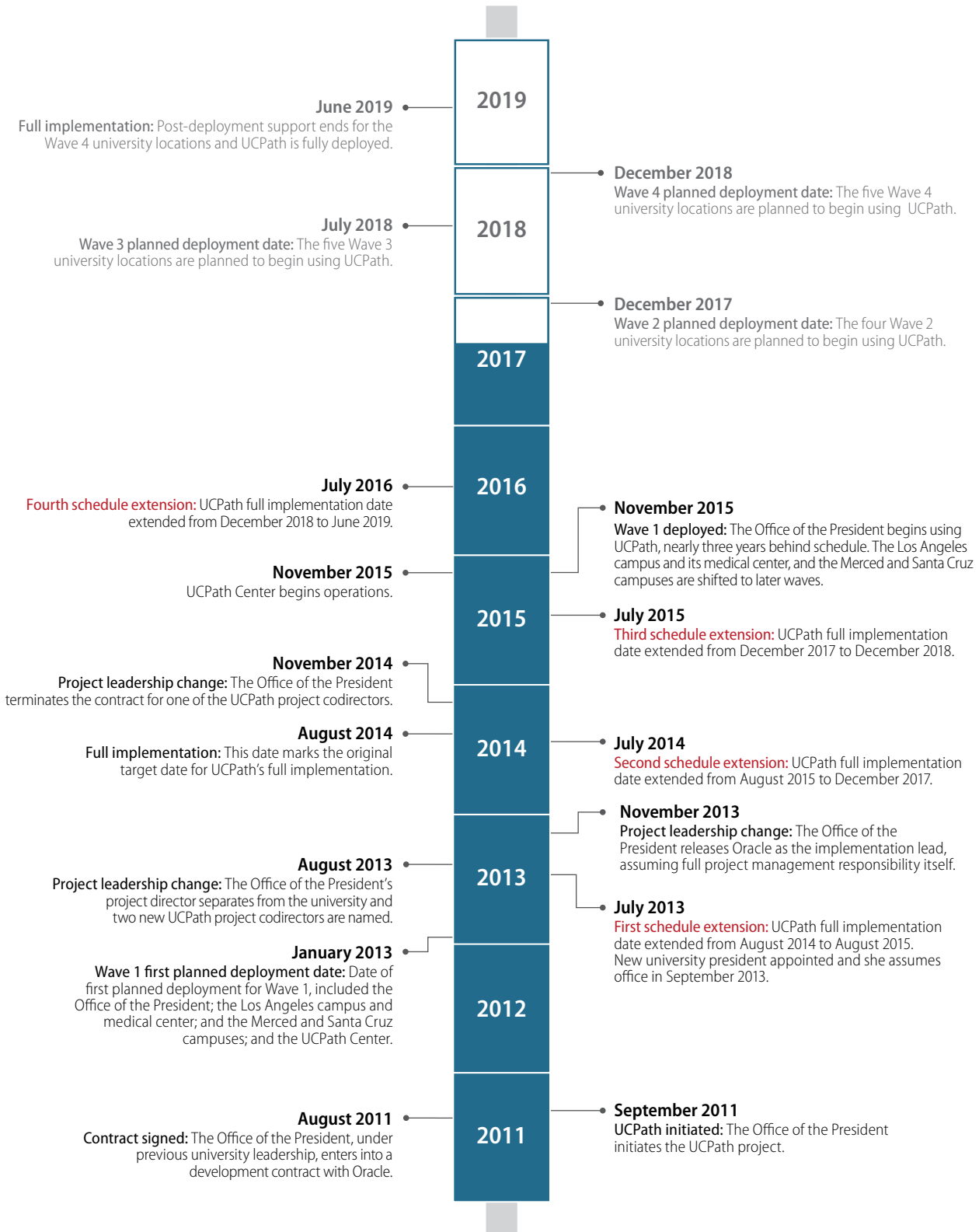
The Office of the President Has Repeatedly Delayed Implementation of UCPATH, and the Project's Estimated Cost Has Increased Significantly

The UCPATH project has experienced several setbacks that have delayed the system's planned implementation and increased its cost significantly. Figure 2 on the following page depicts a timeline of some of the events and decisions related to UCPATH's implementation. In early 2012, the Office of the President informed the regents that the first phase of UCPATH's rollout would begin in January 2013 with Wave 1¹—the system's deployment to the Office of the President, the Los Angeles campus and its medical center, and the Merced and Santa Cruz campuses as well as the deployment of the UCPATH Center. Instead, in 2013 problems with UCPATH's development led the Office of the President to extend the project's timeline by 12 months and to increase its budget to \$221 million. Later that same year, the initial project leader left for reasons unrelated to the project. According to the UCPATH's current project director, the Office of the President released Oracle from its role as the implementation lead on the project in 2013 for failure to perform under its implementation contract and the Office of the President took over management of the project. Figure 2 also shows that once the Office of the President took over leadership, it extended the project implementation date three times.

Various Office of the President executives and staff, and campus-based leadership form a governance structure for the UCPATH project. As Figure 3 on page 9 shows, the Office of the President maintains a project management office and under the leadership of the project director, it oversees the day-to-day management of the UCPATH project. The UCPATH steering committee is responsible for making decisions on issues related to systemwide business processes. The steering committee refers issues that materially impact UCPATH's scope, cost, timeline, or deliverables to UCPATH's executive leadership team, which includes the chief financial officer and chief operating officer who are also the UCPATH project sponsors, other Office of

¹ The Office of the President refers to the four deployments of the project as Office of the President, Pilot, Deployment 1, and Deployment 2. However, we use the term *wave* for clarity.

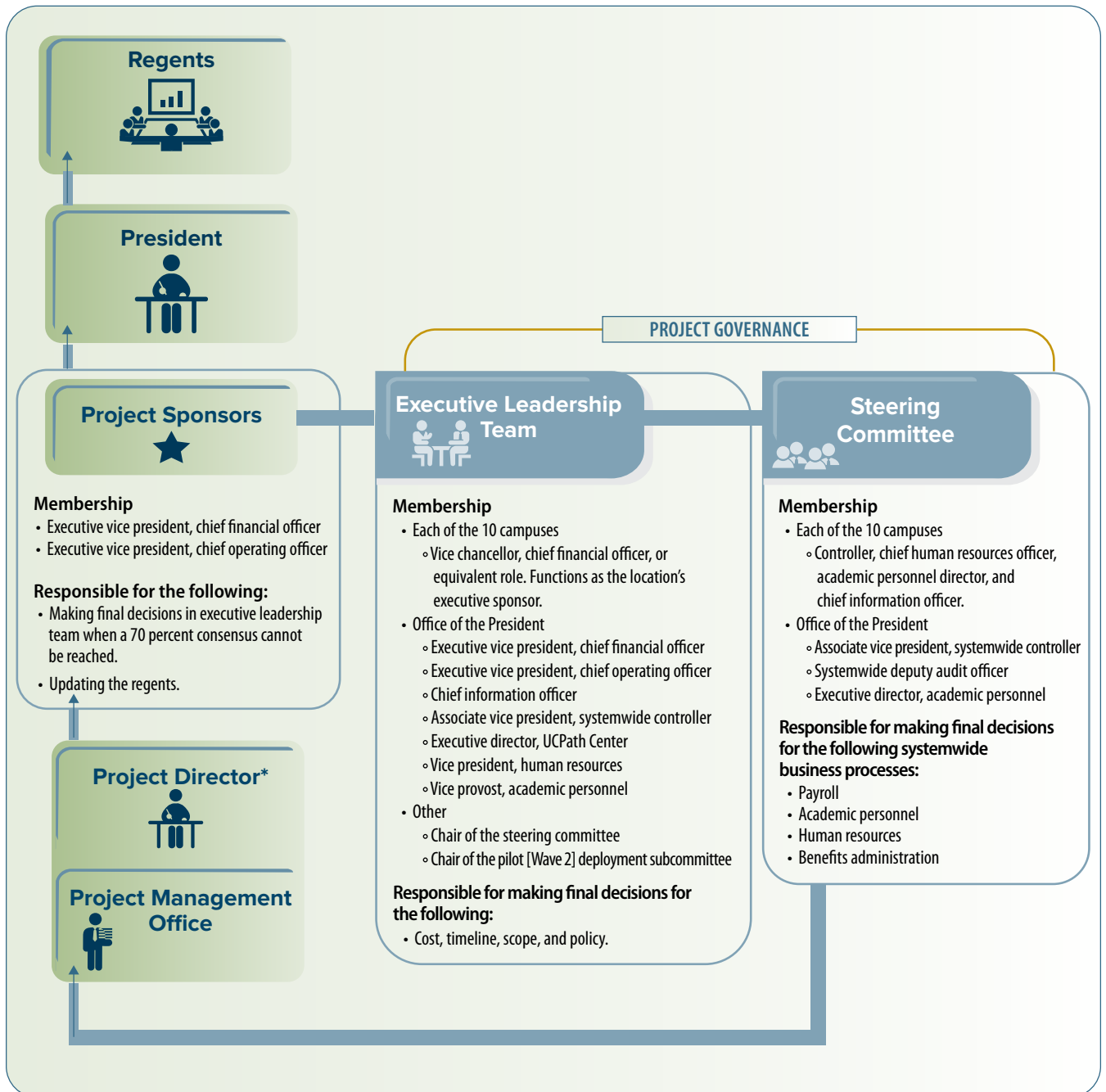
Figure 2
The Office of the President’s Timeline for UCPATH Has Been Affected by Leadership Changes and Schedule Slips



Sources: California State Auditor’s analysis of various UCPATH-related documents, including the current deployment sequence as of June 2017 and various Office of the President reports to the regents.

the President staff, and representatives from each campus. In their role as project sponsors, the chief financial officer and chief operating officer are the executives with overall accountability for the project.

