

**Application for 2016 University of California Larry L. Sautter Award for  
Innovation in Information Technology – Principal Investigator Portfolio Project**

**Date:** May 6, 2016

**Project Title:** Principal Investigator Portfolio - Projections

**Submitted by:** Frances Kendall, Senior Data Analyst, IST-Data Services

**Project Timeline:** September 2015 - April 2016 -- Phase 3: Projections

**Project Team Structure**

The project was sponsored by Campus Shared Services, in partnership with the Controller's Office and the Office of the Chief Financial Officer, and was guided by a Faculty Advisory Group. Expertise was provided by Research Administrators across campus. The Cal Answers Functional Team was leading the implementation in partnership with Information Services and Technology Enterprise Data Warehouse team.

**Team Members**

<b>Sponsor</b>			
Peggy Huston		- Chief Operating Officer, Campus Shared Services	
<b>Advisory Group</b>			
David Castellanos		- Research, Policy, Planning & Administration	
Delphine Regalia		- Controller's Office	
Neil Maxwell		- Sponsored Projects Office	
Patrick Schlesinger		- Research Administration and Compliance	
Suzanne Sutton		- College of Chemistry	
Terrence Ireland		- College of Letters & Science	
Youssef Kubis		- Controller's Office	
<b>Faculty Advisory Group</b>			
Rosemary Joyce		- Anthropology	
Alexis Bell		- Chemistry	
Dan Stamper-Kurn		- Chemistry	
Ron Cohen		- Chemistry	
Tsu-Jae Liu		- Electrical Engineering and Computer Sciences	
Jeffrey Bokor		- Electrical Engineering Division Operations	
Robert Rhew		- Geography	
Panayiotis Papadopoulos		- Mechanical Engineering	
Matthew Welch		- Molecular and Cell Biology	
John Taylor		- Plant and Microbial Biology	
Anupama Gomez		- School of Social Welfare	
<b>Project Team</b>			
Heidi Wagner		- Program Manager	
Teal Sexton		- Cal Answers Functional Lead	
David Scronce		- Training Lead	
Elise Mills		- Subject Matter Expert	
Frances Kendall		- Technical Lead	
Heidi Van Yang		- Change Management	
Jean Bednarz		- Communications	
Jeremy Linneman		- Training	
Nick Endsley		- CSS Project Management Lead	
Youssef Kubis		- Subject Matter Expert	
<b>Research Administrator (RA)/Functional Focus Group</b>			
Adam Berke		- Contracts and Grants, Campus Shared Services	
Alex Luna		- Contracts and Grants, Campus Shared Services	
Laurie Kimbler		- Contracts and Grants, Campus Shared Services	
Leslie Goldstein		- ERSO, Campus Shared Services	
Sarah Gutierrez		- Contracts and Grants, Campus Shared Services	
Kim Page		- Controller's Office	
Youssef Kubis		- Contracts and Grants, Campus Shared Services	
Elise Mills		- Campus Shared Services	
Josh Vijeh		- Campus Shared Services	
Katie Hudson		- Campus Shared Services	
Morgan Darby		- Campus Shared Services	
Sean Bupara		- Campus Shared Services	
Sue Logan		- Campus Shared Services	
Yulia Golubovskaya		- Campus Shared Services	
<b>Technical Team</b>			
Aswan Movva		- IST-Data Services	
Cheryl Kojina		- IST-Data Services	
Frances Kendall		- IST-Data Services	
Peter Cava		- IST-Data Services	
Sameer D'Souza		- IST-Data Services	
Provin Dhawan		- IST-Data Services	
Quin Bligh		- IST-Database Services	
Naresh Meda		- KPI Consultant	
Teal Sexton		- Strategic Program Management	
Jenny Su		- Strategic Program Management	
Redstack Analytics		- Consulting Services	

## Executive Summary

The Principal Investigator Portfolio Projections Project is an innovative integration of a business intelligence application extended to enable Faculty and Research Administrators to input and update projections for anticipated funding and expenses, reflected in the PI Portfolio dashboard reporting tool. Projections are entered in an Oracle Application Express (APEX) Input Form. These entries are immediately available for viewing in the PI Portfolio dashboard. Projections are integrated into all dashboard report pages at the appropriate level of detail, including a new Projections tab. Calculated projected ending balances are displayed within existing report views where appropriate.

The PI Portfolio Projections Project was a collaborative engagement across teams. The Project was brought in on schedule and under budget. Despite the tight development timeline, the team was able to efficiently integrate user feedback and design suggestions, including over fifty modifications based on input received during the Acceptance Testing phase. The Project Team effectively engaged campus leadership to negotiate an HR security policy to allow for the HR lookup functionality within the tool. Research Administrators consistently call out this feature as a key change, increasing efficiency and accuracy in the management of Faculty funds.

