



# OE RESOURCE REQUEST APPLICATION

University of California, Berkeley

## I. SPONSORSHIP

### A. Initiative

Initiative	IT Foundation		
Initiative Manager			
Phone		E-Mail	

### B. Sponsorship

Sponsor Name	EDW - Erin Gore		
Sponsor Signature		Date	3-31-2011
Sponsor Names	Procurement – Ron Coley Procurement – Jim Hine		
Sponsor Signatures		Date	3-31-2011
OE Program Office Signature		Date	

### C. Give the title of the resource

Enterprise Data Warehouse (EDW) and Business Intelligence (BI) Projects - <b>Procurement</b>
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## II. PROBLEM STATEMENT/CASE FOR CHANGE

### A. Identify and describe what needs the proposed solution is seeking to address.

This proposal is to incrementally build upon the foundation of the existing data in the EDW to integrate data from new source systems. Doing so will result in many benefits, including but not limited to:

- Improve data security, reliability and accuracy.
- Reduce data duplication and hosting costs of maintaining data in multiple systems.
- Simplify the data access request process by reducing duplicative data stores.
- Improve understanding of data by developing common definitions.

Provide easy-to-use BI tools to produce reports and dashboards to:

- Facilitate quick development of ad-hoc reports to meet the growing campus analysis and visualization needs.
- Save analyst time by minimizing the need to integrate data locally, developing complex metrics once and reusing them and making ad hoc report creation simple.
- Improve quality of campus analysis by exposing data descriptions (metadata), using consistent calculations and certified reports.
- Allow users to start at the high level, identify exceptions/issues and drill down to the critical detail for improved response.

### B. Describe the solution that is being proposed to meet the identified need(s).

The EDW and Business Intelligence team will continue to build upon the foundational EDW core data elements, existing data subjects and Business Intelligence tools that have been implemented to further benefit campus reporting and analysis.

Procurement has been identified as one of the major initiatives in the Operational Excellence effort. Improvements in this area are anticipated to result in significant savings for the campus. Procurement efforts at UCSF and UCB have been united and together both campuses have partnered to implement SciQuest solutions. At the same time that changes are being made to business processes and the AP/PO transactional systems, the campuses have determined that a robust reporting and analytical function will greatly assist in the monitoring and management of procurement activities.

Under direction from the Institutional Data Council, the Procurement Reporting Sub-Committee and the OE Faculty Head, the Enterprise Data Warehouse (EDW) and Business Intelligence (BI) function is recommending the following project:

**Data Architecture** - The Enterprise Data Warehouse will have an integrated back end design that will support both UCB and UCSF procurement data. The loading of UCSF data is targeted for a future project.

**Data Subjects** - The EDW proposal in support of this initiative begins with adding and integrating the following major groups of data to the Enterprise Data Warehouse (EDW) :

- Purchase Order Detail
- Voucher / Invoice Detail
- Receipt / Payment Detail

**Reports** - New OBIEE Cal Answers dashboards and reports will be created for faculty and staff which will provide:

- Operational reports to allow daily monitoring of the purchasing cycle.
- Management dashboards to allow analysis of purchasing practices and efficiencies.
- Operational reports and management dashboards will be delivered in phases. The phases and deliverables will be determined by the project team.
- SciQuest reporting will be used for requisition and purchase order transactional operations.

**Spend Classifier** – This tool will allow central campus procurement staff to reclassify spend data for improved analysis and procurement cost savings. The underlying data will remain as-is, so analysis can be performed and reconciled to production systems and enhanced.

### C. Describe the alternate approaches you evaluated in the process of developing this proposal and why those alternatives were not selected.

- Continue the status quo. There is currently no detail procurement data available in the EDW. This alternative will not support the goals of improving procurement analysis on campus. There is also a dependency on the retirement of the BFS 8.8 – once the legacy procurement data is made available to the campus, the system can be shutdown and reduce expenses.
  - Utilize delivered reporting through SciQuest. This option has not been used by the majority of universities using SciQuest because
    - 1) The “data dump” nature of the majority of the delivered reports with minimal functionality and are generally simple listings of data that need to be exported to Excel for totals, sorting and pivots.
    - 2) The need for extensive training required to provide useful reporting will cause a significant training expense, that will need to be replicated annually (if not quarterly) at the local level.
    - 3) The need to create local reporting solutions will make it difficult to track the procurement initiative objectives.
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### III. IMPACT AND STRATEGIC ALIGNMENT

A. Describe how the proposed solution aligns with the OE goals:

- Reduce administrative costs and enable the campus to direct more resources to teaching and research
- Advance an effective and efficient operating environment
- Instill a culture of continuous improvement that leads to high quality performance and outcomes

