

Sautter Award 2017 Project Details

Title

Artemis and the Online Invention Disclosure Portal

Team

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Contractor: Tyler Harris
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The Problem

The University of California requires that all inventions made by UC employees be disclosed to the university, regardless of when or where they are invented, in order to protect the inventions under copyrights or patents. Intellectual Property Protection is a necessary part of the invention process, but in order to obtain such protections, inventors in the past needed to fill out a long 13-page paper form, the Invention Disclosure Form (IDF), submit it to the Intellectual Property and Industry Research Alliances (IPIRA) division, then wait for the form to be processed and for data to be entered manually into an outdated database before receiving further correspondence. The form filling-out process was tedious and time-consuming, the communications difficult to track, and the details heavily dependent upon active engagement between the inventor and the department. Could we optimize this process for our innovative world-class inventors and researchers? And if so, could we end up with something other campuses could also use?

Project Summary

The Invention Disclosure Portal automates the process by which inventors complete and submit disclosures for their inventions. The goal of this project was to reduce the time it takes for inventors to submit disclosures by providing a streamlined, centralized, and user-friendly online form. This eliminates the need for a paper submission and manual data entry, while also providing a secure and easily manageable Salesforce-based system for recording intellectual property data. The Invention Disclosure Portal is a web-based Force.com integration with both the CalNet Identity Management system, the Berkeley LDAP directory system, the campus sponsored research database (Coeus) and our new Salesforce Database, called Artemis.

Artemis was designed to bridge the data gap between IPIRA's two main departments: The Office of Technology Licensing and The Industry Alliances Office, containing data about technology licensing, patent information, sponsored research agreements, and material transfer agreements, as well as technology marketing campaigns and faculty outreach efforts.

Invention Disclosure Portal - Technical Specifications and innovations:

This project was developed almost entirely on the Salesforce Development platform, primarily using Salesforce's programming languages Apex (similar to Java) and Visualforce markup language (similar to HTML). The platform simplifies the entire software development process by providing a complete interface for deploying and testing code, a set of comprehensive yet easy-to-learn software tools and API's, and a variety of accessible online resources for documentation and developer support.

Instead of creating a static form using our departmental Web Content Management System, Drupal, we decided on a dynamic form that allows inventors to both see their funding sources and select their co-inventors

from the campus directory listing integration in order to distribute the form to them for input. This approach also allows linking inventors within the broader CRM to their inventions as well as their sponsored research agreements and ultimately, their licensing agreements.

Recent features we have developed and deployed using the Salesforce platform include:

- *A simple wizard-based user interface*
 - A streamlined disclosure process, coded in Salesforce's Visualforce markup language and static CSS styling resources
- *Shared-access privileges*
 - Allows multiple inventors to fill out a single disclosure
- *Links inventor data to contacts in the UC Berkeley directory to auto-fill key data*
- *Feedback widget that allows submitters to enter JIRA tickets*
- *Other back-end functionalities*
 - Triggers workflows within the Intellectual Property and Office of Technology Licensing departments
 - Generates a PDF automatically
 - Sends automated custom emails to both inventors and IPIRA's licensing officers
 - Enforces safe and reliable updating of Salesforce records

User Experience and Accessibility:

We consulted with the campus accessibility expert, who referred us to a screen-reader that showed us exactly what to improve on (such as adding a clickable Navigation bar at the top of each page, and consistently using header tags for all sections). We are also running BETA testing, keeping track of bug logs while actively listening and responding to feedback from our users. Because of the form's integration with JIRA via the "Provide Feedback tab" (see screenshots below), we get instant ticket notifications from named users. We used large fonts, bold section headers, and colorblind-friendly colors (the project co-lead is colorblind). We are still processing the paper form for those who cannot use the online form.

Collaboration:

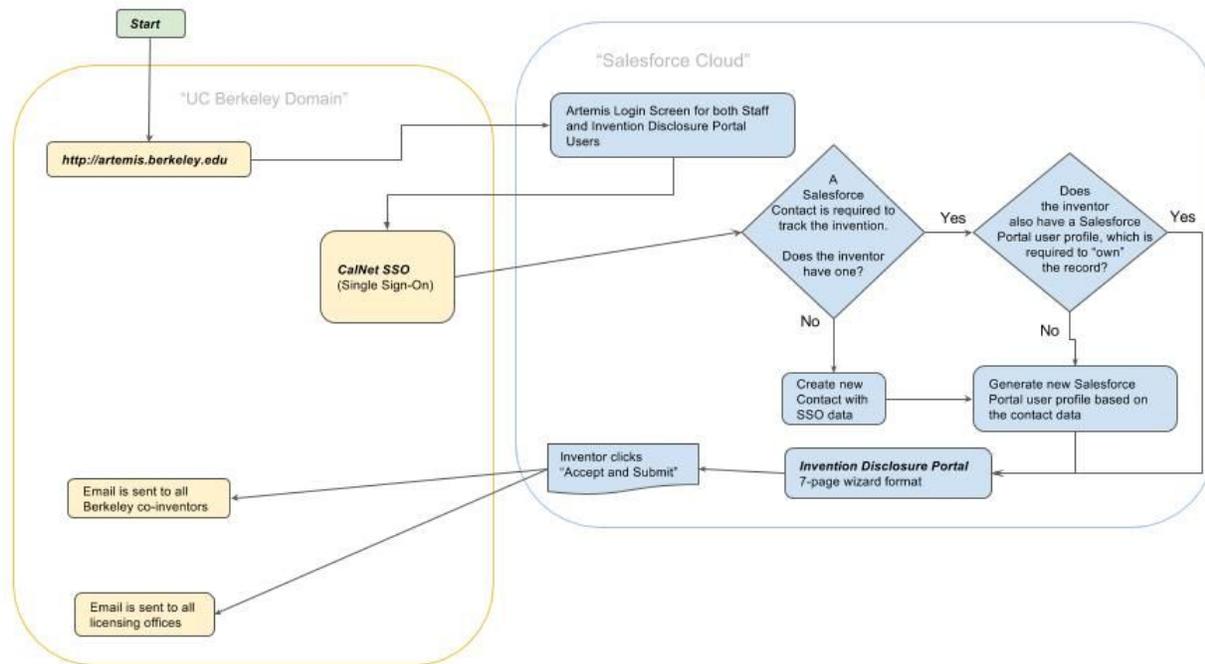
This project was a large collective effort among multiple technical teams at UC Berkeley. This teamwork allowed us to seamlessly consolidate up-to-date data from multiple widely-used sources and utilize existing UC Berkeley systems.

- *Research Administration and Compliance (RAC) IT:*
 - Supplies data regarding grants and contracts for sponsored research.
- *CalNet - Identity and Access Management Team:*
 - Maintains authoritative data regarding faculty, staff, and campus affiliates via the CalNet LDAP Directory, assigning them to their associated invention disclosures and running transformations to link new information to inventor profiles in our Salesforce Database.
- *CalNet - Single-Sign-On:*
 - Enables faculty and staff to use the same credentials they use for other Berkeley applications.

Collaborating with the Identity Management team gave us unpredicted insight into how the group maintains all the credentials of a campus student and staff body and how it works with all the applications that interact through a Single Sign On mechanism.

Working with the Research and Compliance team (RAC) has led to IPIRA's developers becoming part of a new group of research IT programmers whose mission it is to share broader knowledge and resources in this lean economic environment

Overview of the IDF Workflow:



Outcomes:

Developing and deploying this form caused the entire department to become more comfortable with online-based forms as a practice. There is now an outgoing Material Transfer Agreement form on our Drupal site that also integrates into Artemis. This type of CMS-CRM integration is now being considered by other departments for form management. In addition, the RAC team is deploying an Incoming Material Transfer Agreement form that will feed into Salesforce. Finally, by saving faculty time during the submission process by making important data easier to find, they can more effectively focus on research and teaching.

Metrics:

Since August 2016, 86 inventions have been started or submitted using the online Invention Disclosure Portal. This comprises the majority (57%) of the total number of inventions disclosed.

We don't have numbers for how long the 13-page paper form takes to fill out, but here are the online form numbers:

- Average submission time, (From saving the first page to final submission): 65.97 hours (2.75 days)
- Median submission time: 2.9 hours (0.12 days)
- Shortest submission time: 47 minutes!

Cost, Timeline, and Benefits:

There was considerable customization required to incorporate the institutional contracts and grants, the LDAP employee data, and to design a user-friendly form interface. But the data the form collects and the way it allows cross-referencing and linking of different entities is very powerful. The following information can all now be linked with each other:

Inventions

Inventors

Campus departments

Technology Categories

Sponsored research agreements
Agreement Principal Investigators
Companies and their contacts
Other non-industry sponsors
Potential Licensees

And soon:

License agreements
Licensees
Invention Marketing campaigns

Timeline:

2014: IT Lead and contractor hired to customize Salesforce; December, Sponsored research data integrated
2015: March, LDAP Directory integrated; August, IDF Demo v0.1 to OTL; December, hired new contractor to totally redesign
2016: August, Go-live with beta version v1.0
2017: March, remove beta designation; May, Release v1.1, September, Release Software Disclosure Form

What next?

The Salesforce platform is a powerful, widely-used, and consistently growing tool that transforms the way entities (such as universities) utilize data. We have openly shared a sandbox replica of Artemis and the Invention Disclosure Portal with the Office of Technology Commercialization at UC Riverside, ultimately allowing them to reduce contracting costs. While we are developing a similar Software Disclosure Portal specifically for software authors, we hope that our example will lead other departments across campus and at other universities to consider using the Salesforce platform and leverage our investment.