Figure 3
The Office of the President Has Established a Governance Structure for the UCPATH Project



Sources: California State Auditor's analysis of UCPATH project governance documents and UCPATH organization charts.

* In November 2014, leadership over the UCPATH project management office changed from two codirectors to one director.

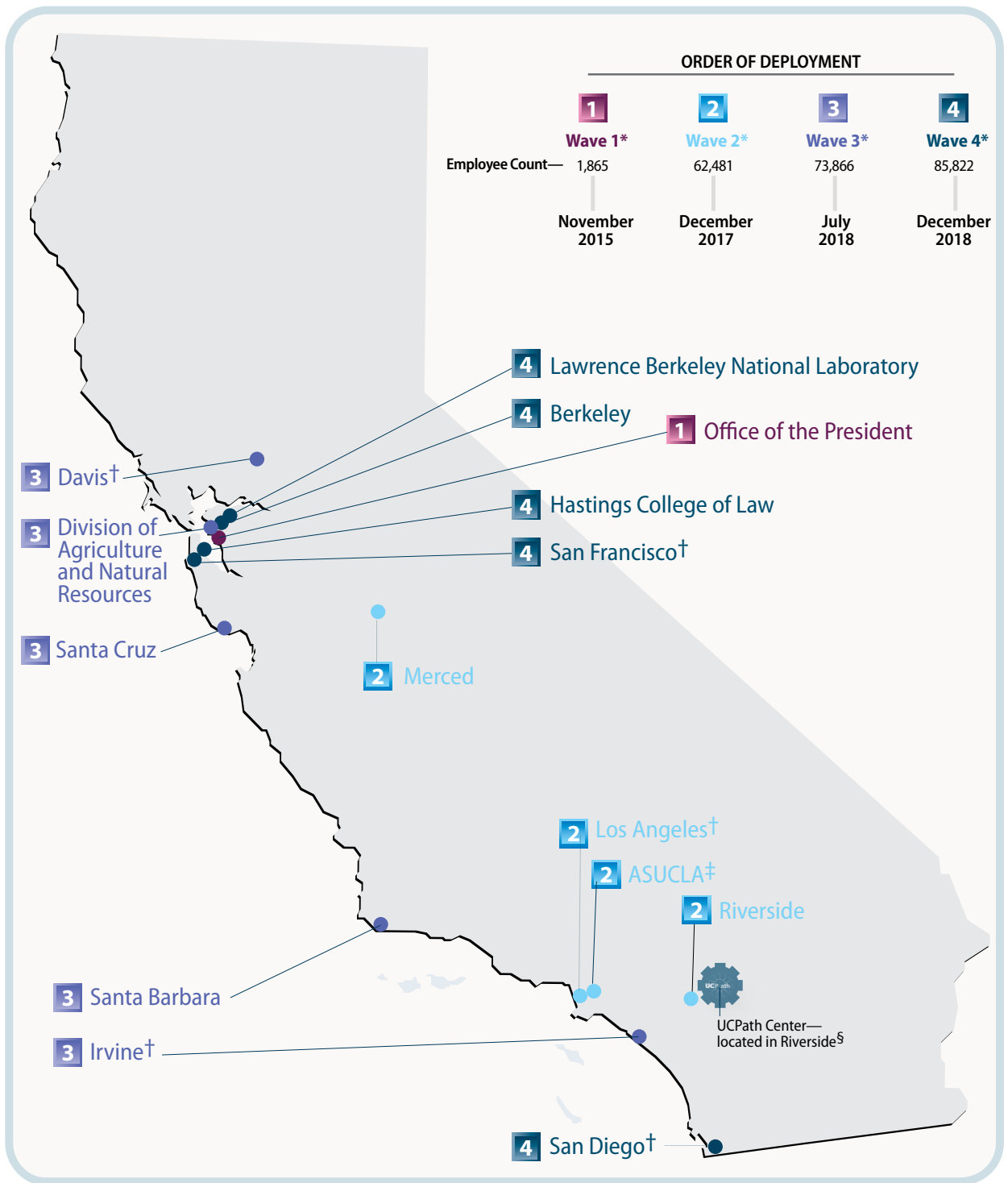
The Office of the President has delayed UCPATH's deployment several times. Although the Office of the President originally projected that it would accomplish Wave 1 by 2013, it did not complete this deployment until November 2015 and then only to the Office of the President's employees, as Figure 4 shows. The Office of the President currently plans to deploy UCPATH at four university locations by the end of 2017 (Wave 2)—which our IT project management expert indicates will be an important milestone in the project's ability to meet its cost and schedule goals. Currently, the Office of the President anticipates that it will complete the UCPATH project by June 2019, after providing post-deployment support for the university locations. It estimates that the project's implementation cost will be \$504 million, \$334 million above its original cost estimate. We discuss the reasons for the project's cost increases and schedule delays in the Audit Results.

As UCPATH's Cost Has Increased, the Office of the President's Project Funding Strategy Has Evolved

The Office of the President has employed a variety of funding sources to pay for the UCPATH project as its cost has grown over time. Initially, the Office of the President borrowed \$131 million through an internal loan program called CapEquip, which allows the university to finance capital projects; however, its maximum repayment period is seven years because CapEquip is a short-term financing option. As UCPATH's cost escalated and its implementation schedule was delayed, the Office of the President required a longer repayment period and greater flexibility in structuring the project's financing. Consequently, in 2014 the Office of the President received the regents' approval to obtain \$221 million in external financing for the project through a bond issuance in 2016. The Office of the President used a portion of the bond proceeds to repay CapEquip for early UCPATH project costs and used the remainder to fund the ongoing project cost. As Table 1 on page 12 shows, the university will pay bond interest and principal from fiscal year 2019–20 through fiscal year 2035–36, for a total of \$331 million.

Although the Office of the President anticipated that the bond financing would be adequate, UCPATH's cost has far exceeded those available funds. To make up the funding shortfall, in fiscal year 2015–16 the Office of the President created an assessment to charge the campuses for project implementation funding and the debt associated with the \$221 million bond. Beginning in fiscal year 2016–17, the Office of the President created a second assessment on the campuses. The UCPATH operations assessment is for the cost to operate the UCPATH Center and to maintain the legacy payroll system as the various waves deploy UCPATH. Previously, these

Figure 4
The Office of the President Plans to Deploy UCPATH in Waves



Source: California State Auditor’s analysis of UCPATH’s current deployment sequence, as of June 2017.

Note: The UCPATH project refers to the remaining deployments as *pilot*, *deployment 1*, and *deployment 2*.

* Employee count represents the number of employees UCPATH will serve in total for the university locations included in the various waves. The employee count is current as of October 2016.

† Five medical centers are deploying with their campuses—University of California, Davis, Irvine, Los Angeles, San Diego, and San Francisco.

‡ Associated Students University of California, Los Angeles.

§ The UCPATH Center began operating in fiscal year 2013–14 to provide services for the legacy payroll system to the Santa Cruz and Los Angeles locations. In November 2015, the UCPATH Center began providing the Office of the President with UCPATH-related services.

costs were included in a general assessment the Office of the President charged the campuses. As Table 1 shows, the Office of the President had assessed the campuses a total of \$174 million to pay a variety of UCPATH project-related costs through fiscal year 2016–17. Through June 2019, the Office of the President has planned to assess the campuses an additional \$252 million for project costs, bond interest, and operations costs. If the Office of the President moves forward with this plan, its current project forecasts show that the assessment for implementation costs will end in fiscal year 2018–19 with only bond principal and interest payments remaining.

Table 1
The Office of the President Has Levied Assessments on the Campuses for UCPATH’s Implementation and Operations Cost (In Millions)

	ASSESSMENTS CHARGED THROUGH FISCAL YEAR 2016–17	ASSESSMENTS PROJECTED THROUGH DEPLOYMENT (FISCAL YEARS 2017–18 AND 2018–19)	BOND REPAYMENT AFTER DEPLOYMENT (FISCAL YEARS 2019–20 TO 2035–36)	TOTAL
Assessment—Project Implementation	\$143	\$122	—	\$265
Assessment—UCPATH Center*	31	125	—	156
Bond Interest†	—	5	\$110	115
Bond Principal	—	—	221	221
Totals	\$174	\$252	\$331	\$757

Sources: California State Auditor’s analysis of UCPATH’s cost allocation 10-year forecast from fiscal years 2015–16 through 2026–27, dated March 2017, and a bond amortization schedule.

