

**Application for 2011 University of California Larry L. Sautter
Award for Innovation in Information Technology**

Title of Entry: CADS 2.0: Cal Advancement Data System Upgrade

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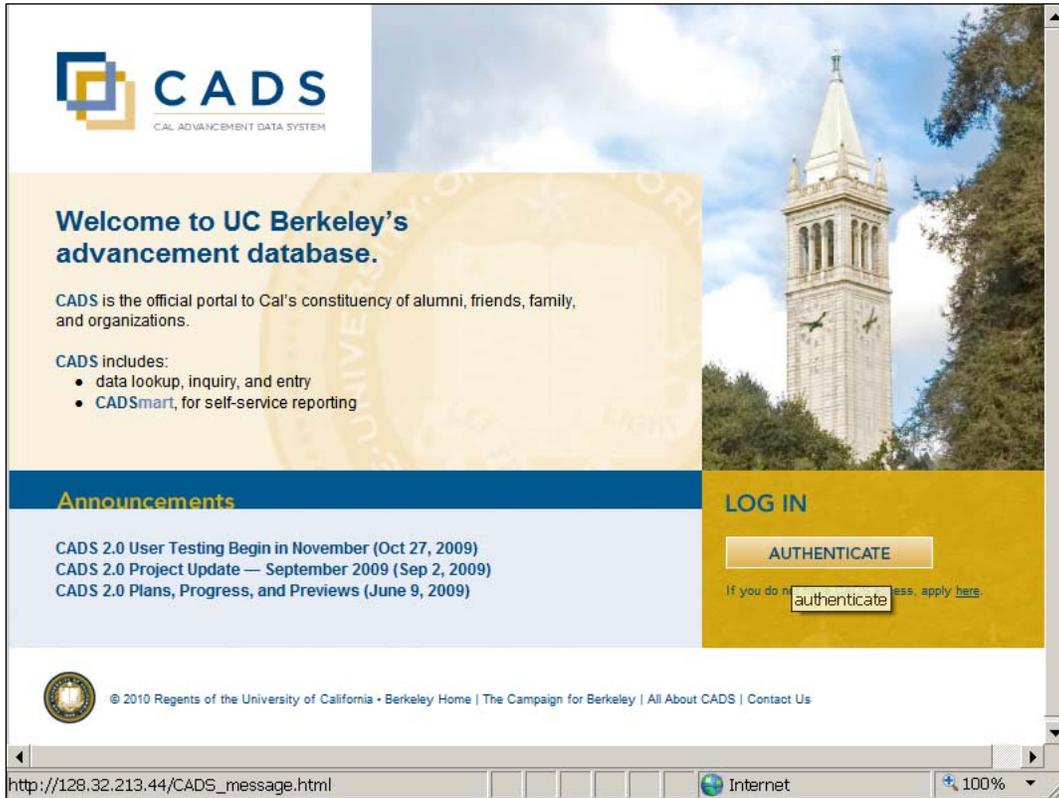
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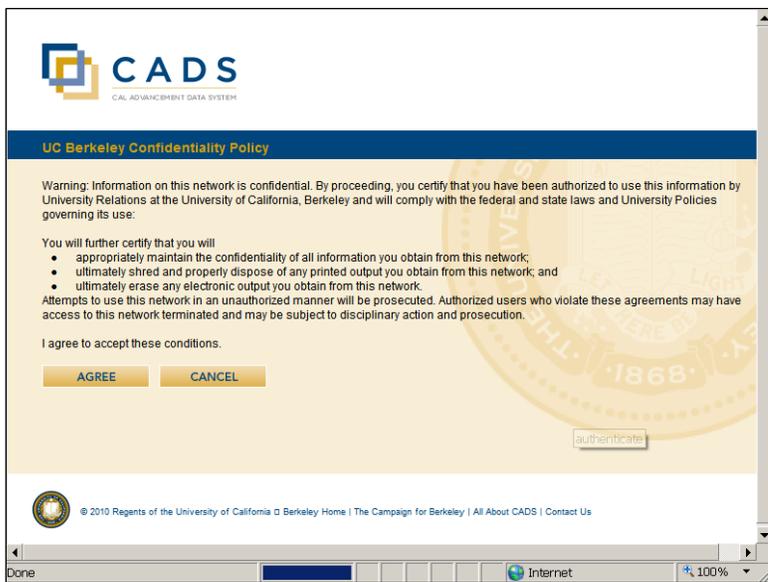
Project Summary