Continue to build reusable essential core components that will make adding new subject areas to the EDW more efficient. Provide easily-consumable data, reporting and dashboards to enable user efficiency. The efficiency gains will result in a better use of staff time that focuses on analysis, instead of data collection and clean-up and will provide more comprehensive analysis of data for campus decision makers. This will be accomplished through:

- Consistent and reliable certified data means less time validating data sources. The data integration and report work can be performed once and continually utilized by all.
- Improved accuracy of published data through certification of data, metrics and reports.
- Improved analysis and time savings by developing reports and dashboards that identify data exceptions and support drilling down into data for further analysis.
- Faster development of ad hoc reports by analysts through easy-to use tools and pre-built reports and metrics. This enables campus decision-makers faster access to ever-changing business questions.
- Automated workflow to seek access to EDW data, reports and dashboards. Consolidating data for reporting makes data access management easier to administer.

Shadow systems for data collection can be reduced and eventually eliminated as campus users see missing data added to the EDW and trust its accuracy. This is a hard savings of infrastructure and time in addition to improving data security on campus by reducing access points and focusing resources. The IDMG found numerous shadow systems on campus that require some infrastructure, but lots of time in cleansing and integrating data sets. By performing this work and exposing it in the EDW, time is saved all over campus.

Instill a culture of continuous improvement that leads to high quality performance and outcomes. Easier and more powerful access to integrated campus data will encourage greater use of data and more analytical thinking, driving a culture change rewarding factual analysis and devaluing anecdotal assessment.

B. Identify any other anticipated benefits in implementing the proposed solution.

The elimination of legacy systems (BFS 8.8) in support of historical procurement data is not feasible until the procurement detail data is made available to campus.

C. Identify the risks of not implementing the solution.

- Inefficiencies in daily operational processing due to users not being able to easily review their purchasing transactions in relation to their financial summaries.
- Lost opportunity to quickly identify potential purchasing efficiencies due to lack of information.
- Inability to track procurement goals through performance metrics.
- Departments may create shadow systems to maintain access to needed information.
- Historical procurement detail data (BFS 8.8) and reports are not available to UCB faculty and staff.

D. Describe the constituency that is intended to benefit from the proposed solution (e.g. students, faculty, staff, 1-many units)

This is a campus-wide solution that will benefit campus staff, faculty, researchers, and executive-level administrators. It will increase their ability to easily access consistent established answers derived from integrated campus-wide data. It will reduce the time spent by analysts integrating, validating, and cleaning-up data, and free them to spend more time on value-added work. Everyone making decisions on campus will be working with more accurate and consistent data, reducing doubt created by inaccurate and/or conflicting data, and reducing time wasted by such. Examples are UC Berkeley's cabinet (viewing financial trends), staff (integrated data from procurement, finance, student, HR, advancement etc.)

E. Describe the extent to which this proposed solution is a collaborative effort either within campus or with external partners.

This project will be a combined effort of input and resources from: The UCB/UCSF Procurement Office, Office of Planning and Analysis (OPA), OE Procurement Initiative, Budget and Planning and Information Services and Technology (IST).

Campus analysts and management representing the breadth of campus groups using the data under development will be included in data requirements, report and dashboard design and QA testing to ensure the deliverables are meeting the requirements of the campus.

F. If applicable, describe how the proposed solution may enable additional projects to be considered.

The EDW will become essential as a source of reliable data on which to assess current and future projects. It will be able to provide the reliable data needed for meaningful cost-benefit and performance analysis, and establishment of baselines. As other data-driven initiatives emerge they will benefit by the existence of the EDW foundational subject areas. As more and more data is added, people will increasingly rely on it to answer cross functional area questions rather than copying data and looking for the needle in a haystack. Over the long-haul, it could well prove to be the campuses biggest cost savings project.

G. What is the impact of the proposed solution on the existing systems and processes? Does it eliminate the need for existing systems and processes?

- This solution is complimentary and critical to the implementation of the SciQuest BearBuy procurement system.
- Adding the historical procurement data will allow for the retirement of BFS 8.8.
- This will fill a long time need for detailed procurement reporting data and will eliminate the need for shadow systems.