* Once UCPATH is fully deployed, the cost to operate the UCPATH Center becomes an ongoing operating cost that is not included in the Table.

† Total bond interest is \$121 million; \$6 million is included in the project implementation assessment.

For fiscal year 2019–20 and beyond, the Office of the President has planned that the campuses will pay the UCPATH Center’s ongoing operations cost through an additional assessment. This cost is estimated to start at a total of \$74 million a year in fiscal year 2019–20 and increase by approximately 3 percent annually. However, the Legislature recently made changes to the way it provides funding to the university that may affect the Office of the President’s plans. Specifically, the State’s Budget Act of 2017 (Budget Act) directly appropriates funds to the Office of the President, including an appropriation for UCPATH of \$52 million. That appropriation was contingent on the university president certifying in writing that the campuses would not be assessed to support the Office of the President’s operations for fiscal year 2017–18 and that overall campus revenues would be greater than the previous fiscal year.² The UCPATH project’s 10-year cost forecast shows that

² In our report April 2017 titled *The University of California Office of the President: It Failed to Disclose Tens of Millions in Surplus Funds, and Its Budget Practices Are Misleading*, Report 2016-130, we describe the Office of the President’s process for levying on campuses an annual financial assessment to support its operations.

the Office of the President estimates it will cost \$52 million in fiscal year 2017–18 to operate the UCPath Center, provide system support, pay for software license and maintenance agreements, and operate the legacy payroll system for those campuses that have not yet deployed onto UCPath. The Budget Act provides an appropriation for the UCPath Center operations, and according to the UCPath financial analyst and the project director, the Office of the President will continue to assess the campuses for project implementation funding and the debt associated with the \$221 million bond.

Scope and Methodology

The Joint Legislative Audit Committee (Audit Committee) directed the California State Auditor to conduct an audit of the university’s contracting practices. The analysis the Audit Committee approved contained eight separate objectives, one of which focused on the university’s management of UCPath and IT contracts. This report addresses that one objective. We list that objective and the methods we used to address it in Table 2. This audit did not require a data reliability assessment. We report on the other audit objectives in our report *The University of California Office of the President: It Has Not Adequately Ensured Compliance With Its Employee Displacement and Services Contract Policies*, 2016-125.1.

Table 2
Audit Objectives and the Methods Used to Address Them

AUDIT OBJECTIVE	METHOD
1 Review and evaluate the laws, rules, and regulations significant to the audit objectives.	We identified and reviewed the relevant university policies and procedures, state guidelines, and industry best practices pertaining to IT project management.
2 Determine whether the university and its campuses’ contracting policies and procedures are in compliance with applicable federal and state laws and regulations as well as with best practices for procurement.	See <i>The University of California Office of the President: It Has Not Adequately Ensured Compliance With Its Employee Displacement and Services Contract Policies</i> (Report 2016-125.1).
3 For a selection of services contracts, determine the university’s compliance with applicable laws, regulations, policies, and procedures.	See published report 2016-125.1
4 For the past five years for the Office of the President—and to the extent possible for its campuses—determine the types of contracts, procurement methods, and types of goods and services purchased via contracts.	See published report 2016-125.1

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AUDIT OBJECTIVE	METHOD
5 For services contracts, to the extent possible, compare the compensation and benefits of university employees to those of service workers in comparable positions and identify trends. Include an analysis of per-employee cost based on the total contract amount.	See published report 2016-125.1
6 Analyze how the university is managing IT contracts, including the contract for UCPATH, by doing the following: a. Determine what contract oversight exists to ensure IT projects are delivered on time and on budget. b. For UCPATH, assess the reasonableness of the project's increased cost and schedule delays. c. Determine if UCPATH is adequately communicating project risks, costs, and delays to the regents.	<p>We obtained and reviewed a list of IT projects with costs of \$10 million or more that each of the 10 university campuses and five medical centers had undertaken. We selected a total of three IT projects from the Berkeley, Irvine, and Riverside campuses. In making our selections, we considered factors such as the projects' location, the value of their contracts, and their current implementation phases.</p> <p>For the selection of the three IT projects, we did the following:</p> <ul style="list-style-type: none"> • Obtained and reviewed the related IT contracts and various project documents, including vendor milestones and vendor payment approval processes. • Selected five vendor payments for each IT project and assessed whether those payments adhered to the projects' established payment approval process. • In consultation with an IT project management expert, assessed whether the campuses had established adequate vendor milestones that aligned with industry best practices. <p>For UCPATH, we did the following:</p> <ul style="list-style-type: none"> • Interviewed university officials, UCPATH project leadership, and UCPATH Center staff. • Obtained and reviewed project budget and cost summaries and forecasts, as well as various project planning documents, to determine the cost reasonableness of the UCPATH project and the UCPATH Center. • Used an IT project management expert to assess the Office of the President's project management practices related to UCPATH's schedules, planning, change management, risk management, and adherence to industry best practices. • Reviewed the minutes, videos, and discussion documents from the regents' meetings as well as UCPATH's budget, cost schedules, and deployment schedules to determine the frequency with which the Office of the President updated the regents about the UCPATH project's cost and schedule changes.
7 To the extent possible, assess actions the university is taking to overcome contracting challenges and cost efficiencies.	See published report 2016-125.1
8 Review and assess any other issues that are significant to the audit.	None noted.

Sources: California State Auditor's analysis of the Audit Committee's audit request number 2016-125 and information and documentation identified in the table column titled *Method*.

Audit Results

UCPath's Cost Has Soared, and Its Expected Savings Are Unlikely to Materialize

Escalating cost estimates and eliminating a plan to reduce staff have negated all the estimated savings the Office of the President originally expected from implementing UCPath, resulting in the original expected *net savings* of \$447 million becoming an estimated *cost* of \$942 million. In its 2011 business case outlining the cost and benefits of implementing the new system, the Office of the President stated that the cost to implement UCPath would be significantly less than the savings from it. As Figure 5 on the following page shows, the Office of the President estimated UCPath's implementation cost at \$170 million, including software licenses, hardware and infrastructure, project staffing, vendor services, and start-up cost for the UCPath Center. It also forecasted \$48 million for software hosting and maintenance and for technology cost, and \$15 million for facility and equipment cost for the shared service center. In addition, because of the expected reductions in payroll, human resources, and IT staff, the Office of the President included a cost of \$73 million for staff severance and job transition. Together, these costs totaled \$306 million, a significant investment of funds, particularly at a time when the university was experiencing financial constraints. However, the Office of the President assumed staff reductions would create significant savings to more than offset these costs.

Nonetheless, as the UCPath project encountered delays and other difficulties, its estimated implementation cost increased significantly, more than doubling by April 2017. At that time, the Office of the President reported that the estimated implementation cost for UCPath had risen from \$170 million to \$504 million, an increase of \$334 million. Additionally, the Office of the President purchased the UCPath Center building and improved it at a cost of \$53 million while its estimates show the cost to operate the UCPath Center through Wave 4 deployment at another \$130 million. Although the university will no longer incur the staff severance cost of \$73 million because the Office of the President no longer foresees a reduction in university staff, that savings is offset by the Office of the President's greatly underestimating the cost that each of the 10 campuses will incur to implement UCPath. In its 2011 business case, the Office of the President estimated campus costs at \$56 million of the implementation cost of \$170 million; however, the 10 campuses reported to us that they expect to incur total costs of \$193 million, minus \$53 million in reimbursements from the Office of the President, as Table 3 on page 17 shows. The Office of the President recently surveyed the campuses and other university locations and arrived at implementation costs of about \$217 million,

excluding the \$53 million in reimbursements. Even using the more conservative cost total the campuses reported to us, the total estimated cost of UCPATH stands at \$942 million as Figure 5 shows. Should the UCPATH project encounter further delays—which our IT project management expert believes is a risk given the project management weaknesses we discuss later in this report—the project’s cost will most likely increase further.

Figure 5
The UCPATH Project Will Not Realize Cost Savings From Staffing Reductions as the Office of the President’s 2011 Business Case Projected
(In Millions)

	2011 BUSINESS CASE	2017 STATUS
COST		
Implementation	\$170	\$504
Implementation financing	\$0	\$115*
Recurring technology	\$48	†
UCPath Center acquisition and financing	\$0	\$53
UCPath Center facility and equipment, and operations‡	\$15	\$130
Staff severance	\$73	\$0
Additional campus implementation	\$	\$140
Estimated Cost	\$306	\$942
BENEFITS		
Reductions in staffing	\$753	\$0
Efficiencies—Increased productivity, functionality, and convenience through standard business practices	★	★
IT stability—Replaces a more than 30-year-old legacy payroll system	★	★
Unified system—Centralizes 11 IT systems into one system	★	★
Estimated Cost Savings	\$753	\$0
Net Savings / Cost	\$447	\$942

Sources: California State Auditor’s analysis of the university’s PPS Initiative: Final Report, dated August 2011; the Office of the President’s net present value analysis supporting the PPS initiative; various cost reports; and the UCPATH website. The 2017 status is as of April 2017.

