Open Source Software for
Records Management Administration

Proposal

Strategies and Tools for Archives and Historical Publishing Projects
National Historic Publications and Records Commission

June 5, 2009

Submitted by
University Records Management Program
University of Denver

Grant Period: January 1, 2010 – December 31, 2011

I. Purpose and Long-Term Goals

A. Introduction

Many records managers and archivists in academic, government, non-profit and small for-profit institutions need a lightweight, inexpensive, and easy-to-use records management administrative tool that:

- Standardizes and streamlines the survey and interview process for conducting records inventories

- Facilitates the creation, maintenance, and delivery of retention schedules

- Organizes information about records for easy search and retrieval

- Creates and manages record-related metadata for interoperability and long-term use in other systems

- Systematically identifies electronic records and their systems

- Lays the foundation for business process mapping to improve the capture and preservation of electronic records

The purpose of the proposed grant project is to draw from traditional records management methodology to build a web-based, open-source software tool with the functionality listed above. The goal of the project is to create a free, customizable, standards-based tool that will improve the professional performance and effectiveness of records managers and archivists when conducting records inventories and building retention schedules. An outcome of this goal will be the systematic collection of metadata to foster the capture, management, and preservation of records regardless of format. The grant team will make the tool freely available to other institutions that may lack the tools or methodology for performing detailed records inventories, in the hopes of improving the management and preservation of records that might otherwise be lost. To encourage wide adoption of the software, the grant team will focus on interoperability with archival and records management software such as collection management systems, digital repositories, and electronic records management (ERM) systems.

In addition to making the software available, the grant project will serve as a methodological model for inventorying records and distributing retention schedules. As described in the project deliverables section below, our project software and documentation will be available for free distribution under the GNU General Public License[1] open source license. Releasing the software for free under this license encourages adoption and enhancement of the software and creates a community of records managers and archivists committed to using

[1] GNU Project, "Frequently Asked Questions about the GNU Licenses," Free Software Foundation, 5 May 2009. http://www.gnu.org/licenses/gpl-faq.html

flexible, open tools to assist in identifying, managing, and preserving records regardless of format.

The project team will include the University of Denver (DU) University Records Management Program (URMP), software development staff from within DU's Penrose Library, and other faculty and staff from the Penrose Digital Library Team. Testing partners on the project will include electronic records archivists from University of Oregon and Michigan State University. The team will build the software based on the functionality of the beta version, which was developed for local use at DU from June 2008 to June 2009. During the grant period from January 1, 2010 to December 31, 2011, the grant team will create a production version of the software with all the features institutions need to create reliable inventories and retention schedules.

B. University of Denver Records Management Program

The University of Denver, founded in 1864, is the oldest private academic institution in the Rocky Mountain region of the United States. 2009 marks the first year the University has had a formal University Records Management Program and a Board of Trustees-approved records management policy. DU is a member of the University Libraries Group, a group of 21 libraries belonging to mid-sized, privately funded universities, and currently has 2.5 full time employees in the records management program.

Like many similar institutions, DU is experiencing financial cutbacks for the first time in a decade and is undergoing a movement to centralize and restructure University-wide processes. Part of this movement is to standardize and streamline the records management process at the University. The identification, capture, and management of university records that pose the highest compliance risk have been the main focus in the early stages of the records management

program. One of these risk-related drivers has been new IRS regulations asking non-profits to state if they have a records management program and policy at their institution. DU also recognizes the growth of digital resources and e-records at the University, and this has been a driving factor in the development of the new program's methodology and tools.

In 2006, DU became part of the Alliance Digital Repository (ADR), a Fedora-based consortial digital repository service offered by the Colorado Alliance of Research Libraries. DU's instance of the ADR is branded "PEAK Digital" and serves as a long-term preservation and access repository for the University's digital objects. These objects will include electronic university records of enduring value. In order to ensure that these records are identified, captured, and entered into the repository, URMP needed a systematic inventory method that identified university records as well as the systems that manage them.