H. What is the impact on the proposed solution on the workload?

Profile/Impact in hours	Current Workload	1-time workload requirement	Ongoing workload requirement
Student	None	None	None
Staff	Run reports as needed	Training, requirements and testing if on project team.  Online training is estimated at 2 hours for general users and an additional 4 hours of classroom time for advanced ad hoc users.	Estimate 5% efficiency gains for moderate users.  Estimate 5-10% efficiency gains for frequent users of student, procurement, HR and/or financial data.
Faculty	Run reports as needed	Training is estimated at 2 hours for general users	No change - run reports as needed

## IV. WORK PLAN AND PROPOSED SOLUTION DESIGN

### A. Provide a statement of:

- Deliverables — results the solution must deliver to achieve the stated objectives.
- Constraints — factors that may limit the options for providing the solution (*e.g., an inflexible deadline*).

#### General Deliverables for All EDW Projects

- **Project Phases** - Projects will be broken up into small deliverables over the length of the project to better enable course correction of deliverables.
- **Data** - New data will be integrated with other subject areas in the enterprise solution allowing cross functional analysis and a consistent cross-campus view. Detail and summaries will be made available to support campus needs. See section 4C for details.
- **Reports & Dashboards** – New development for reports and dashboards will be performed in OBIEE Cal Answers. This solution will deliver certified and re-usable metrics that will measure goal achievement. It provides faster ad-hoc reporting development for campus analysts and drill-down capabilities for all users.
- **Security** - Utilize the recently deployed and flexible EDW security model to meet the expanding data security needs of the campus. Provides information that people need while protecting sensitive data.
- **Metadata** – Capture business and technical metadata and expose through reports and in mouse rollover in OBIEE Cal Answers.
- **EDW Access Request** – For all new data, work with the Identity Management team to utilize the EDW Access Request system, a web-based workflow that assigns security roles based on data proprietor approvals.
- **Tool Training** – Create online training for the OBIEE tool. Create online and classroom training for ad hoc report development in OBIEE.
- **Subject Area Training** – Create online and classroom training for new data, reports and dashboards. Provide tier 1 training to the Service Desk.
- **EDW Support** – Develop a Service Level Agreement (SLA) which defines roles, responsibilities, and processes related to ongoing support of the EDW and BI services.

#### General Constraints for All EDW Projects

- **Funding** – Project work can start when one-time work is funded and a source of ongoing funding is secured.
- **Project Resources** – EDW/BI projects require a great deal of time in concentrated blocks from data proprietors, functional subject matter experts and technical staff. External project teams will be utilized as much as possible to staff EDW projects and backfill or provide functional and technical expertise, but dedicated oversight is required by both functional and technical leads.

#### Procurement Reporting and Dashboards

- All requisition reporting will come from SciQuest.
- Operational reports will allow review of individual transactions details, such as Purchase order or voucher status and amounts, related receipt and invoice information for a PO, buyer name, vendor name and address, etc.
- The UCSF operational reports will be reviewed by UCB procurement staff and the focus group to determine requirements and priorities.
- Management dashboards will be developed to help answer questions such as what is the spend amount by buyer or organizational unit, who are the top vendors in terms of purchasing dollars spent or quantity of purchase orders, who is using which vendors, etc. The UCB procurement staff and focus group will determine the management reporting requirements and priorities.
- The technical team will then provide the recommended phases for operational reporting and management dashboard deliverables that will be reviewed with the procurement staff and focus group for input and project sponsors for decisions.

#### Spend Classifier

- After installing and configuring, a dedicated central procurement staff can recategorize procurement data using business logic to enhance reporting, analysis and improve procurement.

#### Procurement Constraints:

- Procurement processes and transactional systems are currently undergoing changes which could impact the timing of data that will be available for the Enterprise Data Warehouse.
- Functional subject matter experts and IT staff with knowledge of the systems and processes must divide time between on-going operational activities and supporting multiple development efforts (SciQuest and EDW Procurement).

- B. Provide a work plan for the proposed solution with high-level steps to complete the solution, including timeline. (Try to limit your plan to no more than seven steps.)

**Procurement**

Additional scoping and phases will be required working in concert with the Procurement Sub-Committee to determine the deliverables required at go-live versus those that can be delivered later. These milestones did not include time estimates for Spend Classifier or historical (BFS8.8) data conversion.

Milestone	Responsibility	Timeline
Project Funding Approval		
Functional Reporting Requirements & Business Definitions	Functional Procurement teams	Month 1
Data Requirements / Source System Analysis Data Architecture & Data Model	IST Data Warehouse teams IST Data Warehouse Architect	Month 2 – Month 3
ETL Development	IST Data Warehouse ETL team	Month 3 – Month 9
BI Development Metadata Development	IST Data Warehouse BI team Functional Procurement teams	Month 7 – Month 12
QA Testing	Functional teams and IST Data Warehouse teams	Month 13 – Month 14
Training Development & Implementation Service Desk Support Communication	TBD	Month 15
Project Assessment		Month 16

- C. What are the data requirements for the proposed solution?

