

Advancing Web Accessibility Standards in the Arts

Summary

Contemporary Art Library is requesting funding in the amount of \$73,566 to research, plan and pilot new web accessibility features for art-centric digital libraries in two phases over the course of one year, setting up a future third phase to widely implement these plans.

Statement of National Need

Art relies heavily on exhibition and performance documentation for scholarship and education, but many users with disabilities are excluded from these resources. While there have been efforts to make archives of such material more available to scholars through national finding aid networks such as the California Digital Library initiative currently in development, there has been little innovation around making this material fully accessible to a general audience with a wide range of abilities and needs, especially given the unique set of challenges that art materials present in regard to accessibility.

Most online repositories of art documentation are what we would call Disability Access Level 0: completely inaccessible for most disabled users. These websites are missing basic compatibility with WCAG standards for all websites, and cannot be used in a basic way by some users. For example, a “Level 0” website might be constructed in such a way as to be completely impossible for keyboard-only users or screen reader users to navigate. Or a website full of video documentation of performances and talks may not even have basic captions for spoken speech, and thus are completely unusable for users who are deaf or hard of hearing.

Existing guides and initiatives, such as artist Carolyn Lazard’s excellent guide *Accessibility in the Arts: A Promise and a Practice*, or the Coyote software project that enables the efficient generation of visual description material, are focused on working toward what we could call Level 1: basic usability for users with disabilities that provides a small amount of essential information. A Level 1 web archive is basically navigable using most access technologies, and may include some basic descriptions and automated closed captions on a subset of media. Most web archives of art documentation that reach Level 1 do so only partially, and are either small, narrow archives or draw on the resources of major institutions with large budgets.

Level 1 initiatives are heavily reliant on standards that apply universally to websites and media, or art-related standards that are already out of date according to current understandings of technology or the intersectionality of access needs. For example, many contemporary initiatives still point to Art Beyond Sight’s guidelines for verbal description of artworks, authored in 1996. While many of the ideas in that guide are useful and will inform our work, some of them no longer apply to contemporary artworks in particular, and of course they do not reflect the subsequent 25 years’ worth of developments and are not specifically addressed to use on the

internet. In some cases, existing web standards apply and are quite useful. For example, a lecture can probably be made accessible to users who cannot hear the speaker using detailed, thorough captions made according to existing standards. But sometimes existing standards are inadequate. Imagine the lecturer pauses repeatedly to play excerpts of intricate, aesthetically various music. Even the most evocative language, completely covering the screen with as much information as one can read, might not convey the one detail a given user was curious to know about. And very few Level 1 organizations even provide detailed captions for such things, instead just briefly describing music within a parenthetical caption that is fixed throughout the duration of the clip.

Institutions that achieve this Level 1, often at great expense and with great effort, are considered laudable, though many users with disabilities are unable to have the kind of rich, deep experience that other users can, experiencing highly subjective material in need of individual interpretation through the mediated language of an institution or individual whose interests and experiences may not align with their own. In other words, in many cases these archives do not meaningfully make accessible the very things that draw most people to art in the first place. Even Level 1 standards are inadequate, and still very difficult for even large institutions to achieve. We are proposing to develop a new Level 2: with new interactive, responsive, inclusive accessibility procedures and tools that allow for deep engagement with documentation of art for users with disabilities that can be used by art organizations of all sizes and budgets to make meaningful progress.

We want to make accessibility features much more useful to users and yet much easier for archives to implement. We hope to combine enhancements to existing practices with completely new practices to create a robust framework for accessibility within our field. After speaking with artists, professors, librarians, curators and others from both the disabilities and contemporary art communities, we are not aware of any comparable projects focused on the problems of art documentation currently in development.