The CADS 2.0 upgrade of UC Berkeley's legacy Cal Advancement Data System (CADS) aimed to provide campus's fundraising enterprise with a number of improvements in the manageability of information on prospective donors. With the launch of CADS 2.0 in July 2010, users gained access to more expansive data on prospects and greater self-service capability in managing data and ordering reports. Campus gained (1) cost savings through improved automation, (2) a central system reducing the need for multiple local shadow systems, (3) the expanded functionality of multiple applications packaged and branded in a single comprehensive information management tool, and (4) the assurance of a high-capacity, scalable fundraising system at a critical time when philanthropy is ramping up to make up for reduced state funding for the University.

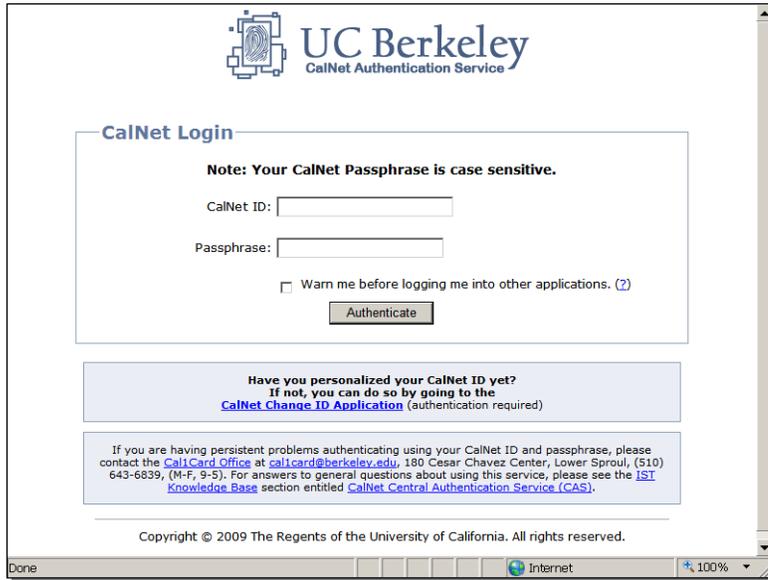
Landing page (<http://cads.berkeley.edu>):