C. Administrative Needs of University Records Management Program

The URMP team decided to approach the task of inventorying the University's records with a two-part records inventory method. This approach was developed with input from the international records management standard ISO 15489:2001[2], which offers best-practice guidelines on how to design and implement records management systems. The ISO 15489 standard recommends a series of steps to "collect information from documentary sources and through interviews" on the organization's structure, business activity, and recordkeeping requirements (ISO 15489-1:2001 Sec 8.4). By systematically gathering this metadata about records, the business processes that generate them, and the systems that house those records, this method lays the foundation for future business process mapping for the targeted capture of electronic records living in complex systems. Because of the high volume of today's electronic

---

[2] International Standards Organization, ISO 15489-1:2001, Information and documentation -- Records management -- Part 1: General. (Geneva, Switzerland, 2001).

records, the fragility of some file formats, and the issues of software and hardware obsolescence, a proactive, systematic approach is the only feasible way to succeed at records management. This active approach to records management focuses on ensuring the authenticity, reliability, and trustworthiness of all records and their metadata, especially for those records identified as having enduring value.[3]

The first part of the URMP inventory method requires a high-level user survey designed to capture general information about a department's records and systems and encourage users to think about records and records management before being interviewed. It also helps identify key contacts for the second part of the process, which involves in-depth, one-on-one interviews with records users and creators. These second interviews draw on the general information collected in the first survey, but also go into detail about the format and location of specific record types and the systems that house them.

Feedback from a prior attempt at a university records inventory at DU made it clear that retention schedule users want retention information about the records in their unit only, and don't want to scroll through a lengthy document to find relevant retention schedules. Once URMP sets retention schedules, our goal is to instantly publish those schedules on the web with searching and sorting functions that will give users the targeted information they require.

D. Decision to Create Open-Source Software

URMP evaluated existing proprietary software tools (see Appendix B) to see if any would fit the program's needs. Enterprise Content Management (ECM) software such as Documentum Records Manager from EMC, which manages records as well as metadata about records, was prohibitively expensive, resource-intensive, and had many more features than were

---

[3] For more about this approach to records management, see An Xiaomi, "An integrated approach to records

needed. Administrative and inventory software such as Versatile Retention 7 from Zasio Enterprises and a.k.a. Disposition Management Software from Synercon Management Consulting were also cost-prohibitive and over-featured in some respects, but less dramatically so than the ECM software. However, because the ISO 15489 process of multiple interviews was such an integral part of our method, and because of a lack of clear interoperability standards and XML export functions in proprietary software, URMP and the Penrose Digital Library Team decided to undertake an open-source software development project to fill the administrative needs of the records management program.

The Alliance for Higher Education Competitiveness conducted a "Best Practices in Open Source Software in Higher Education Study" in 2006, with 195 U.S. institutions responding. Most of the institutions surveyed were public or private 4-year colleges or community colleges. The study found that 56% of respondents thought there was a total cost advantage to open source software, and only 7% thought there was an overall cost disadvantage.[4] According to the respondents, security, integration with other systems, better functionality, and total cost of ownership were cited as advantages of open source software, with disadvantages being the staff skills required and the lack of product support and mature solutions. At DU, we decided that the disadvantages of the high demands on our in-house programming staff and our lack of records management software development experience were far outweighed by the advantages of building a flexible tool that fit our criteria and the needs of University users and the broader archival and records management community. We were also inspired by the success of archival

management," Information Management Journal 37.4 (Jul/Aug 2003): 24.

[4] Rob J. Abel, Best Practices in Open Source in Higher Education Study: The State of Open Source Software, (Lake Mary, FL: The Alliance for Higher Education Competitiveness, Inc., 2006), 8. http://www.a-hec.org/open_source_state.html

open source software projects such as Fedora[5] (currently in use at DU as our digital preservation repository), Archivist's Toolkit[6], Archon[7], and the ICA-AtoM archival software[8].