## Business Need

- Faculty/PIs had inconsistent access to see expenses and projections regarding funds for which they are responsible. This made it difficult for them to make timely, informed decisions.
- Deans, Chairs, Chief Administrative Officers and Management Services Officers had inconsistent access to see which faculty managed funds were projected for deficit.
- Research Administrators had been creating projections in Excel and sending them to Faculty for review.
- ~175 Research Administrators each were following a different, manual process for creating and maintaining their projections.
- The lack of a standard business process for managing faculty funding was inefficient and created the opportunity for errors.
- The lack of metrics made it difficult to identify root causes of problems. The only option was to track Research Administrator performance manually. This was an inefficient option that diverted time/effort from service delivery.
- When there was no standard practice, there was no standard set of training materials to support users and to expedite onboarding of new Faculty and Research Administrators.
- Accountability was low as the service and information delivered to Faculty across campus varied widely. Without a standardized projections tool that allows Faculty to plan for their sponsored and non-sponsored activities, the risk of overspending or manual error is high.
- Access to HR data that is needed for projecting spending on faculty managed funds varied from unit to unit.

## Solution Description

The delivered solution is an integrated set of standardized tools and corresponding business process guides for Research Administrators and faculty financial activities related to faculty managed funds including projections and verification of actual expenses. The tools replace existing Excel systems, providing projection functionality within the PI Portfolio dashboard, for all funds, by Faculty Member.

Accompanying these tools is a design and implementation of training and development strategies and tools that allow for engagement of the campus-wide stakeholders as well as Campus Shared Service Research Administrators that allows for the highest level of tool adoption.

### **Project Deliverables**

- APEX Projections Input Form integrated within PI Portfolio Tool
- Ability to input projections for anticipated funding, non-compensation expenses and compensation expenses with the help of appointment distribution data from the HR system displayed within the compensation input screen
- Automatically calculate benefit costs (CBR) when users input salary expenses
- Automatically calculate overhead (indirect costs) based on projections
- Ability to archive one set of projections per Faculty per month
- Informational Reports in PI Portfolio with Average Expenses and HR Lookup Reports for appointment distribution information
- Integration of effort reporting in PI Portfolio dashboard, includes alerts with current status of effort reporting and links to the effort reporting system
- Modifications to existing PI Portfolio reports to include projections
- Alerts for funds in deficit, funds with low spend rates and funds projected to be in deficit
- Drill down reports to transaction level detail
- Creation of a Management Report dashboard that will allow for tracing of metrics and deficits
- Business Process Guide for using the new tools
- Training materials including leave-behinds for onboarding newcomers in the future
- Communication Plan on the project and the new tools
- Future year maintenance plan for functional owners
- Training plan for new Faculty and Research Administrators

### **Project Impact**

The PI Portfolio Projections Project is at the center of the effort for standardization of the Campus Shared Service Research Administrators business process. Campus Shared Services has set a goal to have projections entered in PI Portfolio by August 12<sup>th</sup> for Faculty supported by this organization. To start this process, Research Administrators have met with their supervisors to prioritize the work to transfer projections data into PI Portfolio. In the three weeks since PI Portfolio went live, 150 Research Administrators, Chief Administrative Officers and Management Services Officers have completed training classes and data has been entered 121 Faculty. Campus Shared Services Research Administrators have notified their Faculty regarding the new business process and when projections will be ready to view in PI Portfolio. 218 Faculty have begun looking at the new functionality in the tool. Three Faculty have even entered their own projections.

“In 2011 I was asked to chair a committee reviewing the technologies in place for several large research administration units (Biosciences, Engineering, Natural Resources, and others) that were moving into a shared services organization. Each unit had developed its own methods for keeping faculty informed about spending on their grants. That function was critical to ensure that 1) adequate funds remained to continue a project to completion, and 2) that large amounts of money would not be

returned to the sponsor unspent. While effective, none of the methods were scalable to an enterprise, and many smaller units had no tools at all.

In parallel, a faculty advisory group to my office articulated the need to know grant spend rates on a self-service basis as one of their highest priorities. Fast forward to today: the campus now has a faculty-facing enterprise tool to see spending rates and create spending projection scenarios to support the conduct of research. The impact of this effort cannot be understated. In addition to greater visibility into spending on demand, PI Portfolio means that costly home-grown departmental systems no longer need to be maintained, and that standard and consistent information is provided to faculty across the campus in both small and large well-resourced departments. PI Portfolio is the successful result of a rare partnership between faculty, the administrators who serve them on the front lines, the Finance Organization, and the campus Data Warehouse team.”