* The Office of the President issued bonds and the total bond interest is \$121 million. However, \$6 million is accounted for in the \$504 million implementation cost estimate.

† The Office of the President asserted that recurring technology costs of \$57 million are included in the \$504 million implementation cost estimate.

‡ 2017 UCPATH operations costs are through Wave 4 deployment planned for December 2018.

§ The Office of the President asserted that additional campus implementation costs of \$56 million are included in the implementation cost estimate.

★ = The university did not monetize these benefits.

Table 3
The Campuses Will Incur Significant Cost as a Result of UCPATH's Implementation
(In Thousands)

	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17*	FORECAST		TOTAL
							FY 2017-18	FY 2018-19	
Wave 2 (December 2017)									
Los Angeles	\$1,227	\$4,363	\$5,250	\$4,961	\$9,203	\$9,726	\$8,444	NA	\$43,174
Merced	408	640	2,239	1,784	1,339	1,843	1,227	NA	9,480
Riverside†	134	651	834	1,016	2,447	6,967	8,713	NA	20,762
Wave 3 (July 2018)									
Davis	\$209	\$1,139	\$3,766	\$3,405	\$2,910	\$3,923	\$6,447	\$2,995	\$24,794
Irvine	423	616	1,327	1,769	1,849	3,186	5,117	2,408	16,695
Santa Barbara‡	111	406	834	1,294	1,474	2,359	5,140	3,218	14,836
Santa Cruz	242	1,341	2,604	3,915	1,823	1,078	5,850	3,150	20,003
Wave 4 (December 2018)									
Berkeley	\$260	\$728	\$833	\$180	\$0	\$86	\$8,742	\$9,178	\$20,007
San Diego	764	1,331	1,331	858	931	1,022	3,395	3,941	13,573
San Francisco	87	176	603	860	1,030	497	4,919	1,477	9,649
Totals	\$3,865	\$11,391	\$19,621	\$20,042	\$23,006	\$30,687	\$57,994	\$26,367	\$192,973
								Less reimbursements	\$53,000
									Net total \$139,973

Sources: California State Auditor's analysis of expenditure data and attestations provided by the 10 campuses.

Note: Costs include expenditures the Office of the President reimbursed. We excluded the Office of the President and auxiliary university locations from our survey.

NA = Not applicable because UCPATH is scheduled for implementation in the fiscal year stated.

* Amounts for fiscal year 2016-17 include actual and projected costs (Los Angeles, Merced, Davis, Irvine, San Diego, Santa Barbara), incomplete cost (Santa Cruz), or budgeted cost (San Francisco).

† Riverside's cost does not include cost related to existing staff working on UCPATH.

‡ Santa Barbara's forecast for fiscal year 2018-19 consists of only the first half of that fiscal year.

In its 2011 business case, the Office of the President asserted that UCPATH, as one of the projects under the Working Smarter initiative, would achieve sustainable long-term cost savings including the \$753 million saved from staff reductions. Additionally, the 2011 business case indicated that UCPATH would provide significant benefits that were not monetized, including making the university's payroll process more efficient, improving its payroll stability by replacing the legacy payroll system, and unifying its payroll and human resources into one IT system. The Office of the President viewed UCPATH as part of a larger vision to improve the university's administrative and operational effectiveness and as a platform for its campuses to adopt new and effective business processes.

Although the Office of the President still expects to achieve UCPATH's nonquantifiable benefits, it no longer expects to realize the projected savings of \$753 million from its implementation.

Although the Office of the President still expects to achieve the nonquantifiable benefits, it no longer expects to realize the projected savings of \$753 million from UCPATH's implementation. The project director indicated that it was not clear whether campuses would make any staff reductions or if such reductions—if they did occur—would be quantifiable. The three campuses we visited confirmed that they would not make staff reductions when implementing UCPATH. For example, the former UCPATH pilot director at the Riverside campus said that his campus has no plans for staffing reductions; rather, the campus plans to use any staff reduction from UCPATH to offset the need for additional staff as the campus grows. Similarly, the Berkeley and Irvine campuses both indicated that they had no immediate plans for staff reductions and told us that they would better understand the impact of UCPATH on their current staffing levels as they neared deployment.

Without the staffing reductions the Office of the President's 2011 business case outlined, UCPATH is not likely to result in significant savings in the near future, if at all. The failure of this \$753 million in savings to materialize is a major change in the economic impact of the project on the university, since the Office of the President projected UCPATH would provide a net quantifiable benefit of \$447 million after its implementation cost as shown in Figure 5 on page 16. Now UCPATH will cost at least \$942 million, placing further strain on the university's financial condition. In July 2017, the Office of the President presented to the regents a UCPATH project status report that included a section titled "Validating the Business Case for UCPATH." At present, the Office of the President is not generally focused on UCPATH resulting in savings but rather on it creating efficiencies and avoiding unnecessary costs. In the status report, the Office of the President indicated that the campuses could identify efficiencies from centralizing and automating business practices. However, as noted previously, the three campuses we visited do not expect staff reductions that would drive the level of savings the 2011 business case envisioned.

The Office of the President Did Not Keep the Regents Apprised of the Significant Cost Increases and Schedule Delays That Have Plagued UCPATH

Although the UCPATH project has significantly exceeded its original cost estimate and schedule goals, the Office of the President has not provided timely or consistent updates of these changes to the regents. With cost increases of \$334 million—from \$170 million to \$504 million—and four time extensions on completion—totaling nearly five years, from August 2014 to June 2019—we expected the Office of the President to have regularly updated the regents and any other stakeholders. However, in most instances, the Office of

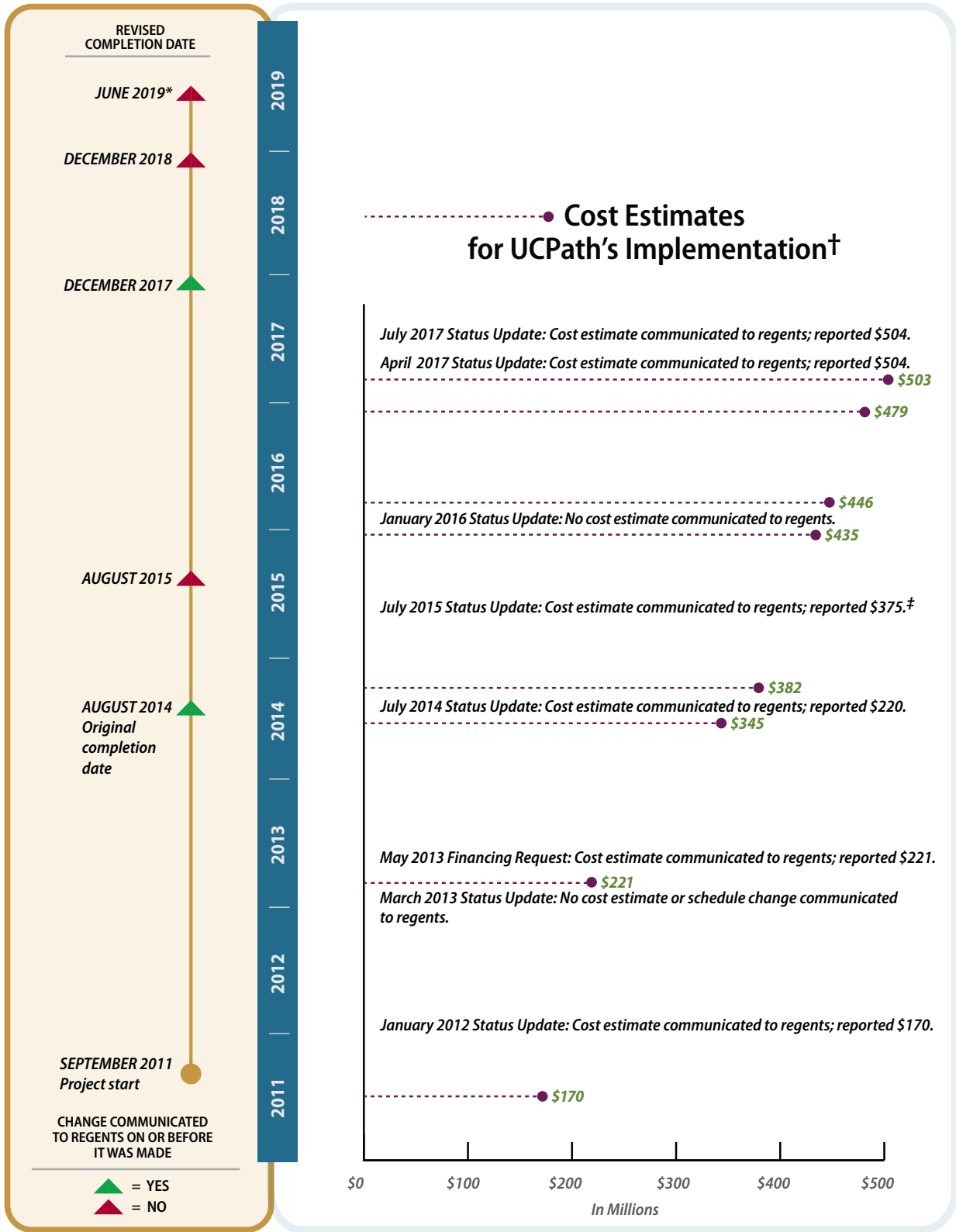
the President did not communicate these changes to the regents either before or at the time it made them. As a result, the Office of the President has effectively limited the regents' governance role and impeded their ability to critically evaluate UCPATH and whether committing hundreds of millions of dollars to an IT system was in line with the university's financial goals.