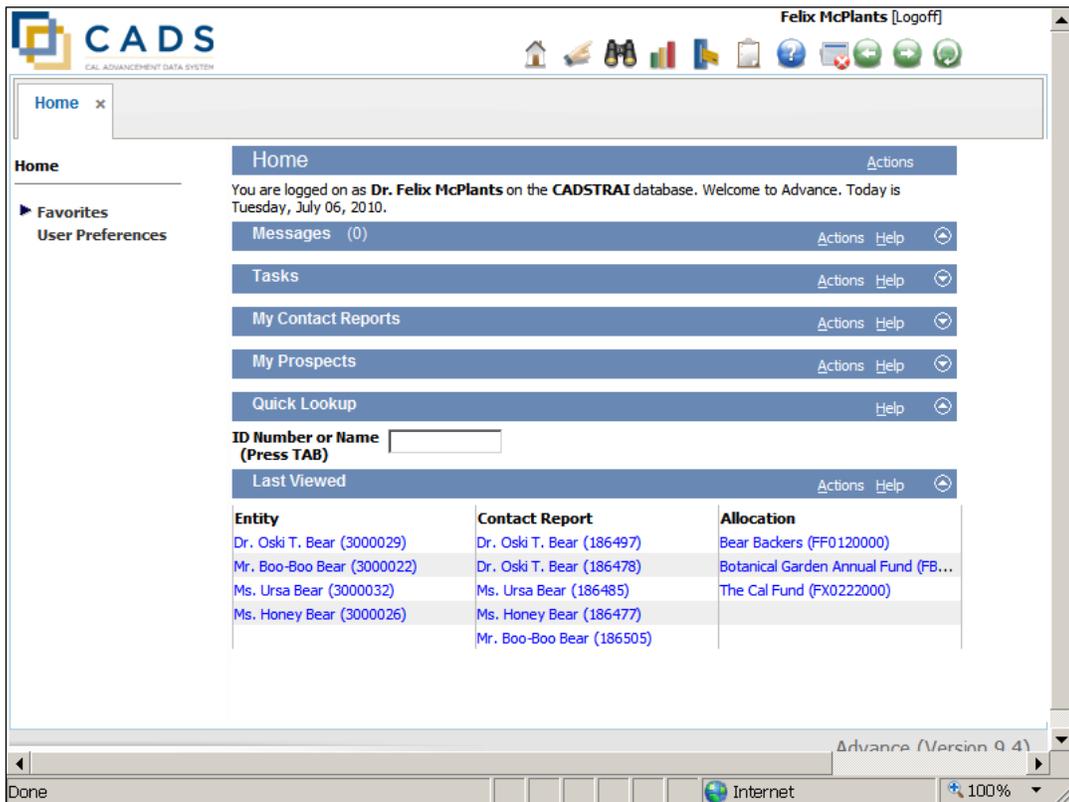
Users click through to the UC Berkeley Confidentiality Policy:



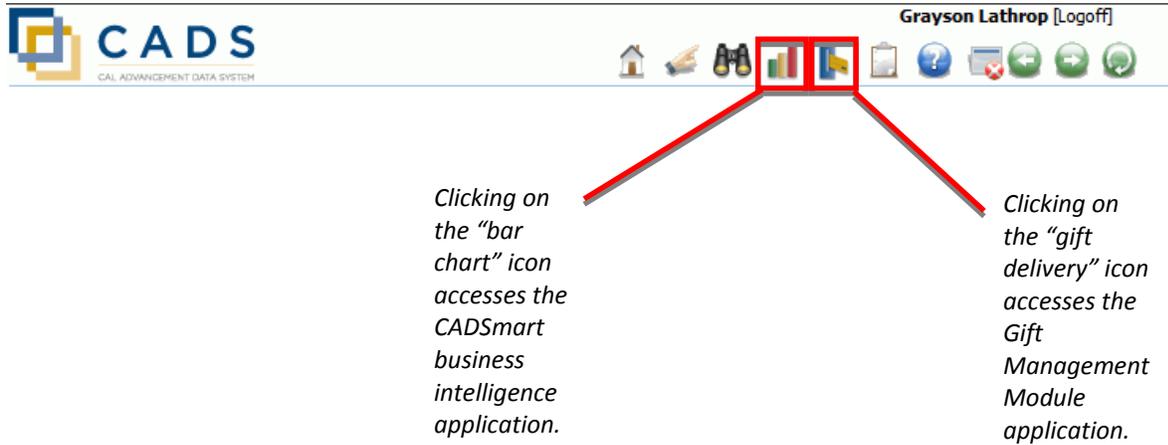
Clicking “Agree” accesses the CalNet Login page:



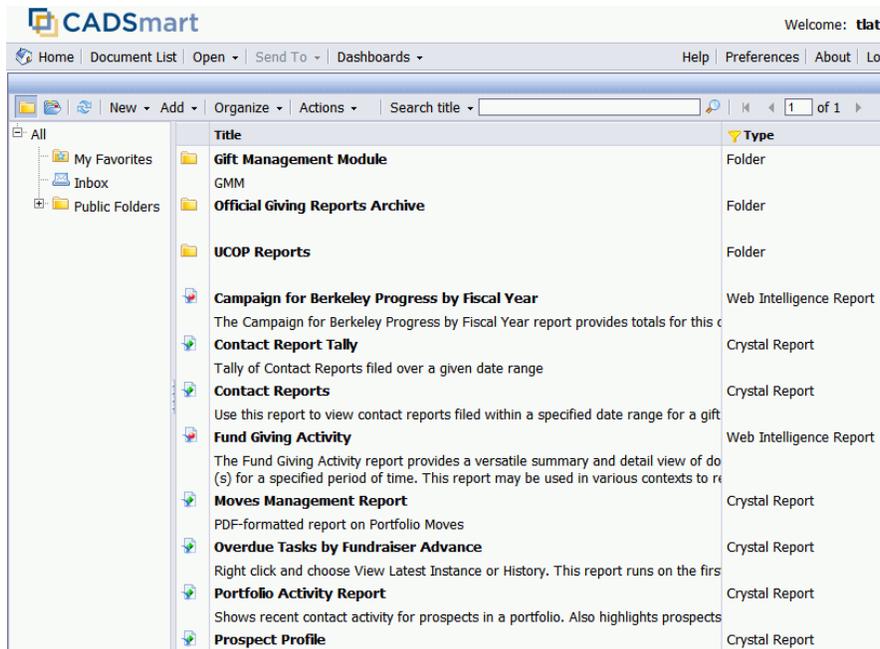
User enters ID and clicks “Authenticate” to access the CADS home page (SunGard Advance application) for looking up and updating the records of individuals and organizations and their relationships, affiliations, interests, contacts with campus, gifts, allocations, and more:



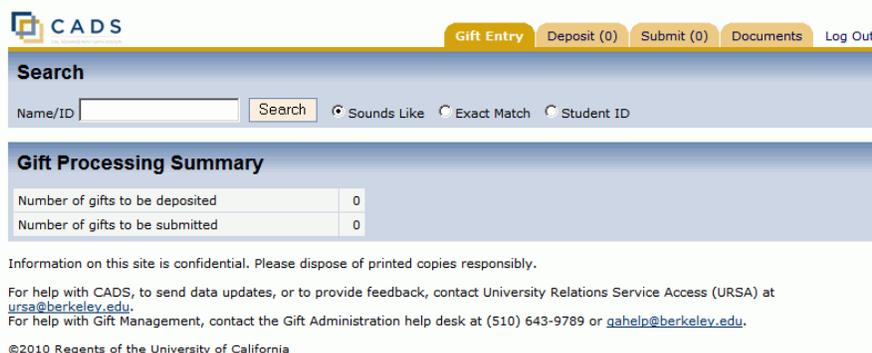
From the menu bar, the user can access the reports and gift entry applications:



CADSmart (SAP BusinessObjects application) lists standardized reports available to all users and is the portal to creating custom reports:



The Gift Management Module enables automated gift deposit and recording:



The screenshot shows the CADS web interface. At the top, there is a navigation bar with the CADS logo and buttons for 'Gift Entry', 'Deposit (0)', 'Submit (0)', 'Documents', and 'Log Out'. Below the navigation bar is a search section with a 'Search' button and radio buttons for 'Sounds Like', 'Exact Match', and 'Student ID'. A 'Gift Processing Summary' table is displayed, showing the number of gifts to be deposited and submitted, both currently at 0. Below the table, there is a disclaimer and contact information for help with CADS and Gift Management.

Gift Processing Summary	
Number of gifts to be deposited	0
Number of gifts to be submitted	0

Information on this site is confidential. Please dispose of printed copies responsibly.

For help with CADS, to send data updates, or to provide feedback, contact University Relations Service Access (URSA) at ursa@berkeley.edu.

For help with Gift Management, contact the Gift Administration help desk at (510) 643-9789 or qahelp@berkeley.edu.

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Project Description

The Cal Advancement Data System (CADS) is UC Berkeley's database of more than one million records of alumni, friends, family, and organizations. CADS serves an enterprise of more than 600 advancement employees in more than 30 campus units connected through a central advancement office, which administers CADS. CADS provides information to help fundraisers identify and track prospective donors, manage strategies for soliciting charitable gifts, and review performance metrics and other business intelligence.

