Berkeley IPIRA
INTELLECTUAL PROPERTY & INDUSTRY RESEARCH ALLIANCES

Sautter Award 2017 Project Details

Title
Artemis and the Online Invention Disclosure Portal

Team
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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Research Alliances (IPIRA) division, then wait for the form to be processed and for data to be entered manually into an outdated database before receiving further correspondence.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 beween 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.

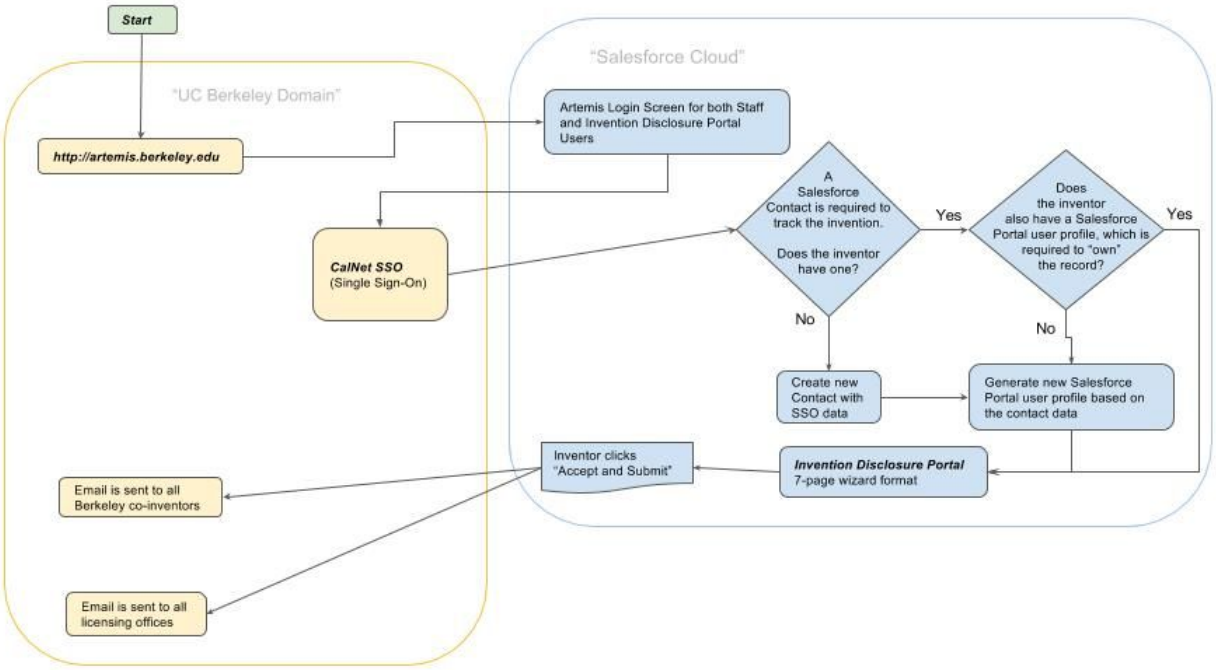
- *Research Administration and Compliance (RAC) IT*:
    - Supplies data regarding grants and contracts for sponsored research.

- *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:

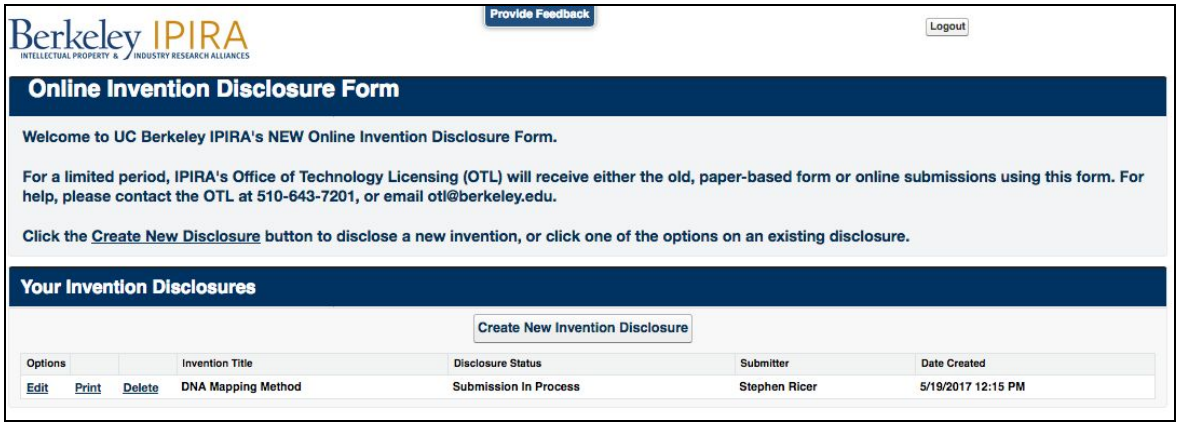
2014: IT Lead and contractor hired to customize Salesforce; December, Sponsored research data integrated
2015: March, LDAP Directory integrated; August, IDF Demo v0.1 to OTL; December, hired new contractor to totally redesign
2016: August, Go-live with beta version v1.0
2017: March, remove beta designation;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

What next?

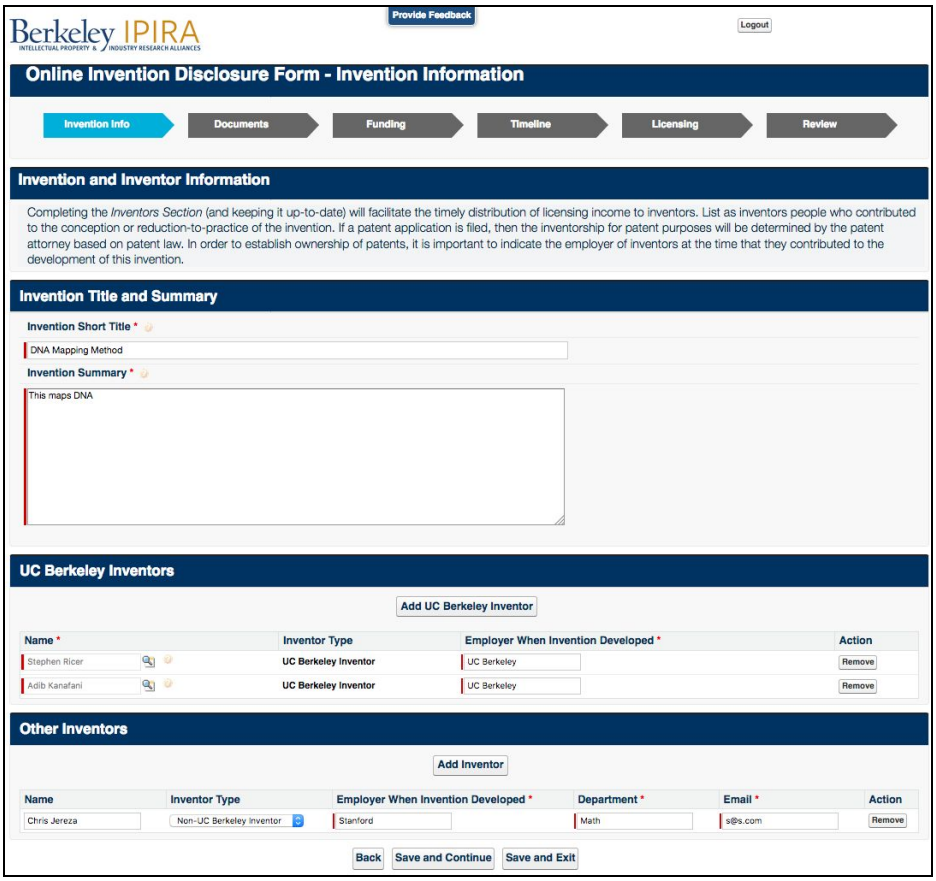
The Salesforce platform is a powerful, widely-used, and consistently growing tool that transforms the way entities (such as universities) utilize data. We have openly shared a sandbox replica of Artemis and the Invention Disclosure Portal with the Office of Technology Commercialization at UC Riverside, 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 universites 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:



This is the first entry screen:



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