The regents meet at least six times a year, in two-day meetings every other month. These meetings have provided the Office of the President ample opportunity to communicate with the regents about UCPATH. Although the Office of the President provided us a list of 79 communications to the regents that reference UCPATH, we were able to find only five status updates on UCPATH among these 79 communications. In the remaining 74 communications, the Office of the President either mentioned UCPATH in relation to other issues or did not report any substantive details about the project's status, cost, and schedule. In addition, the Office of the President updated the regents twice more after it provided us the list of 79 communications. The Office of the President provided a written update in April 2017, following our inquiries into why it had not updated the regents on UCPATH's cost increases and schedule delays. The Office of the President also updated the regents at the July 2017 regents meeting. All seven of these updates are reflected in Figure 6 on the following page, along with a financing request the Office of the President made in May 2013, which mentioned UCPATH's then-current cost estimate. The infrequency with which the Office of the President provided the regents with updates is troubling given the complexity of the UCPATH project and its escalating cost.

Further, the Office of the President did not disclose in any of the seven updates or in the financing request that it no longer believed the cost savings of \$753 million would materialize. The absence of discussion on failed cost savings in the updates is a serious omission given that the Office of the President directly aligned UCPATH with its Working Smarter initiative, through which it sought administrative efficiencies systemwide by reducing costs or increasing revenues.

The Office of the President has not provided timely or consistent updates of UCPATH's cost estimate and schedule changes to the regents, thereby limiting the regents' governance role and impeding their ability to critically evaluate UCPATH.

Figure 6
The Office of the President Did Not Consistently Inform the Regents of Changes to UCPATH’s Implementation Cost and Schedule



Sources: California State Auditor’s analysis of UCPATH project financial statements and schedules, as well as documents and minutes from regents’ meetings.

* June 2019 is the date when post-deployment support ends and UCPATH is fully deployed.

† Cost estimates shown are related to budget increases of \$10 million or more.

‡ For June 2015, the UCPATH internal cost estimate was reduced to \$375 million; thus, the cost estimate reported to the regents was consistent with the project’s cost estimate.

Moreover, our review of the Office of the President's limited communications with the regents found that the Office of the President did not always clearly identify UCPATH's current cost estimate or the timeline for completion. The Office of the President's March 2013 status update to the regents referred to the UCPATH project as "7 or 8 percent over budget" when in actuality it was 30 percent over its cost estimate, or about \$51 million, at that time. Two months later, in May 2013, the Office of the President sought the regents' approval for financing to fund the project's escalating cost and revealed that UCPATH's cost estimate had increased to \$221 million. The Office of the President discussed the status of UCPATH three more times with the regents between July 2014 and January 2016 but was not forthcoming in two of these meetings. In July 2014, the UCPATH project director told the regents that UCPATH's cost estimate was \$220 million, yet the Office of the President's internal records from one month earlier show the project's cost estimate was \$345 million. The UCPATH project director also told the regents that the Office of the President would propose a final budget in the regents' January 2015 meeting, but it failed to do so. The Office of the President did not provide the regents with the next status update until July 2015, when it reported the estimated cost of the project had increased to \$375 million, which was in line with the Office of the President's then-current internal cost estimates.

In July 2015, the regents expressed concern about the rising cost of UCPATH and directed the Office of the President to keep it informed about the project's progress. Despite this specific direction from the regents, the Office of the President did not make its next status report until six months later, in January 2016. Further, in this status report, the Office of the President made no mention of the project's cost estimate, which its internal records indicate had increased by another \$60 million, or 16 percent, to \$435 million. In fact, the Office of the President failed to inform the regents of UCPATH's escalating cost estimate and schedule delays until after we asked in February 2017 why it had not communicated this critical information. In April 2017, it finally sent a status update to the regents, its first substantive communication on UCPATH's status since the regents' directive in July 2015.

The Office of the President's April 2017 update revealed its lack of transparency on reporting UCPATH's true cost and schedule. In this update, the Office of the President reported that the estimated cost for UCPATH had risen to \$504 million, which it generally attributed to the need for increased time for campus readiness activities, additional staff for deployment activities, modest software customizations, and a four-month extension for the pilot deployment. In a footnote to that update, the Office of the President noted having not reported UCPATH's cost estimate to the regents for

In July 2014, the UCPATH project director told the regents that UCPATH's cost estimate was \$220 million, yet the Office of the President's internal records from one month earlier show the project's cost estimate was \$345 million.

On four occasions, the Office of the President extended the UCPATH project schedule by six to 28 months, but it did not apprise the regents of three of these extensions or the reasons for the delays.

nearly two years, with its last update occurring in July 2015 when it reported that UCPATH would cost \$375 million. The footnote offered no explanation as to why the Office of the President failed to keep the regents informed about the escalating cost of UCPATH. Further, although the April 2017 update discussed the timeline for deploying UCPATH at the campuses, it did not disclose that it had already pushed back UCPATH's final completion date to June 2019, which is when post-deployment support ends and UCPATH is fully deployed.

Figure 6 on page 20 shows that the Office of the President did not regularly communicate its decisions to change UCPATH's implementation schedule. On four occasions, the Office of the President extended the UCPATH project schedule by six to 28 months, but it did not apprise the regents of three of these extensions or the reasons for the delays. In total, the Office of the President extended the length of the UCPATH project from three years to over seven years. Although its status updates did provide estimated deployment dates for different campuses and other university entities and included some general reasons for extending the timeline, the updates were frequently vague about the project's final completion date, again limiting the regents' opportunity to critically evaluate UCPATH's direction.

We believe the Office of the President's lack of transparency with the regents can largely be attributed to a weakness in the project's governance structure, which has not included a process to keep the regents informed about UCPATH's progress. The project's governance structure invests a great deal of autonomy and authority in the project's executive leadership team (leadership team), which consists of the project sponsors, representatives from the Office of the President, and representatives of the campuses. Figure 3 on page 9 shows the project governance structure. The bylaws of the leadership team state that it is responsible for final decisions regarding the UCPATH project's cost, schedule, scope, and policy. However, the bylaws contain no mention of communication with the regents: for example, they do not establish how frequently the leadership team must update the regents or what events should trigger updates about the project's progress. In addition, the communication plans that the project's governance and communications lead provided us lacked mention of periodic, structured communication with the regents. We find the absence of such a reporting relationship surprising, given the significant impact of UCPATH on the university. The project director and the project sponsors confirmed that until recently the Office of the President did not have guidelines for communicating with the regents about the status of UCPATH. While the project director acknowledged that the project sponsors have primary

responsibility for updating the regents at significant implementation points, our findings show that they have not adequately fulfilled this responsibility.

In July 2017, the Office of the President informed the regents of a change in the UCPATH project governance approach that it believes will address its lack of communication. Specifically, the Office of the President updated the UCPATH Governance Materiality and Escalation document (governance document) to include the regents in the governance. The approach recognizes the regents as providing institutional oversight and identifies three situations that will require the project sponsors to update the regents about UCPATH's status. At the July 2017 meeting with the regents, the project director acknowledged that project governance decisions about UCPATH had previously stopped with the project sponsors. He stated that in modifying the project's governance document and acknowledging the regents' oversight role, the Office of the President was responding to changes that the regents had made in 2016 to the charter for the Finance and Capital Strategies committee—a committee of the regents with oversight of the university's fiscal and financial affairs and business operations, among other matters—to reflect that committee's oversight of UCPATH as a large-scale enterprise system. We note that the timing of the governance change coincided with this audit and the inquiries we made about the Office of the President's infrequent communications with the regents about the status of UCPATH.

Although the Office of the President has now acknowledged the regents as part of the governance for UCPATH, this expanded governance approach may not go far enough to ensure that the regents can participate in critical decisions. The governance document states that updates to the regents must occur when the project meets significant implementation milestones, including deployments; when the project experiences adverse cost impacts of more than \$20 million; or when the schedule is delayed by more than three months. However, the governance document makes clear that the regents will be informed or "kept apprised of progress or changes via one-way communication" rather than consulted. In our view, this governance approach does not adequately recognize the regents' role as an oversight body. We believe the Office of the President should address the need for the regents to have timely, critical information in order for them to participate in decision making and to provide the project with guidance. Although the Office of the President has committed to informing the regents of certain project events, which may cause it to report more frequently to the regents than in the past, the planned approach will not engage the regents on a decision-making level that would truly allow them to fulfill their oversight role.