E. Beta Functionality of the Software

The software developed for the DU records management program has been branded "Liaison," and a beta version with limited functionality for DU use will be completed by June 2009. Liaison was built to assist URMP, which was beginning the inventory process without a file plan, records classification scheme, or thorough inventory of university records. The software facilitates a structured inventory process, designed around a series of surveys and interviews. The goal of this inventory process is to collect data about the institution and its records that can be used to create file plans and retention schedules. URMP will also use this data to evaluate records systems in use at the University and assist with efforts to manage and preserve both non-permanent electronic records and those of enduring value.

During these surveys and interviews, records managers will use web-based forms to collect detailed data on the structure of departments, specific record types, and records systems. The forms and data are protected by a login feature that authenticates people as administrators or departmental users. Integration of the survey functionality into the records management administrative software ensures that all data about a unit can be reliably and easily retrieved from a single source. The beta version has several pre-constructed surveys and a survey builder that can be used to create new surveys. Functionality of the survey builder is limited at present, and will need to be expanded before it is flexible and robust enough to use without programming support. Data from all survey forms is captured in a structured database. This database was

---

[5] Fedora Commons, http://www.fedora-commons.org/
[6] Archivist's Toolkit, http://www.archiviststoolkit.org/
[7] Archon: The Simple Archival Information System, http://archon.org/

designed to share structured metadata from the records inventory process with the retention schedule creation and dissemination tools for authority control and efficiency.

Once the inventory process is completed, metadata from inventoried records can be passed to the retention schedule portion of the software to begin to create retention schedule records. These central, authoritative retention schedule records can be associated with one or many units over time, so that records are consistently classified and managed across the University. The software is designed to balance the need for local customization with an adherence to accepted records management standards and best practices. Administrative users can create and manage controlled vocabularies for divisions and departments, record categories, and file types. Once record type names are entered into the retention schedule, the software suggests those record type names when administrators create inventory forms, helping to ensure standardized classification. A long-term goal of the project is to ensure that the metadata collected is reusable in other systems, especially DOD 5015.2[9] certified electronic records management systems. Between the inventory and retention schedule forms, the Liaison software collects data for all the mandatory 5015.2 File Plan data fields and some of the mandatory Record Metadata fields.[10] In the beta version of Liaison, the primary method of retrieving database records is to browse by university department. There will be limited full-text search functionality for a few database fields including record name and record description.

F. Enhancements in Liaison 1.0

When the beta version of Liaison is completed in June 2009, it will be a useful but ultimately limited tool, designed specifically for the needs on the DU campus. With the time and

---

[8] ICA-AtoM: Open Source Archival Description Software, 13 May 2009, http://ica-atom.org/

[9] Department of Defense, DoD 5015.02-STD, "Electronic Records Management Software Applications Design Criteria Standard," April 25, 2007. http://www.dtic.mil/whs/directives/corres/html/501502std.htm

[10] For a list of these fields, see Thomas E. Weir, "Metadata for Records Management," June 25, 2002.

money provided by an NHPRC Strategies and Tools grant, the Liaison team will be able to make the software available to the general public with a set of features that conform more fully to records management standards and focus on the reusability of metadata.

For robust and efficient use at DU or any institution, several enhancements need to be made to the beta version of Liaison. For end users, the software should be able to produce reports of retention schedule information and allow full-text searching of all public retention schedule information. Administrators will also require more search and reporting options. One of the major additions to the retention schedule portion of the software will be the ability to keep an audit trail of changes to show the history of retention requirements for that record in each unit, an important function for legal and administrative purposes. The survey builder will also be improved to make it easier for administrative users without programming skills to create, edit, and disseminate additional surveys.

A great deal of work needs to be done on data reusability, which includes the creation of an open API (Application Programming Interface) that will make the metadata in Liaison available to other applications. We will also create methods of importing and exporting records metadata in a variety of formats, including file plans, controlled vocabularies, and retention data in spreadsheet or database format. The metadata will be exportable in a standard XML schema and reusable and exchangeable with archival management software such as Archivist's Toolkit, Archon, and the ICA-AtoM archival software.