Business Need

The original system, based on Datatel Benefactor, was first introduced in 1995 and was supplemented in 2002 with a custom-built Web-based interface, CADSWeb. A feasibility study conducted in 2005 concluded that this system would not meet the data management requirements of UC Berkeley's growing fundraising enterprise, which was poised to embark on an ambitious eight-year, \$3 billion campaign. The following four areas of need were identified:

1. Growth in volume of fundraising transactions would require the support of improved automation, self-service capability, and ease of data processing.
2. The effectiveness of campus's growing fundraising enterprise would depend on more comprehensive and integrated data on prospective donors and their relationships with UC Berkeley.
3. A fundraising strategy based on collaboration among 30 decentralized campus units demanded a centralized, reliable, and accessible information source with options for viewing and coordinating campuswide donor engagement activities.
4. A campuswide move toward greater operational efficiency called for a system using standard technologies to improve integration with other information systems across and outside campus.

None of the above could be achieved cost-effectively through further improvements to the existing Benefactor system, which the manufacturer indicated it would stop supporting within three years.

Project Components

In response to these areas of need, CADS 2.0 was conceived as a multi-tiered upgrade of UC Berkeley's advancement data processing and reporting (business analytics) infrastructure. The project plan encompassed the following objectives:

1. Migrate from the legacy database to SunGard Higher Education's Advance software. The migration would (a) replace a limited-capacity, nonscalable database platform with a high-capacity, scalable application; (b) replace the old terminal-based system and its partially integrated CADSWeb user interface with a completely Web-enabled system, increasing the volume of easily managed data; (c) provide more tools for self-service data inquiry and update; (d) present data in such a way as to better show prospective donors' affiliations, interests, and campus connections, enabling more informed solicitation strategies; and (e) interface more effectively with other campus information systems.
2. Install a new business intelligence application, allowing for improved analytics and reports. This new reports component, CADSmart, based on SAP BusinessObjects software, would allow users self-service capability to extract and display data in useful configurations to support advancement management and decision making. Newly developed self-service reports would include reports of campuswide interactions with prospective donors ("contact reports") to help fundraisers coordinate their prospect cultivation plans.
3. Build a new data warehouse to house all CADS data, optimally configured for easy and quick retrieval, and able to coordinate with campus's planned Enterprise Data Warehouse.
4. Leverage best practices by emulating or retaining existing interfaces where feasible, such as our Java-based Gift Management Module (GMM).

Development and Implementation

The CADS 2.0 project team undertook to complete the following deliverables over a three-year period:

- **Configuration of a new user interface**, based on interviews with campuswide advancement staff about their business needs
- **Conversion of data from the old system to the new**, including programming, quality-assurance (QA) testing and analysis, and meeting users' change requests
- **Installing and integrating new applications**, including builds of "sandbox" and production sites, installing system upgrades, load testing, and general troubleshooting
- **Setting up single-sign-on capability** across multiple applications, using Shibboleth to provide authentication, authorization, and product integration
- **Creation of the "CADSmart" reports environment**, including building a data infrastructure (data warehouse and data dictionary), gathering requests for new reports, developing a suite of standard self-service reports, training advanced users to design complex reports, and establishing a workflow for delivery of custom reports
- **Establishing a cohesive look and feel** across multiple applications, with newly designed logos and styles to identify the system of record
- **Data access and security**: developing protocols for access rights to data, and creating processes for authorizing users of the new system