The best and most recent project focused on the operational efficiency side of meeting existing general web accessibility standards is the Coyote project, led by Sina Bahram who is a partner in our new project. We will build on and incorporate their developments (and possibly directly integrate their software, depending on the results of our research). Our working group will also include Georgina Kleege, a distinguished scholar at the forefront of these issues, who has published multiple books regarding the relationship of blind and low vision people to visual culture and essays such as “Blind Imagination: Pictures into Words,” 2008 (*Southwest Review* (Vol. 93, No. 2)), that directly address some of the questions we’re hoping to tackle in Phase 1. Joseph Grigely, an internationally known deaf artist, scholar and access advocate who is advising us and participating in this project, teaches art and disability theory in the context of the Visual and Critical Studies department at the School of the Art Institute of Chicago and is publishing a forthcoming book called *Disability Shit* that will be focused on related subjects and his experience as a deaf person in society, academia and the art field. Our group also includes Selby Nimrod, assistant curator at MIT’s List Center, which is in the midst of completing a resource-intensive process of making their own web documentation archive accessible using

existing standards. Nimrod will be able to share the extensive work that her team did to meet existing best practices, as well as the logistical challenges they've faced in implementing these standards using current research into the existing landscape. We will be directly responding to and advancing existing work in this area, and our efforts will be well-grounded in existing theory, scholarship and practice.

In the second, piloting stage of our project, we will use our own digital archive of contemporary art documentation, which will be among the largest such archives in the world, as a testing ground for iterative improvements and our partnerships with art spaces (each of whom manage documentation archives of various scales) as a network for generating feedback. For context, Contemporary Art Library is a new website that will launch this spring, pending delays related to our institutional partners and COVID-19. It is a centralized repository for digital photo, video, and text-based documentation of international contemporary art exhibitions and performances. We've assembled a consortium of more than 75 partners, including institutions like the Hammer Museum at UCLA, the Contemporary Arts Center Cincinnati, the Wattis at California College of the Arts, Contemporary Arts Museum Houston, the Swiss Institute New York and MIT's List Center. Their documentation histories will be included in the Library's ever-growing collection of approximately 350,000 images, videos, and documents. To give a sense of scale, this is more than 1/8 the estimated size of Artstor, the leading database of art images which includes material from all of human history, whereas we are focused exclusively on art from the last thirty years or so.

Our library presents unique opportunities to set and test national standards for web accessibility of art documentation at a large scale and in a way that's responsive to our audience's specific needs. By focusing on the "visual art" sphere, whose name already excludes people who are blind or have low vision, yet includes countless artworks that are more than visual or do not have a visual component at all, we can challenge biases and exclusionary tendencies built into the field. Even within so-called "visual art," the area of contemporary art is especially ideal because its interpretation is so open-ended and ambiguous and spans so many modes of art production. A series of novel-length books published by Afterall are written about individual contemporary artworks, some of which can be more or less represented to sighted users by a single image. But even those books reflect the narrow and specific interests of their writers, and it's easy to imagine volumes more about the same individual work being written after them. In some other areas, machine learning may enable automated improvements to accessibility, for example by automatically describing the content of a photo. In art and other cultural fields, however, it will be a very long time before computers are able to understand the vagaries and absurdities of human fascination with the most difficult artworks. If we can find a way to adequately make such works accessible, other disciplines with clearer emphases and narrower, less nuanced concerns should be able to follow suit.

Our new standards will be specific to an art context, yet easily transferable to other fields and disciplines that include material whose content requires interpretation or can be used for a broad range of purposes by a broad group of users. Our project also seeks to answer key

questions: 1) How can we describe or otherwise translate a vastly diverse body of art in a meaningful way to a diverse audience without reflecting our own biases? 2) How can we do so in a way that's easily understood by a wide variety of readers, and yet incisively useful to the world's foremost experts? 3) How do we conceive of accessibility practices that are responsive to our audience's individual needs, rather than an average of the assumed needs of a diverse population of users? 4) How do we implement these high standards at a large scale such as ours, and in a way that doesn't require massive budgets and organizational bandwidth?

Project Design

Our project will take place in three phases over two years: Research and Planning, Pilot, and Implementation. We are seeking planning funding from the IMLS NLG-L for Phases 1 and 2 of our project.

