

ArtCenter College of Design - Reimagining the User Experience in Archives & Special Collections: Best Practices for Library Collaborations with Designers

## **Abstract**

ArtCenter College of Design proposes a Sparks! Ignition Grant to identify emerging best practices for collaborations between library professionals and designers. The one-year project will include as its centerpiece a core 14-week design development period in which both library/archive professionals and Millennial technology designers will work together in devising digital tools/interfaces for the College's archives. While the project is expected to yield early prototypes of actual products, the primary focus will be on processes and practices. The results will be assessed and distilled into recommendations shared through a national white paper to be widely circulated in both the library and design audiences.

As reflected in the National Digital Platform report, libraries are facing an increased need to incorporate design into technologies, applications, and services in order to meet the needs of the users. While some libraries are adding user experience librarians to their staff, positions focusing on this specialty remain scarce. In contrast, user experience is a pervasive focus in technology design. But accepted best practices for incorporating design into library-related initiatives are nascent at best.

As a pilot, we will focus on working with designers to improve access to archives and special collections materials. Access to archival collections is a rich topic for exploration as the online presence of archives has increased significantly in the last several years. Balances between preservation and access, as well as physical and digital are complex issues with regards to access. We will incorporate design-thinking to address how we meet users' needs while creating a quality user experience.

ArtCenter is an optimal test setting with a professionally staffed library and institutional archive along with a captive population of technologically savvy Millennial designers (high-caliber design students) and seasoned design educators. An industry-focused school, ArtCenter excels at creating studio settings that mimic real-world situations, led by instructors who are working designers. In addition, we are including a breadth of external library professionals as advisors in order to make the project applicable to other settings (such as public libraries) and the findings replicable.

The final goals for the project include: creating a white paper that outlines how to incorporate design into library technology projects; an increased understanding of the design and library fields by all of the participants; increased confidence from the librarians about collaborating with designers; and a prototype for providing access to archives and special collections.

In the end, both the resulting product(s) and the process (what went well and what didn't, and why) will be evaluated to identify key lessons learned from design and library perspectives. A white paper, written for a broad audience of both library professionals and designers, will share the format/structure of the interactions, a description of the prototype(s), insights from qualitative primary user testing, and pointers/protocols (i.e., "do's and don'ts") learned from the project. This will be supplemented with online visual content such as short video vignettes or animated presentations.

## Reimagining the User Experience in Archives & Special Collections: Best Practices for Library Collaborations with Designers

### 1. Statement of National Need:

As noted in IMLS' National Digital Platform report (2015), America has a pervasive need to reimagine its library services from the perspective of the "user at the center"—i.e., making "services and tools easy to use." Today's user demands personalized, data-rich interactivity; incorporating user perspectives into product development is the traditional *métier* of designers. The IMLS report also identified inclusive "contributions from all types of cultural institutions," "radical collaborations" and "cross-training" as top needs. These underscore the potential value of bringing an atypical factor—a school specializing in design education—into the equation. Increasingly in their practice, designers craft human-centered digital services and tools. But best practices for technology designers' collaboration with library professionals are scarce and nascent, as evidenced by an initial literature scan conducted by ArtCenter's College Library staff.

- In 2014 IDEO developed a Design Thinking for Libraries toolkit, which gave a thoughtful introduction to design principles but did not delve into designing library technologies.
- A compelling recent IMLS project at Savannah College of Art Design focused on developing a user experience assessment tool for libraries, but not necessarily on distilling best practices for library/design collaboration.

In many cases, library technologies and applications are determined by variables outside of a design approach. Decisions are often made by budgets, relationships with vendors, and available IT infrastructure. However, there has been increasing examples of user experience design in libraries, especially with web design. But without a designer or user experience librarian at an institution, how do libraries start incorporating design into their projects? We aim to offer a primer for institutions that outlines a design process to be used when planning for new technologies and applications.

Archivists often balance preservation and access to collections, which sometimes results in limited or restricted access. While digitization has improved accessibility to archival collections, it remains a challenge for end users to discover and interact with the materials. Design students, who are active in the maker culture, tend to appreciate the physicality of materials. Our design students are also Millennials, who understand and incorporate new technologies into their lives and work. The relationship between the physical and the digital is worth exploring, especially how it relates to the end user experience.