Several aspects of the work during the grant period focus entirely on adapting Liaison for use at other institutions besides DU, and likely would not be undertaken in the absence of grant money. The main adaptation would be to allow other institutions to organize their records with different levels of hierarchy. Currently, all records are classified within the two-level hierarchy

of divisions and departments used at the University of Denver, and this controls much of the database structure. We will also need to make it easy to change the controlled vocabularies of local terms and to edit questions and fields in the survey forms without programming knowledge. Part II of this narrative, the Plan of Work, describes the specific improvements and the timeline for software enhancements in greater detail.

URMP will explore the feasibility and benefit of incorporating into Liaison the "Records Creator Record" XML schema being developed by the NHPRC-funded TAPER project at Tufts University. [11] The Records Creator Records structure offers a possible solution for authority management of department names, relationships among departments, and departmental functions. The emphasis in Tufts' Record Creator Records is on functions, activities, and relationships of record-creating bodies. This emphasis is well-suited to DU's methodology, which focuses on a proactive and systematic approach to the identification, capture, management, disposition, and preservation of electronic records. We will also examine the feasibility of reusing this rich creator metadata in DU's archival collection management system (Re:Discovery) and Fedora digital repository.

G. Adaptability to Other Institutions

The audience for the proposed grant project and tool will be records managers and archivists from medium to large academic, government, non-profit, and for-profit organizations. A posting sent to SAA's Archives & Archivists listserv, the Records/Info Management listserv, and SAA's Electronic Records Section listserv summarizing the project generated positive responses from a variety of sizes and types of institutions. Responses to our posting indicated that Liaison would

---

[11] Tufts Digital Collections and Archives, "TAPER: Tufts Accessioning Program for Electronic Records," February 9, 2009. http://dca.tufts.edu/?pid=49

be useful not only to university records management programs, but to any institution that was concerned with identifying and locating records regardless of their format. For quotations from other institutions expressing interest in Liaison, see Appendix A.

Though this tool is considered lightweight by software standards, institutions will need a trained IT professional or other staff member who has knowledge of databases and server configuration to install the software, make significant changes, and perform maintenance. However, once the software is installed on the server, it is designed to be user-friendly and intuitive for any skill set. The software is web-based, so no software is installed on individual client machines. Please see Appendix D for a list of technical requirements for Liaison.

The University of Denver has partnered with the University of Oregon and Michigan State University to test and evaluate the software and its methodology. The University of Oregon serves over 20,000 students, and the UO Libraries have the second largest collection in the region with over 2.6 million volumes. The Electronic Records Program (ERP) oversees the management of non-permanent records across campus through training sessions, in-office visits and the management of an offsite records storage facility. The ERP also serves as the infrastructure and technical services unit for born-digital University Archives accessions, including a presence in the institutional repository, Scholars' Bank.

Michigan State University (MSU) was established in 1855 by an act of the Michigan Legislature to create an agricultural college. As the nation's first agricultural college, MSU established itself as a leader in innovation and technology. In 1969 The University Archives and Historical Collections (UAHC) was given the mandate to collect the historical records of MSU to establish a records management program, and has grown to include the management and collection of electronic records. These two institutions, which are members of the Association of

Research Libraries, will provide good test cases for the scalability of the tool to larger academic institutions. Please see the letter of commitment from Michigan State and letter of intent from University of Oregon (letter of commitment forthcoming) in the Project Participants document for more information about their backgrounds and contributions.

II. Plan of Work

The work plan includes five major stages. We expect to hire the Grant Programmer by the start of the grant term so that work on the software can begin immediately in January 2010. The first half of the year will be devoted to adding necessary functions and features to what was available in the beta version of Liaison. These improvements will focus on two areas: improving the retention schedule search and delivery functions for users, and adding more tools to the administrative side such as a way to audit changes to retention schedule entries. The improvements to the search will involve the use of Solr[12], an open-source indexing application that improves the speed of search as well as allows for "did you mean" suggestions and faceted results. A website with information about Liaison and grant progress reports will also be launched during this stage, and will be updated throughout the entire grant period.