In Phase 1: Research and Planning, we begin by assembling a group of 12 artists, library science specialists, digital archivists, curators, technical experts and disabilities rights advocates to serve as advisors and participants throughout all three phases of the project. Our goal is to include as many experts as possible from various disability communities, to speak to their particular expertise and to their experiences using existing accessibility tools and features. We aim to mix people who have experience with existing standards and practices with people who have fresh perspectives not accounted for by those standards and practices.

We will set up individual meetings with these experts to interview them about the needs of various users and the issues involved in developing new standards. In particular, we will focus on identifying gaps and inadequacies in existing practices as opportunities for improvement, and to understand the areas we should focus on most urgently during our research. Based on these initial conversations and further research into existing standards, we will conduct user surveys, with a goal to reach at least 120 users of online art documentation archives representing as many communities and accessibility needs as possible. We will ask a range of questions about their current use of such archives, their desired use of more accessible archives, and ask them for examples of accessibility features that work well and that work poorly for them. We will also ask them to quantitatively rate various priorities in their use of such archives. This will help guide our work, which will inevitably involve trade-offs. For example, is it more important to have a larger body of material be basically accessible, or to have a smaller body of material be deeply accessible? Are you more interested in accessibility solutions that are available for everyone without requiring interaction, or that are responsive to your needs based on your input as a user? This data will then be used in conjunction with the wide experience and knowledge of our group of experts to inform subsequent deliberation.

We will then organize a two day-long conference with this group of experts to give presentations around a set of high-level questions related to their areas of expertise. The formats will be either an elaboration of a specific problem or issue related to web accessibility of art documentation, or an affirmative idea for a specific practice of value to suggest to the group. For

example, the problem-elaboration form might resemble a recent text published in the journal *Voices of Contemporary Art* entitled “Inventory of Apologies,” written by Joseph Grigely. In it, Grigely recounts the specific challenges of attending live lectures and talks as a deaf person, and assembles a collection of apologies issued by insitutions informing him that he will not be able to access the event for which he requested accommodation. As an example of the affirmative idea form, artists Bojana Coklyat and Shannon Finnegan, who are also part of the disability community and have been in conversation with us about this project, have gained wide recognition in the area of web accessibility for their innovative project Alt-Text as Poetry (<https://alt-text-as-poetry.net>), which re-frames descriptive material meant to make images accessible to blind or low vision users as a literary form in its own right. It sets out to establish a set of principles gleaned from poetry that might improve existing protocols by emphasizing the expressive use of language and awareness of the writer’s subjectivity. Both forms will be responsive to the results of our expert interviews, user surveys and other research done prior to the conference, will be useful to generate discussion and will directly inform the standards and procedures we develop.

In part because of Covid and because of the various accessibility needs of our participants, we will elect to do an all-digital conference. In addition to helping to guide the development of our new standards and practices, we hope that most of these talks could be recorded and published as part of a secondary goal to advance public discourse about these issues.

In Phase 2: Pilot, we’d generate a set of features and guidelines to produce accessibility content based on the Phase 1 conferences. We will design and implement features and generate content for an initial number of projects based on the estimated cost of implementing the features developed in phase one. We estimate that three staff members and an assistant working over six weeks will be able to implement new accessibility features on a sample size of about 960-1,440 projects. Our data set for the pilot program will draw on a diverse, difficult body of documentation drawn from the archives of our Library’s 75 Founding Partners, representing a wide variety of art spaces and test cases that cover various artistic styles and content, come from various cultural contexts, and that present unique challenges for the processes we define.

We will then make this material available to the network of users and experts established in phase 1, as well as to the partners whose documentation archives we used in the pilot, and conduct a second survey to see if our ideas are successful in practice. In addition, we will seek to recruit some users to create recordings of their experience using the pilot features and content so that we can better understand which approaches are working and where we’ve introduced difficulty. Analysis of these recordings will allow for insights that go beyond the self-reported experiences of survey respondents, who may not be trained to break down and analyze their own use of the tool in a way that allows us to improve our standards and procedures.