The national need to re-envision library services from the user's perspective raises many types of opportunities for interaction designers to play a role in innovation. Archives and special collections, with aspects that are inherently both digital and analog (e.g., paper-based) present particular challenges for developing next-generation user interfaces:

- Archival collections that were once hidden from public view are now available online. Archival reference has drastically changed, as has the user experience of using archives. Sometimes the online content includes finding aids, and sometimes it includes entire digitized or born digital collections. Scholars from anywhere in the world can use archival collections without visiting the physical location. What are the implications for the design of the related portals and interfaces through which users access collections?
- Even with all of the initiatives to publish digital collections online, there is still a valuable user experience seeing and interacting with physical archival materials. For example, the experience of visiting the archives to view publications, photographs, documents and objects is different from viewing them online. In person, users are able to study the qualities and characteristics of the materials that might not be evident with a digital reproduction. Effective technology design does not always necessarily mean high technology, and balancing high and low technologies is a core skill of today's interaction designers.
- Besides interacting with collections, the user experience extends to interacting with the archivists and librarians. An archives reference conversation is often incredibly useful to researchers, as the staff has contextual and historical knowledge about the collections and how they were processed. As one example, people doing research on the history of ArtCenter get an added layer of institutional history from talking with the archivists in addition to looking at the collections. Best practices in design education emphasize the concept of human-centered design to holistically incorporate all factors—physical, psychological, emotional, aesthetic, cultural, etc.—in product/service development.

We feel the topic of providing access to archival materials is a rich and timely initial area to explore as a pilot project. The cross-disciplinary approach will enable us to step outside the box of our standard way of thinking and planning projects, and we welcome that opportunity. The results will no doubt shed light on user experience in archives, but also provide a broader overview of how the design process can be used in other library initiatives.

## 2. Project Design:

The project will bring library professionals and Millennial designers together in structured sessions crafted to simulate real-world collaborations on improving the archival user experience. The goal is to identify preliminary best practices for such increasingly necessary library-design collaborations, which bridge two vastly different disciplines.

The core assumptions are that:

- Library and design professionals have very different perspectives, terminologies, taxonomies and processes; increasing mutual understanding of these is essential to good collaboration
- Libraries need more design expertise and fluency
- Archives can provide a better user experience by working with designers

The project leverages a format tested in ArtCenter's previous IMLS Sparks! Ignition Grant, Critical Content Making: Zine Makerspaces in an Academic Library (2014-2015), which piloted design/library collaborations geared toward identifying best "makerspace" practices. The current project will adapt that format.

The goals by the completion of the project include:

- Identifying best collaboration practices in library/archive technology design
- A gained understanding of the design and library fields by all participants, and an understanding of the benefits of incorporating different processes into projects
- A feeling among librarian participants that they are prepared to advise other librarians and archivists how to collaborate with designers
- Confidence among librarians when engaging with designers on future projects
- One or more prototypes for providing access to archives that is designed to provide an engaging and quality user experience

In November 2016, we organized a short design charrette with Interaction Design students and staff from the Library and Archives. The charrette, itself an example of librarians working with designers, uncovered opportunities for ongoing collaboration in a pilot including: archives pain points, types of users, design goals, digital vs. physical, and access. It was a very encouraging session and the librarians and student designers learned much about each other's fields and approaches even in a short time.

For the pilot, a curated team of internal and external library professionals, designers and design educators will work together in structured, replicable sessions. The sessions will simulate designers/firms being hired by a library for a discrete assignment: to design new digital tools to improve access to the institution's Archives. The project will take the team from initial challenge to prototypes (which could take the form of mid- to high-fidelity prototypes of user experiences including, where relevant, user interfaces, apps and online services, possibly virtual reality). Attention will be paid to cross-disciplinary communication: as one example, the term "access" has very different meaning to a librarian or archivist than to a technology designer.

ArtCenter is an optimal test setting with a professionally staffed library and institutional archive along with a captive population of technologically savvy Millennial designers (high-caliber design students) and seasoned design educators. An industry-focused school, ArtCenter excels at creating studio settings that mimic real-world situations, led by instructors who are working designers. Robert Dirig, College Archivist, will serve as PI, with Maggie Hendrie, Chair of Interaction Design, serving as Co-PI. Mario Ascencio, College Librarian and Managing Director, will also be a key staff member participating and representing the Library. Other staff from the Library will include liaison librarians from the Educational, Research and Access unit and staff from the Library Systems and Digital Collections unit.