- **Coordination of CADS with campus’s many data processing systems** by mapping system contents to CADS data elements, writing programs and scripts, and performing QA and user acceptance testing
- **User engagement and acceptance:** for each of four modules—biographic, prospect, gift, and membership—prototyping, reviewing, revising, and validating work processes via user testing
- **Maintaining campus business continuity**, throughout the development/predeployment phase and during the migration/cutover period
- **Communication to external and internal stakeholders**, via e-newsletter, e-mail announcements, targeted presentations, informational handouts, and a dedicated project website with news and schedules, informing about project purpose, scope, timing, milestones, and new functionality
- **Training of all stakeholders**, including trainers, in the log-in, security, and operational aspects of working in the new system; curricula included eLearning courses and trainer-led sessions in biographic, prospect, and gift components of the new system
- **Writing and distributing user manuals and quick-reference guides**, in the areas of biographic, prospect, gift, and membership data management

CADS 2.0 launched on July 19, 2010. In the two weeks preceding launch, 500 prospective users campuswide were trained and authorized to use the new system.

Within 10 months of launch, more than \$183 million from 57,850 gifts had been processed through CADS 2.0.

Relevant URLs

http://cads.berkeley.edu	user landing page to the CADS system
http://cads2.berkeley.edu	intranet information center
http://ursa.berkeley.edu	University Relations Service Access, for user support
http://eureka.berkeley.edu	UC Berkeley’s advancement intranet

Description of Technologies Employed

The CADS 2.0 application suite is based on a distributed computing model with a common Oracle database back end. The primary application, which can be considered our “input” mechanism, is a vendor product called Advance by SunGard Higher Education that is entirely Web-based. Having a Web-based product was the primary consideration in our product selection. By being Web-based, we are able to dramatically reduce our client administration costs and provide timely updates and ubiquitous access to our data. The vendor product was also selected over other competitors because its configuration parameters are stored as local customizations in metadata; local customizations are preserved during upgrades, making the upgrade process much easier.

For customizations that are not addressable by the SunGard vendor product, we developed customized J2EE applications that follow the best-practice method of implementing a model-view-controller (MVC) design pattern. The goal of the MVC design pattern is to decouple the application business logic (the

model), presentation logic (the view), and control flow logic (the controller). This decoupling makes applications significantly easier to create and maintain and also facilitates architectural flexibility to adopt and integrate new technologies as they mature. Our MVC model utilizes an internally designed framework built to handle large sets of business rules for gifts and pledges, and Jakarta Struts to address the view and controller components.

Our reporting and data analytics, or what can be considered our “output” mechanism, is a robust data warehouse that provides a place for our end users to create ad-hoc reports using SAP’s BusinessObjects Crystal Reports and their user-friendly Web Intelligence reporting tool called WebI. The architecture of the data warehouse was modeled around UC Berkeley’s central Enterprise Data Warehouse, but because of the complexity of the data necessary for our advancement enterprise, various data marts were established to denormalize the campus warehouse data to allow for easier ad-hoc reporting. Our first phase utilized materialized views to provide the aggregation required for the business. Our second phase, which has not yet been implemented, will encapsulate the views into reusable objects that will form the core for our SOA-based model that is planned for implementation in the next several years.

Project Timeline

Oct. 2006	VC for University Relations Donald A. McQuade announces initiative to migrate CADS to a new database application
Fall 2006	Request for Proposal (RFP); demo/evaluation of vendor products
Dec. 2007	SunGard Advance contracted as new application for CADS
Jan. 2008	Application installation, configuration, and integration begins
March 2008	Legacy data conversion begins
Sept. 2008	Reporting and CADS data warehouse development begins Interface development begins CADS 2.0 project informational website goes live
Oct. 2008	Logo and branding design begins
March 2009	User interface configuration begins
June 2009	Training planning begins
July 2009	Legacy data conversion complete
Sept. 2009	User testing and acceptance begins
Dec. 2009	Design of portal, Web landing page, CSS, and training material begins
March 2010	CADS newsletter deploys, monthly, then biweekly
July 5-19, 2010	Cutover from legacy system to SunGard Advance version 9.4.0.1 and BusinessObjects XI 3.0
July 7, 2010	CADS access training and authorization begins
July 19, 2010	Launch: Cutover to CADS 2.0 complete

Post-launch

Continuing configuration, interface refinement, reporting development, training development