Sample Screenshots

This is the initial home screen. This page allows you to track all your submissions:

The screenshot shows the Berkeley IPIRA Online Invention Disclosure Form home screen. At the top left is the Berkeley IPIRA logo (Intellectual Property & Industry Research Alliances). At the top right are 'Provide Feedback' and 'Logout' buttons. The main heading is 'Online Invention Disclosure Form'. Below this is a welcome message: 'Welcome to UC Berkeley IPIRA's NEW Online Invention Disclosure Form. For a limited period, IPIRA's Office of Technology Licensing (OTL) will receive either the old, paper-based form or online submissions using this form. For help, please contact the OTL at 510-643-7201, or email otl@berkeley.edu. Click the [Create New Disclosure](#) button to disclose a new invention, or click one of the options on an existing disclosure.' Below this is a section titled 'Your Invention Disclosures' with a 'Create New Invention Disclosure' button. At the bottom is a table with one entry:

Options	Invention Title	Disclosure Status	Submitter	Date Created
Edit Print Delete	DNA Mapping Method	Submission In Process	Stephen Ricer	5/19/2017 12:15 PM

This is the first entry screen:

[Provide Feedback](#)
[Logout](#)

Online Invention Disclosure Form - Invention Information

[Invention Info](#)
[Documents](#)
[Funding](#)
[Timeline](#)
[Licensing](#)
[Review](#)

Invention and Inventor Information

Completing the *Inventors Section* (and keeping it up-to-date) will facilitate the timely distribution of licensing income to inventors. List as inventors people who contributed to the conception or reduction-to-practice of the invention. If a patent application is filed, then the inventorship for patent purposes will be determined by the patent attorney based on patent law. In order to establish ownership of patents, it is important to indicate the employer of inventors at the time that they contributed to the development of this invention.

Invention Title and Summary

Invention Short Title *

DNA Mapping Method

Invention Summary *

This maps DNA

UC Berkeley Inventors

[Add UC Berkeley Inventor](#)

Name *	Inventor Type	Employer When Invention Developed *	Action
Stephen Ricer	UC Berkeley Inventor	UC Berkeley	Remove
Adib Kanafani	UC Berkeley Inventor	UC Berkeley	Remove

Other Inventors

[Add Inventor](#)

Name	Inventor Type	Employer When Invention Developed *	Department *	Email *	Action
Chris Jereza	Non-UC Berkeley Inventor	Stanford	Math	sj@s.com	Remove

[Back](#)
[Save and Continue](#)
[Save and Exit](#)

This screen uses the inventor list to find all related sponsored research contracts and grants:

[Provide Feedback](#)

Online Invention Disclosure Form - Funding Details

[Invention Info](#)
[Documents](#)
[Funding](#)
[Timeline](#)
[Licensing](#)
[Review](#)

Funding Information

This section must be completed to assure that inventors and the University meet any obligations to sponsors. Include all agencies, organizations and companies that provided funds or resources that were used by any inventor in research that led to the conception or reduction to practices of this invention.

If no grant funds were used in the development of this invention, please check the corresponding box below.

Grants and Contracts Awarded to All Listed Inventors

To sort the data below, click on the corresponding column title. To reverse the order, click again.

Sponsor Award Number	Award Title	Award Type	Sponsor	Principal Investigator	Agreement Number	Fund Number
<input type="checkbox"/> DDEGRD-05-X-00428	Dwight David Eisenhower Transportation Fellowship Program for Elliot Martin	Grant	DOT Federal Highway Administration	Adib Kanafani	020093-00002	10819
<input checked="" type="checkbox"/> DDEGRD-06-X-00452	Dwight David Eisenhower Transportation Fellowship Program for Christopher Cherry	Grant	DOT Federal Highway Administration	Adib Kanafani	021377-00002	11179
<input checked="" type="checkbox"/> DDEGRD-07-X-00432	Dwight David Eisenhower Transportation Fellowship Program for Elliot Martin	Grant	DOT Federal Highway Administration	Adib Kanafani	023110-00002	11555
<input checked="" type="checkbox"/> 65A0212 TO 1007	Homeland Security - How to Keep Abreast with the Latest Technologies and Best Practices	Contract	California Department of Transportation	Adib Kanafani	020164-00014	15890

Other Funding

[Add Other Funding Source](#)

Contract/Grant Number	Grant Affiliation	Sponsor	Principal Investigator	Action
UJ28928	Non-UC Berkeley Grant	HP	Ricer	Remove

Departmental Grant Administrators

[Add Administrator](#)

Admin Name	Admin email	Phone	Action
James	sj@s.com	9	Remove

Funding Option Fields

Was any external funding used? Yes No

Was any Specific UC Grant Funding used? By clicking here you state that no specific grant funds administered by UC were used in the development of this invention

Potential Encumbrances

If the research that led to this invention used any of the following proprietary resources, then select and summarize all that apply:

Proprietary Materials Type	Proprietary Material Description
<input type="checkbox"/> Available <input type="checkbox"/> Chosen <input type="checkbox"/> Proprietary assay, microarray, etc. <input type="checkbox"/> Proprietary Database	