In the second stage of the grant, from July through December 2010, the grant team will work to make the software general enough for use at other institutions, and to increase the shareability and reusability of metadata captured by the software. This stage focuses on the interoperability of the software as a whole, and will involve generalizing the login system for authentication at other institutions. The survey builder will also be improved, giving institutions a greater ability to customize survey data collection and access. This stage also involves the creation of an open API (Application Programmer Interface), which can be used to build other

---

[12] Apache Solr, "Welcome to Solr," 9 February 2009, http://lucene.apache.org/solr/

applications that harvest data from Liaison. During this period, the grant team will also begin

work on user and developer documentation which will continue until the end of the grant. A

conference proposal for the case study will be submitted to relevant professional conferences.

The third stage, from January 2011 through March 2011, involves building an XML

metadata import/export tool that is capable of crosswalking Liaison metadata into a standards-

based and widely adopted XML metadata format for reuse in electronic records management or

archival collection management tools. We will also attempt to map Liaison metadata elements to

the Records Creator Record XML schema developed by the NHPRC-funded TAPER project at

Tufts University, with the goal of determining the feasibility of using the Records Creator

Record metadata in Liaison and DU's Fedora archival digital repository. A report on the

conclusions of the study will be issued through the Liaison project website.

The fourth stage of the project, from April 2011 through June 2011, will involve testing

and fine-tuning Liaison 1.0 prior to its release. The DU grant team will travel to partner sites to

assist in the installation of Liaison and train users on the software. Partners will test the software

for a period of 10 weeks. After this, the partners will submit evaluations on the strengths and

weaknesses of the software and examine possible uses at their institution. During this period the

software will be used at DU for the creation of records inventories and retention schedules. Once

created, DU's retention schedules will be disseminated to the University through Liaison's web-

based search interface. The software will be fine-tuned based on feedback from the testers and

local use.

The final stage of the project, from July to December 2011, will focus on releasing,

distributing, and evaluating the Liaison software and other products of the grant work. At the

beginning of this stage, the DU project team will write a case study on the work done during the

grant. The case study will explain the methodology incorporated in the software, its development

and use at DU, and its reception at the testing partner institutions. This case study will be

submitted for publication in a relevant peer-reviewed journal, and the grant team will present

their process, findings, and software at a conference for archivists, records managers, and/or

digital librarians. The Grant Programmer will make final fixes and changes to the software, and

Liaison 1.0 will be publicly launched in September 2011, during the last month the Grant

Programmer is on staff. Liaison 1.0 will be made available through the project web site and

other sites in the open source community, along with basic documentation for users and

developers. We will also launch a mailing list or other discussion forum for Liaison users with a

searchable history of user questions and solutions. From October to December 2011 minor,

error-fixing work will be performed on the software by Penrose Library programmers as

necessary.

Work Plan Summary

January – June 2010	**Stage 1: Software Improvements** The Grant Programmer will add functions and features to existing tools to create Liaison 1.0. <u>Improvements for Public Users</u> • Export/ print retention schedules • Implement Solr for full-text search of all fields and faceted retention schedule results <u>Improvements to the Admin Dashboard</u> • Method of auditing changes in retention schedule database • Expanded search using Solr for inventory and retention schedule information • Improvements to form behavior (deletion, validation) The Liaison web site will be launched with progress reports and grant materials.