One of the risks of the project design is that conducting the pilot within a design education setting may reduce the results' replicability by libraries/organizations that are not design-related. To mitigate this risk, we are actively involving advisors from a variety of external archives/libraries. To date, these include:

- Ani Boyadjian, Principal Librarian for Research and Special Collections at the Los Angeles Public Library—to represent public libraries and special collections;
- Josh Gomez, Senior Software Engineer at the Getty Research Institute and a lecturer at the UCLA Information Studies Department—to represent the technology constituency; and
- Morgan Yates, Corporate Archivist at the Automobile Club of Southern California—a large collection covering more than 100 years of regional history, including maps, photographs, and documents relevant to transportation, policy and engineering—to represent historical archives.

Working with the mission of the Sparks! grant category, we will conduct and evaluate a collaboration between librarians and designers to test innovative new methods of access for archives and special collections. With a cross-disciplinary approach, we will share terminology, methods and best practices with each other.

It will be important during the design process to share the standards and best practices of archival description and access as well as review the evolution of online access to archives. The designers will gain an understanding of what has been achieved with online access, including EAD finding aids, metadata schemas, digital collections, collection portals, and newer augmented reality projects.

All of the initiatives and advancements in access are encouraging and prove that there are multiple methods for accessing archival collections. These also show that there is increasing interest in using archival materials among users. Our project does not aim to replace these types of methods that we currently use to provide access, but rather offer an alternative means created by using a design-based approach. The final prototypes may, as relevant, incorporate and leverage elements of these methods of access.

Students will work from a mixed-media collection in the Archives, which includes: documents, photographs, video and audio, and publications. These materials exist as physical, digitized, and born-digital items. Different types of media present their own challenges to providing access, and we will discuss each in relation to the user experience.

*Work Plan/Outcomes:* The primary outcome we aim to achieve is guidelines for preparing collaborations between librarians/archivists and designers en route to incorporating user experience design into library/archive projects. A secondary outcome will be the development and early prototyping of a new digital tool or method for providing access to archives and special collections materials. The key overarching question posed to the team will be, “How can the Archives better meet users’ needs through digital technologies?” The project will unfold in four major stages: (1) initial 1-day brainstorming workshop (with follow-up working sessions as needed) that will bring designers together with library/archive staff to begin to explore user needs in the Archives and to frame the designers’ assignment; (2) a 14-week development period in which the combined library-design team generates and refines concepts into prototypes; (3) assessment and evaluation of results; and (4) writing/dissemination of white paper with accompanying visuals.

Stage 1 and the early part of stage 2 will emphasize cross-disciplinary orientation: library/archive staff and designers will learn about each other's disciplines, methodologies and perspectives on using archives. The team will explore the relationships between the physical and digital aspects of collections, reference and access.

The stage 1 initial brainstorming session in October will bring together the entire group and help kick-off the 14-week core design development period, which will begin formally in January. It is not meant to address every aspect to the project, but rather outline the project and goals. We will also begin to share our different approaches and methodologies.

The core development period (stage 2) will be organized as follows:

- *January 15-February 2, weeks 1-3*: User research by team on the needs of on-campus library users (students) as well as users in an external community library (non-students);
- *February 5-23, weeks 4-6*: Generative concept development including personas (archetypical profiles of users), key use cases and iterative user-experience prototyping and evaluation;
- *February 26 – March 2, week 7*: Midpoint critique of concepts by team along with external advisors/experts to identify the strongest concepts;
- *March 5-30, weeks 8-11*: Refine mid- to high-fidelity prototypes, conduct user testing;
- *April 2-20, weeks 12-14*: User Experience Prototypes (in the form of relevant user interfaces, apps or online services, as relevant) presented for final evaluation/assessment by team and advisors/experts.

Assessment surveys will be given to all participants before the initial brainstorming session in stage 1 and at the beginning and end of stage 2. The surveys will address both issues directly related to archives (perceptions about archives and how users access the collections) as well as questions about the design process. Also, following the guidelines set forth in the IMLS Agency-Level Goal 1: Learning Category: Train and Develop Museum and Library Professionals, the survey will cover the following assessment areas: increased understanding, interest in the subject, and confidence to apply new knowledge.

The qualitative feedback will be instrumental in determining how the relationship between the designers and librarians was successful, how the project could be improved, and how the project changed views on each other's disciplines from the beginning to the end of the project. We anticipate that the quantitative data collected should include all participants, since the sample is small, and includes a carefully selected group of faculty, students, staff, and external advisors.