Although the Office of the President has committed to informing the regents of certain project events, the planned approach will not engage the regents on a decision-making level that would truly allow them to fulfill their oversight role.

The Office of the President could have mitigated cost and schedule increases to the UCPath project through better project management practices.

Weaknesses in the Office of the President's Project Management Likely Contributed to UCPath's Cost Increases and Schedule Delays

Our review found that the Office of the President could have mitigated cost and schedule increases to the UCPath project through better project management practices. Specifically, our IT project management expert identified the following five weaknesses in the Office of the President's project management processes:

- Maintaining an overly aggressive project schedule.
- Not maintaining an integrated schedule and resource management plan (integrated plan).
- Not assessing all budget and schedule implications resulting from change management.
- Not establishing effective risk-management processes.
- Not using independent verification and validation (IV&V).

The Office of the President maintained an overly aggressive project schedule, which became susceptible to delays because of project scope changes and staffing constraints. When our IT project management expert reviewed the UCPath project's risk log, the project sponsors' briefings to the president, and the project director's briefings to the project sponsors, he identified a pattern: the UCPath project schedule became too aggressive and then slipped. In fact, the project briefing materials demonstrate that the Office of the President was aware that the schedule was aggressive: mentions of it appear time and again in those materials. For example, an August 2014 briefing prepared for the president stated, "Allotted time to prepare for [the Office of the President] go-live is aggressive." According to our expert, go-live refers to the point in time that a new IT system is put into use, or production; thus, this briefing reveals that the Office of the President was aware that it might not be able to deploy UCPath as planned. Similar concerns show up in many briefings, yet the Office of the President continued to set aggressive schedule goals.

Additionally, when the project director provided monthly briefings to the project sponsors, he often indicated that there was no *schedule slack*—a term that refers to the amount of time that critical tasks can be delayed before the schedule is jeopardized. For example, in August 2016, the project director reported that the numerous changes that the campuses had requested could cause schedule delays. And a January 2017 briefing indicated that the project had no slack in the schedule and that significant overlapping work might cause problems. Overlapping work in the

UCPath schedule is a concern because it indicates that the Office of the President has scheduled the same core staff to perform two different tasks at the same time. These issues led our IT project management expert to conclude that the project's overly aggressive schedule factored into the project's repeated delays.

Further, our IT project management expert found that the Office of the President did not maintain an integrated plan. According to our expert, building and maintaining an integrated plan is critical for a project of UCPath's size and complexity. Such a plan captures the timing of each project task and identifies which staff will perform that task and helps identify and resolve instances where staff have overlapping work before they impact the project's schedule. When our expert reviewed the project briefing materials, he found that the Office of the President had acknowledged the risks associated with overlapping schedules and had identified the lack of an integrated plan as a risk to the UCPath project schedule. According to the current project director, between 2013 and 2014 his former codirector attempted to develop and maintain an integrated plan, but the planning software that the Office of the President was using, as implemented, could not support the level of detail the plan required. Subsequently, the plan was abandoned. Our expert found no evidence that the Office of the President attempted to adopt a subsequent integrated plan. Further, he observed that many other large IT projects have used integrated resource and schedule planning without the technology problems that the Office of the President encountered.

Our IT project management expert also observed that the Office of the President lacked a rigorous process for assessing the budget and schedule implications of proposed scope changes to the UCPath project. Although the project has a defined process for large changes, those changes that are believed to be smaller are approved at the lowest project levels without assessment of higher or global implications. Over time, small changes accumulate and have more significant project impacts. Without a detailed analysis of how changes may affect the broader project context, staff or management may approve small changes without understanding that those changes will have ramifications that threaten the project's larger goals. Changes to UCPath's scope were likely to have implications for its cost and schedule because it has operated with aggressive schedules, without the necessary staff to accomplish all planned work, and with a work plan that involves overlapping tasks.

The Office of the President also demonstrated weaknesses in its risk-management processes. The purpose of risk management is to decrease the likelihood and impact of negative events threatening project goals. Risk management is accomplished through processes that identify, prioritize, and develop responses to threats to those

The Office of the President did not maintain an integrated plan, which is critical for a project of UCPath's size and complexity.

Although the Office of the President tracked risks, it did not review or monitor all risks periodically. Without regular monitoring of identified risks, the Office of the President may not detect which risks have passed, which have been mitigated or resolved, or which may become more significant threats.

goals. Although the Office of the President tracked risks, it did not review or monitor all risks periodically. Specifically, our IT project management expert found that the project risk logs identified many medium-severity risks to the project's schedule, yet many of those risks sat for hundreds of days without evidence of reassessment—often at the same time that the project schedule was slipping. For example, the risk manager logged in September 2016 that a specific testing environment had not been fully evaluated before use and could result in defects during testing. However, this risk went unmonitored for more than four months with no apparent actions or updates. Without regular monitoring of identified risks, the Office of the President may not detect which risks have passed, which have been mitigated or resolved, or which may become more significant threats.

Finally, the Office of the President also failed to use IV&V as part of its project oversight. IV&V helps to ensure that an IT system will perform as intended and meet its users' needs. As an IT system is developed and implemented, IV&V can provide early warnings of process and technical discrepancies, issues, and problems that may otherwise go undetected or be detected too late. According to our IT project management expert, UCPath's size, complexity, and risk warranted using IV&V for identifying and mitigating technical and project management issues. For example, IV&V could have detected the issues UCPath experienced with staff being over allocated. One of the project sponsors asserted that the Office of the President's internal auditors and a consultant have been providing oversight that is equivalent to IV&V. Specifically, she confirmed that the internal auditor works with the consultant to create a report of any significant risks to the UCPath project. However, our expert concluded that neither of these entities provided oversight that was equivalent to IV&V, as IV&V provides a more robust analysis of technical activities and is embedded in the project as opposed to occurring periodically.

In addition to the project management issues that our IT project management expert identified, the Office of the President provided several factors that it believes contributed to its exceeding its initial UCPath cost estimate and schedule goals. Specifically, the UCPath project director acknowledged that the Office of the President greatly underestimated UCPath's size and complexity, particularly in terms of the changes required to adapt the system to each campus's business processes. Our expert concurs and indicates that the significant challenges the project has encountered were indicative of the Office of the President's poor initial understanding of the UCPath project's scope. These challenges have not only included missed schedules and a growing budget, but also an increase in the predicted number of necessary system interfaces between

UCPath and other IT systems from 75 to over 120. Each interface requires analysis and software programming, which added to the project's complexity.

The Office of the President also did not fully understand the amount of effort required to standardize business processes across all campuses. One of the project sponsors, the chief financial officer, told us that a main lesson the Office of the President has learned is that UCPath is a business transformation project—meaning the university has to change its business processes systemwide—as well as an IT implementation project. He indicated that the Office of the President made the mistake of procuring a technological solution for the university's payroll and human resources activities before it had standardized its business processes and developed a shared service center model for those activities.

The project director also explained that schedule delays and cost estimate increases are closely related because labor costs account for the majority of UCPath's implementation cost; thus, a delay in the overall schedule results in an increase in UCPath's cost estimate. Further, he indicated that the Office of the President is constrained by the university's business calendar, which offers four optimal dates to shift from one IT system to another. These dates coincide with the end of each tax reporting quarter and the project director stated that deploying UCPath at the end of a tax quarter minimizes the need to convert employees' tax balances. Thus, when the schedule slips, it slips in three-month increments, which means the university incurs labor costs for three more months, resulting in large increases in UCPath's cost estimate. Ultimately, although the Office of the President is aware of some of the factors that led to the project's cost increases and schedule delays, such awareness has not prompted addressing the project management weaknesses that our IT management expert identified. The Office of the President needs to develop and implement IT project management guidelines that will help ensure that IT projects are completed on time and within approved budgets.

Although Invoice Approval Processes Were Followed, Some Campuses Could Better Define IT Deliverables

To assess the university's management of its IT contracts, we reviewed one IT project at each of the Berkeley, Irvine, and Riverside campuses. We found that while the campuses followed their established vendor payment practices, the Berkeley and Irvine campuses could improve their IT contracting practices. The projects we reviewed included fixed price contracts

The chief financial officer asserted that the Office of the President made the mistake of procuring a technological solution for the university's payroll and human resources activities before it had standardized its business processes and developed a shared service center model for those activities.

The Berkeley and Irvine campuses had only vaguely worded deliverables for project milestones, increasing the risk that the campuses will inadvertently pay for work that does not meet their expectations or needs.

with development vendors (Berkeley and Irvine campuses) and a time-and-materials contract with a development vendor (Riverside campus). The costs of the three projects ranged from \$11 million to \$93 million. Our review of five project invoices from each campus found that the campuses had required that vendor invoices be reviewed and approved before payment. However, the Berkeley and Irvine campuses had only vaguely worded deliverables for project milestones. According to our IT project management expert, these types of vaguely worded deliverables do not align with industry best practices and increase the risk that the campuses will inadvertently pay for work that does not meet their expectations or needs.