Planning begins for upgrade to Advance version 9.6

Objective Project Assessment Data

User Feedback

On Dec. 3, 2010, four months after the launch of CADS 2.0, a focus group of 14 campuswide operations staff who use CADS listed the following areas of satisfaction with CADS 2.0:

- “Breadth of information”
- “Access to lots of data”
- “Search is powerful” (“so much fun to explore,” “can search almost anything”)
- “Entering prospect data is so much easier”
- “Biographic updates are quick and easy (can do them on the fly)”
- “Interface modifications” (“with corporation entities, it’s easier to see subsidiaries”)
- “BOE (CADSmart) is a great tool”
- “Matching gift area is robust”
- “Gift Management Module (GMM) is working well”
- “Data conversion went smoothly”

Additional Goals Achieved

In the nine months following launch:

- CADS usage increased to 667 authorized users from 421 in the legacy system.
- Increased self-service and decentralization of reporting yielded faster service and an improved user experience:
 - More than 700 self-service reports were generated, updateable by users when needed. A comparable number of reports were produced in the legacy system, over several years, but they were not updateable by users; users had to order them through the central IT unit, resulting in lengthy backlogs.
 - 52 campuswide report writers generated reports for their campus units. In comparison, the earlier system relied on about 6 people in the central IT office to produce reports for all campus units.
- Participation in CADS training increased to 1,726 enrollments in 13 courses, up from 179 enrollments in 8 courses in the year preceding launch.

- Solutions were provided to meet specific business requirements for an upgraded CADS system, as identified by campus users in focus groups conducted in 2005:

Business Need	CADS 2.0 Solution
PROSPECT MANAGEMENT AND TRACKING	
Ability to track actions/moves associated with prospects and proposals	Prospect records show activity and progress in the solicitation cycle
Way to collaborate on strategies (people involved, objectives, timeline, next steps, etc.)	Prospect records allow sharing of strategies and next steps of multiple stakeholders
Easy way to identify who a unit's top prospects are; report of top donors	Portfolio Overview report in CADSmart delivers comprehensive data on units' prospects
Ability to rate prospects' giving capacity, inclination, and readiness	Prospect records show all ratings
Ability to view multiple prospects in one report (instead of separately)	Portfolio Overview report shows complete list of fundraiser's active prospects
Ability to manipulate, sort, edit prospect lists	Lookup function allows listing and sorting prospects by selected criteria
CORPORATE AND FOUNDATION INFORMATION	
Improved view of corporations with many branches, locations	Corporation records show subsidiaries and branch offices
Cumulative gift data by company	Corporation records show itemized and cumulative gifts
Ability to link corporate, foundation and individual contact records	Prospect records link individuals with foundations, corporations, and other affiliations
REPORTING FUNCTIONALITY	
Provide "big picture" views (e.g., how close we are to our goals; year-to-year comparisons; program/fundraiser performance metrics)	Monthly giving reports show overall totals, unit-specific totals, and year-to-year comparisons
Ability to do my own report without help from IT or administrative staff	CADSmart "campus reports" permit self-service ordering and running of reports
Ability to produce ad-hoc reports "on the fly"	CADSmart allows on-the-spot ordering of reports according to user-selected parameters
Ability to do analytics and compile summary data	CADSmart and the CADS data warehouse provide business intelligence
Provide easier way to do multi-level queries across multiple data dictionaries (e.g., \$5K donors with graduation year 1980)	Lookup function allows listing and sorting prospects and donors by wide range of selected criteria

As a centralized, shared system, standardizing work processes across UC Berkeley's decentralized advancement enterprise, CADS 2.0 is expected to contribute to a more efficient and effective fundraising organization, in line with the goals of campus's Operational Excellence initiative to streamline administrative processes. Ongoing monitoring of system usage rates, service help requests, training attendance, and other indicators will guide further refinement and upgrades of CADS. The ultimate goal is for CADS, with its support for more coordinated and informed engagement of prospective donors, to help generate increased philanthropy over time.