July – December 2010	**Stage 2: Interoperability** During this stage, Liaison 1.0 will be adapted and generalized for use at other institutions. These improvements include: • Development of an open API, which will allow other applications to access the data stored in Liaison • Ability to customize the survey questions and response selections • Ability to build and provide access to new surveys • Generalized login/authentication system User and developer documentation will be created. The DU grant team will also submit a proposal to present about Liaison to a relevant conference such as the SAA Annual Meeting in 2011.
January - March 2011	**Stage 3: Data Reusability** Following the creation of the Liaison API, it will be used to create an application to export Liaison metadata into a standards-based and widely adopted XML metadata format for reuse in electronic records management or archival collection management tools. The grant team will also study the benefits of incorporating the Records Creator Records XML Schema created by the Tufts TAPER project team into Liaison and DU's Fedora archival digital repository. The results will be published in a report.
April - June 2011	**Stage 4: Testing and Evaluation** During this stage, the grant team will: • Travel to partner sites to assist in software setup and implementation. • Fix errors and make fine-tuning improvements to the software based on local use and partner testing and evaluations. • Evaluate user/community response at DU.
July 2011 – December 2011	**Stage 5: Sharing and Presenting** During this stage, the grant team will: • Write a case study paper and submit it to peer-reviewed journals. • Travel to present the software at an appropriate professional conference. • Publically release Liaison 1.0 to open-source community with documentation. • Launch discussion forum/mailing list for Liaison users.

III. Products

1. Software

The main product produced during the grant period will be the Liaison software, available as a free open-source download. With this software, records management programs will be able to:

- Send web-based records inventory surveys to units at their institution

- Collect structured information from in-person records interviews on units and records

- Create retention schedules and associate them with all relevant units

- Publish dynamic, searchable retention schedules online

- Create and export formatted reports of inventory or retention schedule information

- Search inventory and retention schedule records

- Customize the data collection and controlled vocabularies for use at their own institutions

The software will be made available under a GNU General Public License for free open-source software. It will be posted on sourceforge.net and the project web site, hosted by DU.

2. Documentation

We will document Liaison for developers with all the necessary information required to install and configure the software. The developer manual will be included in the software install bundle. A user guide will also be created. Its intended audience will be the records managers and archivists who use Liaison to manage their records surveys and retention schedules. This documentation will be available separately from the software on the project web site.

3. Liaison Users Network

In the spirit of open-source software, we will develop the beginnings of a user community for Liaison 1.0. This will initially consist of the University of Denver and our testing

partners in the grant, and will expand to include anyone who downloads the Liaison software and wants to participate. The project web site will serve as the hub for information related to Liaison, and the home of a mailing list or other discussion forum for Liaison users. URMP and Penrose Library will continue to maintain this website and forum after the end of the grant period.

4. Record Creator Records Study

Between January and March 2011, we will complete a study exploring the feasibility of incorporating the Records Creator Records XML Schema developed by the NHPRC-funded TAPER project at Tufts University into Liaison and DU's Fedora archival digital repository.

5. Case Study

In the third quarter of 2011, URMP will write a case study of the local DU implementation of Liaison that will examine the development of the software and the process of using it to conduct records inventories and create and publish retention schedules. This paper will take a frank look at the inventory process in the modern records management environment of both physical and digital records. We will also report the advantages and disadvantages of making one's own web-based software. The team will seek to publish this paper in an appropriate peer-reviewed journal that is likely to be read by records managers, digital librarians, or archivists who form the potential Liaison user base.

6. Conference Presentation

The results of the case study will be presented towards the end of the grant period at an appropriate conference, such as the SAA Annual Meeting, Code4Lib, or the Joint Conference on Digital Libraries. This presentation will cover the findings and conclusions of the case study and the functionality of the soon-to-be released Liaison 1.0.

IV. Staff Profiles

- **David Read, University Records Manager**
  David Read will act as the Project Director. David Read has an MLIS from Simmons College with 8 years of experience as an information professional. Prior to joining the University of Denver, he served as Information Resources Manager at the architecture firm of DiMella Shaffer in Boston. David has experience in a variety of industries including content integration, most notably with groups at Northern Light Technology and PubMed Central at the National Library of Medicine. His research interests include workflow, business process mapping, and user experience in relation to electronic records management and preservation.