Neil Maxwell  
Director Research Administration & Compliance Office

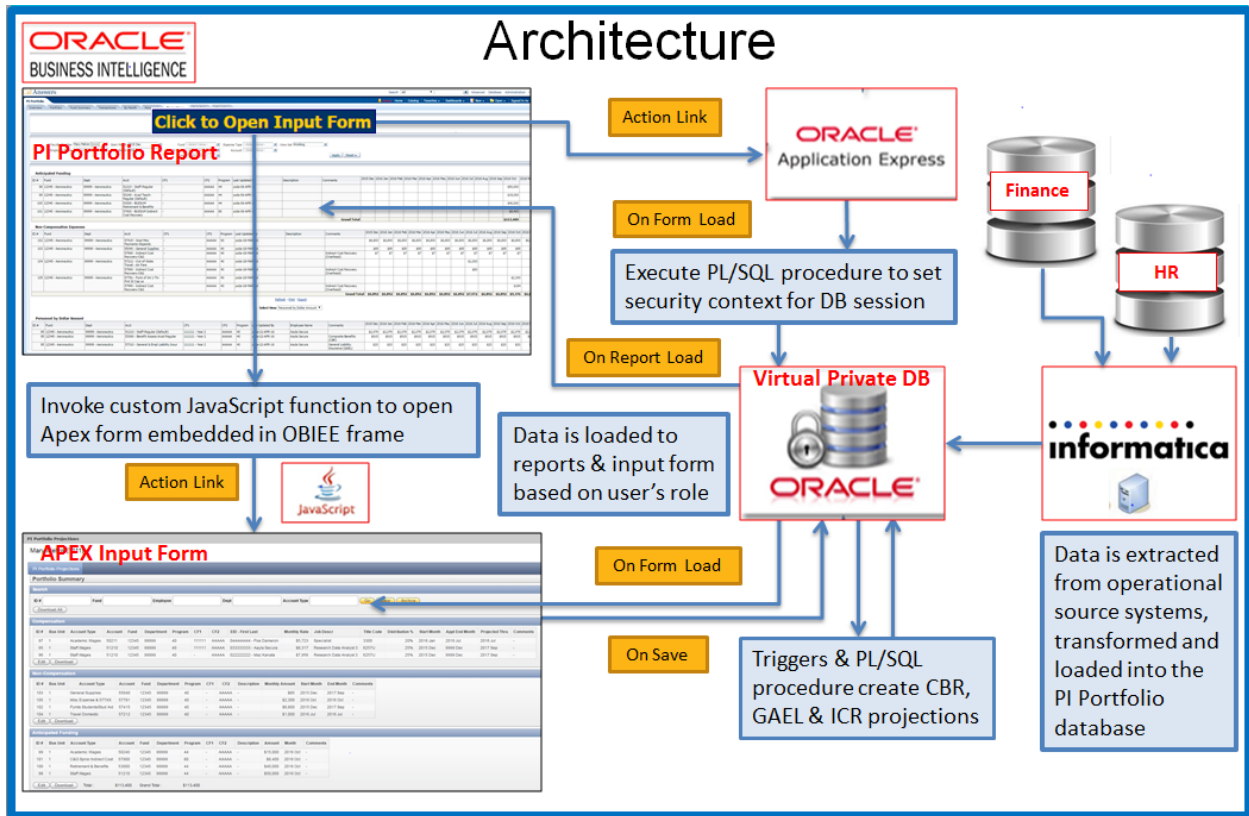
## **Solution Architecture**

PI Portfolio is a reporting tool built using the Oracle Business Intelligence Enterprise Edition (OBIEE) platform. This is an analytics and reporting product with only rudimentary data input capabilities. Therefore, in order to support integrating projections into the PI Portfolio reports, we built a form using Oracle Application Express, APEX. The projections entered into the form are written back to the database so that the data is immediately available for reports in PI Portfolio.

Our goals for the technical implementation were that it was low cost to implement and to maintain, simple to use, leverage the same roles and security that already exist in PI Portfolio, and to minimize the difference in user experience between the OBIEE reports and the APEX input form. To accomplish this, the APEX form was embedded within the OBIEE frame. As much as reasonably possible, the form was designed to match the look and feel of the PI Portfolio dashboards. The authentication is passed through to APEX from PI Portfolio, eliminating the need for the user to login to bring up the APEX application. The database for PI Portfolio is an Oracle Virtual Private Database (VPD). VPD controls access to data based on a user’s security context. The APEX database session runs a procedure to set the security context for the session based on the user’s roles from PI Portfolio. Therefore, when the APEX input form loads, it is populated with data from the database based on the user’s security context.

## **Technology Stack**

- Informatica PowerCenter
- Oracle Virtual Private Database
- Oracle Business Intelligence Enterprise Edition (OBIEE)
- Oracle Business Intelligence Mobile App for iOS and Android
- Oracle Application Express
- JavaScript
- Oracle PL/SQL



For additional information and a video of PI Portfolio

PI Portfolio training videos

- <https://www.youtube.com/watch?v=Wdej3fWECZQ&feature=youtu.be>
- [https://www.youtube.com/watch?v=ss6cOQNM\\_G8&feature=youtu.be](https://www.youtube.com/watch?v=ss6cOQNM_G8&feature=youtu.be)

About PI Portfolio

<http://calanswers.berkeley.edu/pi-portfolio/about-pi-portfolio>