The State has established guidance on IT contracting that helps ensure that IT contracts contain well-defined deliverables. For example, the *State Contracting Manual* states that agencies must develop a “clear, concise, and detailed description of the IT services to be performed.” Further, the State’s *Project Management Framework* (management framework) provides guidance for how to define deliverables to ensure that the agency and the vendor possess a mutual understanding of the content and scope of the deliverables. This sort of clear definition helps to ensure that the agency gets what it is paying for: an IT system that functions as intended. The management framework recommends that the agency develop a deliverable expectations document that defines the scope, content, entrance criteria, acceptance criteria, and development schedule for each deliverable. The entrance criteria should define what the vendor must achieve before it begins work on activities associated with the development of the deliverable, and the acceptance criteria should define what the vendor must achieve before the agency will accept the deliverable. Finally, the deliverable schedule should document the key tasks and dates associated with the deliverable.

Our review found that the deliverables for the Berkeley and Irvine campus projects did not always align with the management framework’s guidance. Although state law does not require the university to comply with these guidelines, they represent best practices that it would likely benefit from. We found that the Berkeley and Irvine campuses paid their vendors on the completion of milestones; however, they did not have deliverable expectation documents, and the deliverables for milestones as described in the vendor contracts did not provide enough detail to effectively measure whether the vendors had met their obligations for payment. For example, although the contracts had defined dates for the completion of milestones, they did not include entrance or acceptance criteria. Therefore, the Berkeley and Irvine projects did not have sufficient criteria to determine if the milestones had actually been completed.

Absent sufficient criteria, it is difficult to determine whether the vendor achieved a deliverable and whether that deliverable was acceptable. For example, in January 2016, the Berkeley campus's vendor submitted an invoice of \$593,000 for a milestone titled Enrollment History Converted, and the Berkeley campus subsequently paid that vendor for completing the milestone. However, the Berkeley campus's basis for making this payment is unclear because the contract does not define the deliverables that would satisfy the milestone. Further, the contract leaves in question what level of data conversion is acceptable, such as whether the campus will accept a certain percentage of errors in the data or a certain percentage of data that are not successfully converted.

The executive director of the Berkeley campus project responded that the Berkeley campus has a comprehensive process for accepting milestones and is aware of what each milestone includes based on what he stated is a highly detailed project plan and a readiness assessment. Similarly, the director for the Irvine campus's project stated that the Irvine campus uses the project schedule and the statement of work to determine whether to pay its vendor for achieving milestones. Further, he told us that the Irvine campus had not made payments for some of its vendor's invoices because the campus did not believe that the vendor had satisfactorily completed certain milestones. Despite the processes that the Berkeley and Irvine campuses assert that they follow, our IT project management expert found that their contracts did not have defined milestones, which puts them at risk for contractual disputes with their vendors.

The Berkeley campus's opting not to employ best practice in its process for deliverable review did not appear to affect the cost of its project. In 2017 the Berkeley campus completed most of the project development activities within its budget of \$93 million. In contrast, the Irvine campus is in the early stages of developing its Student Information System and has struggled to keep the project on track, which is projecting a \$12 million overage from its initial budget and a one-year delay. Thus, it could benefit from improving its deliverable review practices.

The Irvine campus is in the early stages of developing its Student Information System and has struggled to keep the project on track and it could benefit from improving its deliverable review practices.

Recommendations

Regents

To ensure that they are able to exercise necessary oversight for the university's significant IT projects, the regents should develop status reporting standards for the Office of the President and all university locations to follow by December 2017. Such reporting

standards should apply to all university IT projects with more than a specified cost and, at a minimum, should establish the following:

- The frequency with which the Office of the President and all university locations must report to the regents. Such updates should occur at least three times per calendar year and coincide with regents' meetings to allow for oral discussion.
- The types of disclosures the Office of the President and all university locations must present about each IT project including, but not limited to, changes in scope, projected cost, and schedule.
- The types of significant project risks the Office of the President and all university locations must disclose. The updates should also describe the actions the Office of the President and all university locations are taking to mitigate risks and the potential effects of those risks on a project's cost, schedule, and scope.

Office of the President

To ensure that it fully reports the cost of IT projects, the Office of the President should develop cost reporting guidelines by December 2017 for UCPath and other significant IT projects across all university locations. These cost guidelines should identify cost categories at both the Office of the President and university locations to ensure that the estimates capture and communicate all development and implementation costs. In addition, the Office of the President should produce cost reports to share with stakeholders at least quarterly.

To ensure that it consistently follows best practices related to project management, the Office of the President should develop and implement guidelines for IT project development by June 2018. The guidelines should apply to all IT projects undertaken by any university location with a cost estimate of at least \$5 million or more and should include the following elements:

- A means to assess schedules for reasonableness, and requirements for the creation and maintenance of an integrated schedule and resource plan for each project.
- Requirements for rigorous change management processes that establish a means of assessing the implications of changes to a project's scope, cost, and schedule.

- Procedurally sound requirements for identifying, reviewing, and resolving risks to a project.
- IV&V to oversee the technical aspects of project development.

The Office of the President should require that all university locations follow best practices by ensuring that each location creates a deliverable expectations document for each IT contract similar to the documents the State's management framework describes. The Office of the President should establish this requirement by December 2017. The deliverable expectations document should, at a minimum, identify the deliverables for each milestone and define the scope, content, entrance criteria, acceptance criteria, and development schedule for each deliverable.

We conducted this audit under the authority vested in the California State Auditor by Section 8543 et seq. of the California Government Code and according to generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives specified in the Scope and Methodology section of the report. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Respectfully submitted,



ELAINE M. HOWLE, CPA
State Auditor

Date: August 24, 2017

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THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

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August 7, 2017

Ms. Elaine Howle
California State Auditor
621 Capitol Mall, Suite 1200
Sacramento, CA 95814

State Auditor Howle:

Thank you for the opportunity to respond to the recommendation made to the Board of Regents in the draft audit report on UCPATH and IT contracting. The Regents welcome this constructive input on oversight of IT projects at the university. Please find our response to the recommendation below.

Recommendation

To ensure that they can exercise necessary oversight for the university's significant IT projects, the regents should develop by December 2017 status reporting standards for the Office of the President and all university locations to follow. Such reporting standards should apply to all university IT projects more than a specified cost and, at a minimum, should establish the following:

- The frequency with which the Office of the President and all university locations must report to the regents. Such updates should occur at least three times per calendar year and coincide with regents meetings to allow for oral discussions.
- The types of disclosures the Office of the President and all university locations must present about each IT project including, but not limited to, changes in scope, projected costs, and schedule.
- The types of significant project risks the Office of the President and all university locations must disclose. The updates should also describe the actions the Office of the President and all university locations are taking to mitigate risks and the risks' potential effects on the project's cost, schedule, and scope.

Ms. Elaine Howle
California State Auditor
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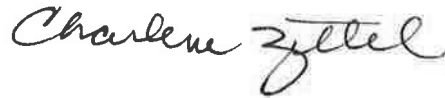
Response

By December 2017, the Regents will implement reporting standards for significant systemwide IT projects based on a dollar threshold mutually agreed upon with UCOP. These standards will require oral or written updates at least three times per calendar year. The standards will also establish the types of required disclosures relating to changes in scope, projected costs and schedule, as well as significant project risks and related mitigation actions.

Respectfully,



George Kieffer
Chair, UC Board of Regents



Charlene Zettel
Chair, Compliance and Audit Committee

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August 7, 2017

Ms. Elaine M. Howle*
California State Auditor
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State Auditor Howle:

I write in response to your draft audit report University of California Office of the President — Contracted Employees and Contracting Practices, as it pertains to UCPath and information technology projects. The recommendations are helpful and constructive, and align with our proactive efforts to continually improve UC's operations, policies and transparency to the Legislature and the public at large.

Our responses to specific recommendations are in the attachment to this letter, but I would like to take this opportunity to provide important information about UCPath, one of the main projects discussed in the audit. The University launched UCPath in 2011 to modernize and standardize its payroll system for more than 190,000 UC employees at 11 locations.

When I arrived at UC in September of 2013, UCPath was already well underway. At that time and as I do now, I view it as a necessary project to standardize UC's business practices, improve accuracy and service quality, and create efficiencies across our system – and not necessarily as a tool for generating immediate savings.

I would like to emphasize some important context that speaks to the implementation and effectiveness of UC Path:

- **UCPath is a large-scale and complex undertaking that improves how UC delivers key administrative services.** Once implemented systemwide, the upgrade will standardize over 100 processes for payroll, human resources, and benefits through upgraded technology, a centralized database, and a shared services center to serve employees. The challenges of managing a project of this scale and complexity are reflected in the efforts of comparably-

* California State Auditor's comments begin on page 41.

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sized institutions and organizations that have attempted similar massive-data upgrades, which have resulted in major delays or failure.