Source System(s) / Estimated # of Tables:

- Approximately 40 tables will be sourced from BFS for purchase order, receivables, voucher, payment and general ledger data.
  - Detailed purchase order, receipt, voucher and payment data will be added to the Enterprise Data Warehouse from the PeopleSoft Purchasing transactional system.
  - Chart of accounts, vendor and person data (requestor, approver, etc.) will be available in conjunction with the above detail data.
  - The Purchasing data will use the Enterprise Calendar and Person Party dimensions enabling eventual integration with all Enterprise Data Warehouse subject areas such as HR, Financials, and Student.
  - The data will be stored in a data model designed for ease of reporting.
  - Data will be updated on a daily basis.

- D. What are the technical requirements for the proposed solution?

**Technical Requirements for Procurement**

This proposal will likely result in requiring:

- Additional database storage
- DBA participation to create tables, views, and performance tuning activities.
- BFS source system technical data support as changes are made source SciQuest.

- E. What are the greatest risks for the proposed solution and the plan to reduce or eliminate the risks.

	RISK	MITIGATION PLAN
1.	One Time and Ongoing Funding	Seek OE one-time funds. Seek incremental ongoing costs from common good funding. If common good funding is not available, the funds allocated for enhancements will be utilized for baseline support until common good funding is secured.
2.	Functional and technical resources are not available and/or skilled.	Hire outside consulting to fill in gaps in skill set and resources.

3.	Campus resists using a new BI tool (OBIEE Cal Answers)	Curriculum design including the development of online and facilitation of classroom and drop-in training is essential.  Developing support from change leaders who will utilize the certified reports is equally essential.
4.	Expectation Management / Project Management	Existing EDW management can concurrently oversee 2-3 large projects. Given the perceived campus demand, the EDW projects include extra management support (project management, technical leadership).

F. How does the proposed work plan allow for evaluation and course correction to ensure the outcomes meet the campus needs?

Each project will have a Project Manager, Project Sponsor and executive EDW Sponsor who will oversee the work effort. The project plans will be developed with milestones to ensure the data deliveries and basic report deliveries are on track.



## v. CHANGE MANAGEMENT

A. What is the change management plan to successfully implement the outcomes of the proposed solution?

- Strong communication plan through list serves, updated websites, consistent updates on progress of projects and marketing quotes from thought leaders.
- Development of a solid training program: Forums to prepare the campus. Online, Classroom training for the tool AND the data and drop-in workshops. Advanced training for ad-hoc report development.

B. What incentives and/or disincentives are proposed to influence behavioral changes necessary for the successful outcome of the proposed solution?

- Free use of the OBIEE reporting tool.
- Access to operational data will allow users to more easily review and maintain their procurement transactions.
- Analytical data and dashboards will allow decision makers quick insight into the procurement process, improve best practices and further enable cost savings in the purchasing cycle.

C. Who has been identified as the change leaders and implementers to carry out the changes necessary for the successful outcome of the proposed solution?

- Senior management support for reviewing certified reports and data from EDW.
- Procurement functional and technical experts.

## vi. FUNDING MODEL AND BUDGET

A. Could the proposed solution move forward with partial funding? If yes, describe the revised scope, including the associated savings impact.

- No, this project can not be partially funded.

B. What is the plan for sustainable funding to support ongoing operations of the proposed solution?

The EDW/BI function is seeking common good funding to cover the incremental ongoing costs for approved projects.

C. Please download and fill out the OE Resource Request Budget Template located at [location] and follow the instructions on the first worksheet in the workbook to complete the budget and line descriptions. Include both completed sheets with the Resource Request.

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## VI. ASSESSMENT PLAN

Please use the table below to detail your metrics.

METRIC CATEGORY	SPECIFIC MEASURE	MEASURE BASIS	DATA COLLECTION METHOD	DATA COLLECTION FREQUENCY	FUNCTIONAL OWNER OF DATA COLLECTION	LARGER GOAL TO WHICH METRIC RELATES
<b>FINANCIAL PERFORMANCE</b>						
<b>1</b>	Procurement Analyst Time Savings	Project	Survey	Annual	OPA	
<b>OPERATIONAL PERFORMANCE</b>						
<b>1</b>	# Reports Run for Procurement		OBIEE Stats	Monthly	IST EDW	
<b>2</b>	# Users for Procurement		Database Stats	Monthly	IST EDW	
<b>CUSTOMER SATISFACTION</b>						
<b>1</b>	Data Accuracy, Reliability	Project	Survey	Annual	OPA	
<b>2</b>	Procurement Report Benefit	Project	Survey	Annual	OPA	