- **Robin Dean, Records Management Assistant**
  Robin Dean is a full-time staff employee of the University Records Management Program. She holds an MLIS from the University of Denver with a concentration in Archives and Records Management. Her prior work experience includes software testing and technical writing. She has been heavily involved in the research, development, and implementation of the Liaison records management software to date. She will be responsible for communicating on a weekly basis with the Grant Programmer to ensure that the project stays on schedule and functions according to design specifications. Her duties will also include software testing and user documentation.

- **Rachel Desormes, Records Management Assistant**
  Rachel Desormes is a part-time staff employee of the University Records Management Program, and will assist in the testing and implementation of the Liaison software. She holds an MLIS from the University of Denver with a concentration in Archives and Records Management. She has prior experience with inventorying University of Denver records as well as the skills to conduct outreach and training on behalf of the University Records Management Program.

- **Gregory Colati, Digital Initiatives Coordinator**
  Gregory Colati has been at the University of Denver since 2005. He directs the development of digital projects and collections that support research, teaching and learning and oversees the Library's overall technology systems. Greg is currently a member of the oversight committee for the digital repository of the Colorado Alliance of Research libraries, and is working with the DU School of Library and Information Science to develop next-generation access systems for archival materials. Greg has directed or participated in the development of digital repositories in a number of Universities and consortia including the Tufts University Digital Library, and the Research Commons of the Washington (DC) Research Library Consortium. Greg is

currently directing DU's implementation of its Fedora-based digital repository. He will act as project advisor and consultant.

- **Theresa Hernandez, Budget Officer**
  Theresa Hernandez is the Assistant Director of Operations and Finance at the Penrose Library. Her prior work experience includes preparing operating budgets and reports for commercial businesses as well as a private high school. Currently, Theresa is responsible for maintaining and managing all aspects of the library budget, including grant-related activities. She will be responsible for managing the budget and financial aspects of the grant.

- **Fernando Reyes, Programmer**
  Fernando Reyes is responsible for the development of web applications for the Penrose Library at the University of Denver as well as maintenance of the library's websites and databases. Previously, Fernando worked as a programmer on the Colorado Digitization Project (CDP). He developed the CDP content management system and provided maintenance for the CDP website. Fernando is currently working with the University Records Management Program to build the beta version of Liaison. He will act as mentor and technical consultant to the hired programmer and will assist with developer documentation.

- **Grant Programmer (to be hired)**
  Please see the Project Participants document for a complete job description for the Programmer position.

V. Objectives

By December 2011, the end of the grant period, the project team will meet the following objectives:

1. Create a stable production release of Liaison 1.0 that has the features listed in the Products section (III.1) and can be used to inventory records and publish retention schedules.

2. Demonstrate successful use by implementing Liaison 1.0 at DU and installing and testing at two partner sites. Successful implementation at DU consists of using the software to complete inventories and create and publish records retention schedules for all administrative

departments on campus. Installation at partner sites is successful when Liaison 1.0 is fully functional in their environment and has been tested successfully on real data from at least one department.

3. Launch and publicize via postings to appropriate channels including such as Archives & Archivists, Records/Info Management, and Electronic Records listservs, a website hosted on DU's servers that acts as a hub for the Liaison user community. The site will be used to give access to project deliverables including the Liaison 1.0 software package, progress updates, software documentation, a community discussion forum for Liaison users, and paper or presentation materials related to Liaison.

4. Complete a study and report that explores the feasibility of incorporating the Records Creator Records XML Schema developed by the TAPER project at Tufts University into Liaison and DU's Fedora archival digital repository.

5. Distribute Liaison 1.0 through sourceforge.net and publicize it by posting on Archives & Archivists, Records/Info Management, and Electronic Records listservs and other relevant mailing lists.

6. Write a case study of the Liaison 1.0 creation and implementation process. The case study will be published in a peer-reviewed journal and presented at an appropriate venue such as the SAA Annual Meeting, Code4Lib, or the Joint Conference on Digital Libraries.