- ① • **An upgrade is not only prudent, but unavoidable.** UC's 11 current systems are 35 years old and vary among locations. They're disconnected, outdated, expensive to maintain, and require manual calculations. It has become increasingly challenging for UC to manage employee records and ensure payroll accuracy. An estimated \$100 million is spent annually on manual rework and fixing errors. A systemwide upgrade will ensure that our resource-constrained campuses will be able to avoid building their own respective systems, at an estimated cost of more than double the current projected costs of UCPATH.
- **UC has become more effective at managing this project over time.** Significant changes were made to the management of UCPATH in 2013, after UC concluded that the IT consulting firm contracted to manage UCPATH and oversee the transformation of business processes had failed to perform as expected and to achieve sufficient progress on implementing the project. UC then conducted an exhaustive assessment of the project, instituted better controls, and revamped the deployment approach. As a result, we revised the original business case, cost estimates, and projected timelines. And as we continue to move forward on our implementation, the accuracy of the projections delivered by the reconstituted project team has and will continue to improve. Many of the recommendations contained in the report will help us further that progress.
- **UC has already made significant progress.** Since November 2015, UCPATH has been providing payroll, human resources, and benefits services for UCOP employees. Significantly, 70 percent of the functionality that will be needed at our campuses and medical centers was achieved with this rollout. This greatly reduces the implementation efforts that will be required on the campuses. Finally, we are well on track to deploy the system later this year at UCLA, UC Riverside, UC Merced, and the Associated Students of UCLA.
- ② • **UCPATH benefits from governance that is diversified and rigorous.** Various stakeholders oversee UCPATH, including the UC Board of Regents,

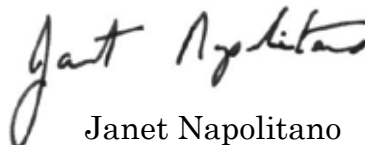
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UCOP leadership and policy experts, and campus leaders – including vice chancellors, controllers, chief human resource officers, chief information officers, and academic personnel directors. The multiple governance bodies, along with the UC Board of Regents, oversee project progress, scope, schedule, and budget.

- **UC continually improves oversight and communication of UCPATH.** Since the start of the UCPATH project, the project leadership has made 79 presentations about and references to UCPATH at public Regents' meetings. This number does not reflect additional discussions, briefings, and consultations with individual board members and, in particular, committee and board leaders, in between the formal meetings. Nor does it include the public-facing website that we have created to provide important milestones and updates on the project. As a result of the recent restructuring of the committees of the UC Board of Regents, we have updated our practices for briefing The Regents on the project, which receives oversight from the Finance and Capital Strategies Committee. ②

I have complete confidence in UC's ability to continue successful implementation of UCPATH, a necessary project with significant, expansive, and long-term benefits to the University. As with any extremely complex undertaking, we are constantly finding ways to improve and be more efficient. That is why we welcome your recommendations and appreciate the time and diligence your staff spent in identifying ways in which we might further our substantial progress.

Yours very truly,



Janet Napolitano
President

Attachment:
Response - CSA UCPATH and IT Projects Recommendations

Responses to CSA UCPATH and IT Projects Recommendations

- 1. To ensure it fully reports the cost of IT projects, the Office of the President should develop cost reporting guidelines by December 2017 for UCPATH and other significant IT projects across all university locations. These cost guidelines should identify cost categories at both the university and campus levels to ensure that estimates capture and communicate all development and implementation costs. In addition the Office of the President should produce cost reports to share with stakeholders on at least a quarterly basis.**

UCOP will provide project sponsors and managers with guidelines for reporting standards and project risk management practices to formalize what is currently an informal practice. By December 2017, UC will develop cost reporting guidelines for UCPATH and large systemwide projects/programs with budgets of \$25M or greater. The guidelines will include cost reporting direction.

- 2. To ensure it consistently follows best practices related to project management, the Office of the President should develop and implement guidelines for IT project development by June 2018. The guidelines should apply to all IT projects undertaken by any university location with a cost estimate of at least \$5 million or more and should include the following elements:**

- A means to assess schedules for reasonableness, and requirements for the creation and maintenance of an integrated schedule and resource plan for each project.**
- Requirements for a rigorous change management process that establishes a means of assessing the implications of changes to a project's scope, cost and schedule.**
- Sound requirements for identifying, reviewing, and resolving risks to a project.**
- IV&V to oversee the technical aspects of project development.**

UCOP agrees that there are opportunities to strengthen and improve the project management approach for systemwide projects over \$25M and will develop guidelines for IT project development by June 2018. All projects can benefit from the discipline and rigor contained in best practices; however, best practice in one context and at one moment in the process might not be applicable in another.

- ③ We disagree with statements made by CSA that IV&V practices should be run throughout any and every systemwide program. This would create a parallel management structure to the program, which would add cost and complexity while

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diluting the effectiveness of such a function. It is our current and proposed continued practice to use diligent governance as a way to identify and bring in IV&V third-parties for specific topics and situations as appropriate or necessary.

- 3. The Office of the President should require that all university locations follow best practices by ensuring the university creates a deliverable expectations document for each IT contract similar to the documents the State's management framework describes. The Office of the President should establish this requirement by December 2017. The deliverable expectations document should, at a minimum, identify the deliverables for each milestone and define the scope, content, entrance criteria, acceptance criteria, and development schedule for each deliverable.**

UCOP agrees with CSA's conclusion that our campuses follow established vendor payment practices. By December 2017, we will build upon the current practice by establishing a requirement for each large IT project of \$25M or greater to produce a "deliverable expectations document." We will review the State's management framework to inform the development of this required document.

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Comments

CALIFORNIA STATE AUDITOR'S COMMENTS ON THE RESPONSE FROM THE UNIVERSITY OF CALIFORNIA OFFICE OF THE PRESIDENT

To provide clarity and perspective, we are commenting on the response from the Office of the President. The numbers below correspond to the numbers we have placed in the margin of the Office of the President's response.

Although the university president asserts in her response that the university spends \$100 million annually for manual rework and error corrections for the legacy payroll system, we were unable to substantiate the Office of the President's claim that UCPATH will result in savings. In August 2017 the Office of the President sent us an email asserting that the elimination of manual rework would result in annual savings of \$100 million. It based this assertion on a 2010 consultant study that formed the basis of its 2011 business case for the UCPATH project and its original estimate that UCPATH would result in savings of \$753 million. In addition, the Office of the President claims that the retirement of the university's payroll legacy system will result in savings of \$13 million annually based on its 2011 business case. The Office of the President requested that we include these estimated savings in Figure 5 on page 16. However, because the Office of the President stated that it no longer believed that UCPATH would achieve the savings of \$753 million and because it was unable to demonstrate that its new savings assertions would result in an actual reduction of university staff, we were unable to conclude that any savings would materialize.

Further, the Office of the President asserted that additional savings would result from its reduction of the projected staffing of the UCPATH center from 568 positions to 440 positions, as well as its expectation of lower than projected salary levels for the staff filling the 440 positions. The Office of the President requested that we also add this claimed savings to Figure 5. However, we did not do so because the 2017 status cost of \$130 million for "UCPATH Center facility, equipment, and operations" in Figure 5 is already based on the projected staffing level of 440 positions at the lower staffing cost, during fiscal year 2018-19, which is when the Office of the President projects that the UCPATH Center will be fully staffed. Therefore, we stand by Figure 5 on page 16 as it is presented.

The Office of the President overstates the UCPATH project's level of communication with the regents and the project's governance. As noted on page 19, our review of the Office of the President's 79 communications to the regents determined that only five status updates provided the regents with substantial information

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about UCPATH's status, cost, or schedule. We display those five status updates, along with an additional two updates and a financing request in Figure 6 on page 20. The remaining 74 of the 79 communications either mentioned UCPATH in relation to another issue or did not provide any substantive information on the project. Further, it was not until July 2017 that the Office of the President recognized the regents' role in governance and expanded the project's governance approach to include communicating critical decisions to the regents as we describe on pages 22 and 23. However, as we also note, the expanded governance approach does not go far enough in engaging the regents in decision making to truly allow them to fulfill their oversight role.

- ③ Although the Office of the President correctly acknowledges that our recommendations, including the use of IV&V, are best practices, it incorrectly concludes that IV&V would create a parallel management structure and add complexity. IV&V, when properly employed, helps to ensure that an IT system will perform as intended and meet its users' needs, as well as provide an early warning of process and technical discrepancies, and problems that may go undetected or be detected too late. Further, our IT project management expert indicates the benefits that IV&V provides generally outweigh its cost. Given UCPATH's size, complexity, and risk, our IT project management expert believes that it would be prudent for the university to employ IV&V to mitigate weaknesses the Office of the President has already displayed in its project management of UCPATH. Moreover, according to our expert, the Office of the President's current and proposed continued practice to employ "IV&V third parties for specific topics and situations" does not represent the best practice definition of IV&V. As noted on page 26, our IT project management expert concluded that the Office of the President's approach results in oversight that is not equivalent to IV&V, which provides a more robust analysis of technical activities, and is embedded in the project as opposed to occurring periodically.