Stage 3 will include evaluations of the assessment surveys. During this process we will begin to evaluate the project to determine what was successful and what would need to be reworked, and we will also test the prototypes designed. We will conduct short testing sessions with small groups of users and have them submit evaluations. These evaluations will help determine the success of our goal of providing an engaging and quality user experience. The prototypes will not be fully developed applications, but we will still be able to explain the functionality and purpose. While the process in this project is ultimately more important than the resulting product

(e.g., the actual early-stage interfaces, apps, or other tools that may be developed), this project does offer a secondary opportunity to examine rapid prototyping in the library/design context.

We will plan to present the project in April 2018 at the Digital Initiatives Symposium, and that will be the first assessment of how we are meeting the project goals. Reviewing the surveys and talking with participants, we will gauge how well designers and librarians learned about each other's disciplines and whether or not the librarians feel confident incorporating design. Presenting our findings will also meet the goal of advising other professionals in the field.

The design process will be the key to understanding how other libraries/archives can adapt this model into their work. Throughout the year, we will document the project with photography and video and extensive notes on the discussions and working sessions. An internal project blog will be created where we will address the steps taken and provide up-to-date feedback. During stage 3, all of the documentation will feed into the white paper and an accompanying online video.

In the end, both the resulting product(s) and the process (what went well and what didn't, and why) will be evaluated to identify key lessons learned from design and library perspectives. A white paper, written for a broad audience of both library professionals and designers, will share the format/structure of the interactions, a description of the prototype(s), insights from qualitative primary user testing, and pointers/protocols (i.e., "do's and don'ts") learned from the project. This will be supplemented with online visual content such as short video vignettes or animated presentations.

### 3. National Impact:

The white paper and supplemental visuals will be shared through the web and social media and throughout through professional library and archives associations and conferences such as the Society of American Archivists (SAA) and Digital Initiatives Symposium. We will also reach out to the design field through organizations such as AIGA (the world's oldest professional organization for designers, which has 25,000 members) and the Interaction Design Association (IxDA, which has 80,000+ members globally). Finally, we will share our findings directly with the Association of Independent Colleges of Art and Design (AICAD, a nonprofit consortium of 42 leading art/design colleges in the U.S. and Canada). ArtCenter's prior IMLS Sparks! white paper was well received and remains available online at:

<http://catalog.artcenter.edu/record=b1166974~S7>.

The collaboration between the Interaction Design Department and the Library is something we wish to sustain beyond the grant period. We envision future workshops and studio collaborations related to various aspects of design and library science. We also plan to expand the types of designers included in the community of practice across the multiple graduate and undergraduate programs and professional communities available at ArtCenter. Issues of user experience, information design and metadata are common between the two disciplines and we would share and bridge different perspectives in each project.

If, as we anticipate, the findings reveal ways to improve library/design collaborations, ArtCenter will use the dissemination of its findings as an urgent call to action for both sectors. In keeping

with the priority of user-friendliness, results will be described in accessible terms (e.g., “Libraries/archives must work more closely with designers. Here are the Top 10 Things You Need to Know before engaging a technology designer at your library.”). We hope to open the door to design for some institutions and add value and insight to libraries with existing user experience librarians.

With so much national need to improve user experiences, we will urge libraries and archives to expand upon our project findings to incorporate the design process and make more informed decisions when implementing new technologies and applications. We anticipate that other archives and special collections in particular can experiment with methods of access to their own collections, based on their users’ needs.



**Schedule of Completion**

<b>Work Chart (October 2017-September 2018)</b>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Brainstorming kick-off session and convene advisory group												
Hire student assistant and select faculty member												
Compile session notes and plan 14-week class												
Develop and write assessment surveys												
Begin series of design sessions. Weeks 1-3: User research by team on the needs of on-campus library users (students) as well as users in an external community library (non-students)												
Conduct baseline survey with participants												
Weeks 4-6: Generative concept development including personas (archetypical profiles of users), key use cases and iterative user-experience prototyping and evaluation;												
Weeks 7: Midpoint critique of concepts by team along with external advisors/experts to identify the strongest concepts												
Weeks 8-11: Refine mid- to high-fidelity prototypes, conduct user testing												
Weeks 12-14: User Experience Prototypes (in the form of relevant user interfaces, apps or online services, as relevant) presented for final evaluation/assessment by team and advisors/experts												
Conduct final assessment survey												
Evaluate assessment surveys												
Present findings to date at the Digital Initiatives Symposium												
Prototype testing sessions												
Write white paper and finalize online content												
Present project at SAA												
Distribute white paper and online content to stakeholders												

## DIGITAL PRODUCT FORM

### Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (i.e., digital content, resources, assets, software, and datasets). The products you create with IMLS funding require careful stewardship to protect and enhance their value, and they should be freely and readily available for use and re-use by libraries, archives, museums, and the public. However, applying these principles to the development and management of digital products can be challenging. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

### Instructions

You must provide answers to the questions in Part I. In addition, you must also complete at least one of the subsequent sections. If you intend to create or collect digital content, resources, or assets, complete Part II. If you intend to develop software, complete Part III. If you intend to create a dataset, complete Part IV.

## PART I: Intellectual Property Rights and Permissions

**A.1** What will be the intellectual property status of the digital products (content, resources, assets, software, or datasets) you intend to create? Who will hold the copyright(s)? How will you explain property rights and permissions to potential users (for example, by assigning a non-restrictive license such as BSD, GNU, MIT, or Creative Commons to the product)? Explain and justify your licensing selections.

Art Center College of Design will retain copyright to the the final deliverables for the project, which include a white paper and an online video. We will be assigning the content a Creative Commons Attribution-Non-Commercial-No Derivatives license (CC BY-NC-ND). Attribution should be given to "Art Center College of Design." The white paper and online video will be available for research and sharing, but not for remixing or building upon, since it will represent a completed project.

**A.2** What ownership rights will your organization assert over the new digital products and what conditions will you impose on access and use? Explain and justify any terms of access and conditions of use and detail how you will notify potential users about relevant terms or conditions.

Access to the white paper and video will be freely available online. There will be no conditions to access the material. Attribution should be given to Art Center College of Design, with a specific citation relating to the titles and authors of the final works. Accompanying metadata will specific the citations.

**A.3** If you will create any products that may involve privacy concerns, require obtaining permissions or rights, or raise any cultural sensitivities, describe the issues and how you plan to address them.

N/A

## Part II: Projects Creating or Collecting Digital Content, Resources, or Assets

### A. Creating or Collecting New Digital Content, Resources, or Assets

**A.1** Describe the digital content, resources, or assets you will create or collect, the quantities of each type, and format you will use.

We be creating a white paper (PDF) and an online video (Quicktime).

We will be producing early-stage prototypes, which may include an app or some form of augmented or virtual reality. However, these are merely prototypes and are not intended for public release. As part of ArtCenter policy, students will retain the intellectual property to the prototypes (student work), but we will have permission to share descriptions and images of the projects, which will be in the white paper.

**A.2** List the equipment, software, and supplies that you will use to create the content, resources, or assets, or the name of the service provider that will perform the work.

We will create the content in-house using programs from the Adobe Suite.

**A.3** List all the digital file formats (e.g., XML, TIFF, MPEG) you plan to use, along with the relevant information about the appropriate quality standards (e.g., resolution, sampling rate, or pixel dimensions).

PDF

Quicktime (uncompressed for preservation and h.264 for access)

## **B. Workflow and Asset Maintenance/Preservation**

**B.1** Describe your quality control plan (i.e., how you will monitor and evaluate your workflow and products).

While the project is underway, a dedicated folder will be created on the secure server, saving documentation assets (text, images, video), that potentially will be used in the final white paper and video. As the final products are being created, we will draw upon those assets and save each version separately.

**B.2** Describe your plan for preserving and maintaining digital assets during and after the award period of performance. Your plan may address storage systems, shared repositories, technical documentation, migration planning, and commitment of organizational funding for these purposes. Please note: You may charge the federal award before closeout for the costs of publication or sharing of research results if the costs are not incurred during the period of performance of the federal award (see 2 C.F.R. § 200.461).

Master copies of the content will be stored on a secure server space backed up by the IT staff and managed by the Archives. It will become part of the digital collections, to be retained permanently by the College. Metadata for these files will also be stored on the server and backed up as part of the routine database management.

## **C. Metadata**

**C.1** Describe how you will produce any and all technical, descriptive, administrative, or preservation metadata. Specify which standards you will use for the metadata structure (e.g., MARC, Dublin Core, Encoded Archival Description, PBCore, PREMIS) and metadata content (e.g., thesauri).

The white paper and video will be cataloged in the College Library catalog, using MARC, and in the Archives online catalog, using DACS. The catalog records will contain both descriptive and technical metadata.

**C.2** Explain your strategy for preserving and maintaining metadata created or collected during and after the award period of performance.

All of the metadata, documentation, survey results, and notes will be saved to the server in a dedicated folder. Final metadata will be added to the catalog records, which is regularly backed-up up on a secure server.

**C.3** Explain what metadata sharing and/or other strategies you will use to facilitate widespread discovery and use of the digital content, resources, or assets created during your project (e.g., an API [Application Programming Interface], contributions to a digital platform, or other ways you might enable batch queries and retrieval of metadata).

In addition to the Library and Archives' online catalogs, the records will be shared on Worldcat.

## **D. Access and Use**

**D.1** Describe how you will make the digital content, resources, or assets available to the public. Include details such as the delivery strategy (e.g., openly available online, available to specified audiences) and underlying hardware/software platforms and infrastructure (e.g., specific digital repository software or leased services, accessibility via standard web browsers, requirements for special software tools in order to use the content).

The content will be accessible via PDF viewer and video player. They will live in the Library and Archives online catalogs, on ArtCenter's YouTube channel. We will reach out to specific library, archives, and design listservs with links to the content.

**D.2** Provide the name(s) and URL(s) (Uniform Resource Locator) for any examples of previous digital content, resources, or assets your organization has created.

-White paper for the ArtCenter Library's previous IMLS Sparks grant: Critical Content Making: Zine Makerspaces in an Academic Library: <http://catalog.artcenter.edu/record=b1166974~S7>  
-White paper for the ArtCenter Library's NEH grant: American Innovation: Preserving and Providing Access to 80 Years of Industrial Design History: <http://catalog.artcenter.edu/record=b1162214~S7>  
-ArtCenter YouTube Channel: <https://www.youtube.com/user/artcenteredu>

## **Part III. Projects Developing Software**

### **A. General Information**

**A.1** Describe the software you intend to create, including a summary of the major functions it will perform and the intended primary audience(s) it will serve.

**A.2** List other existing software that wholly or partially performs the same functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

### **B. Technical Information**

**B.1** List the programming languages, platforms, software, or other applications you will use to create your software and explain why you chose them.

**B.2** Describe how the software you intend to create will extend or interoperate with relevant existing software.

**B.3** Describe any underlying additional software or system dependencies necessary to run the software you intend to create.

**B.4** Describe the processes you will use for development, documentation, and for maintaining and updating documentation for users of the software.

**B.5** Provide the name(s) and URL(s) for examples of any previous software your organization has created.

### **C. Access and Use**

**C.1** We expect applicants seeking federal funds for software to develop and release these products under open-source licenses to maximize access and promote reuse. What ownership rights will your organization assert over the software you intend to create, and what conditions will you impose on its access and use? Identify and explain the license under which you will release source code for the software you develop (e.g., BSD, GNU, or MIT software licenses). Explain and justify any prohibitive terms or conditions of use or access and detail how you will notify potential users about relevant terms and conditions.

**C.2** Describe how you will make the software and source code available to the public and/or its intended users.

**C.3** Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository:

URL:

### **Part IV: Projects Creating Datasets**

**A.1** Identify the type of data you plan to collect or generate, and the purpose or intended use to which you expect it to be put. Describe the method(s) you will use and the approximate dates or intervals at which you will collect or generate it.

**A.2** Does the proposed data collection or research activity require approval by any internal review panel or institutional review board (IRB)? If so, has the proposed research activity been approved? If not, what is your plan for securing approval?

**A.3** Will you collect any personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information? If so, detail the specific steps you will take to protect such information while you prepare the data files for public release (e.g., data anonymization, data suppression PII, or synthetic data).

**A.4** If you will collect additional documentation, such as consent agreements, along with the data, describe plans for preserving the documentation and ensuring that its relationship to the collected data is maintained.

**A.5** What methods will you use to collect or generate the data? Provide details about any technical requirements or dependencies that would be necessary for understanding, retrieving, displaying, or processing the dataset(s).

**A.6** What documentation (e.g., data documentation, codebooks) will you capture or create along with the dataset(s)? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the dataset(s) it describes?

**A.7** What is your plan for archiving, managing, and disseminating data after the completion of the award-funded project?

**A.8** Identify where you will deposit the dataset(s):

Name of repository:

URL:

**A.9** When and how frequently will you review this data management plan? How will the implementation be monitored?