Following a period of testing and iteration, we will hold a day-long digital convening to present and discuss the survey results and refine the standards and practices based on what we’ve learned. We will then either ratify or revise our standards and procedures based on this expert

feedback, update the implementation of the pilot and publish our findings, both in narrative form and as guidelines and tools that other archives could use for their own efforts.

Specifically, we will produce a highly accessible website that addresses multiple groups who will benefit from our research:

- Professionals in libraries and museums with archives of art documentation, using a guide created with leading access consultant Sina Bahram based on operational systems development and a white paper describing our findings and recommendations, modeling the costs of implementation, and outlining technical best practices in the web development area
- Professionals in other related fields that may include archives of media online, using high-level principles and ideas extracted from our specific standards and procedures, as well as an archive of useful examples gleaned from our research and conversations with experts
- Coders and designers, using specific technology recommendations to consider in their own implementations
- Professionals at small organizations or individual practitioners overseeing small archives using straightforward language and lots of examples and a set of approachable webinars explaining our standards and procedures
- Individual users of archives who may need accessibility features using a guide explaining our guidelines from their perspective and what to expect from an archive that implements them.

We hope, of course, that this website and its content will also serve as the basis for an ongoing discussion about web accessibility, the arts, and archives that will extend far beyond our project and beyond the field of art, so we intend to construct the site in such a way as to invite feedback and allow for updates as we learn more and continue to refine the ideas it will contain.

As part of our efforts, we will measure several metrics to ensure our project remains on track and is delivering tangible results.

To measure the project's timeliness, we will:

- Keep track of the number of milestones identified in our Schedule of Completion have been met on time

To measure the project's efficiency, we will:

- Track all expenses and compare them to our budget estimates
- Track number of deliverables completed during the planning project and compare to our goals

To measure the effectiveness of the project, we will:

- Track number of user surveys conducted in Phase 1 and Phase 2

- Track number of expert interviews conducted
- Track number of conference presentations, webinars and online guides made available on the project website
- Track estimated cost to make units of documentation accessible according to our standards and practices, specifically estimated cost per project (exhibition, performance, publication, etc.), per artwork, per image, and per minute of video and audio
- Track number of records in Contemporary Art Library made fully accessible using our system during Phase 2
- Track number of ongoing users with accessibility needs using the pilot material with whom we have established contact so that they can serve as sources of ongoing feedback

To measure the project's quality, we will:

- Track and measure improvements in feedback from users before and after using our pilot implementation
- Create recordings of some users' experiences using the pilot features and content so that we can better understand which approaches are working and where we've introduced difficulty. Analysis of these recordings will allow for insights that go beyond the self-reported experiences of survey respondents, who may not be trained to break down and analyze their own use of the tool in a way that allows us to improve our standards and procedures.
- Track number and type of specific accessibility needs addressed by our standards and procedures
- Track number and type of specific accessibility needs identified but not yet addressed by our standards and procedure

After the planning phases for which we are seeking funding, for a future Phase 3: Implementation, we'd have a robust system in place that would allow us to efficiently implement accessibility features on a large scale using the work we did in the first two phases, making a larger portion of our existing archives accessible and setting us up to partner with institutions of all sizes from across the U.S. to make their material accessible using our standards and procedures.

Diversity Plan

Because we are committed to diversity in all areas of our organization's work, we intend to make sure that our working group reflects the broad diversity of both disability communities and art communities. We have relationships with institutions from around the United States and around the world, including dozens of Founding Partners of the Library. We will use this strong network to recruit members of the working group to ensure that we are representing as many perspectives as possible as we develop these new standards.

Furthermore, diversity is an inherent focus of our project, which seeks to make archives of art documentation more accessible. People who need access to this material are not monolithic, but existing solutions to web accessibility in the arts offer the same information to all users with a given access need. In other words, one of the central problems with existing efforts related to our project is their inability to account for the diversity of their users. By its design, our project benefits and gets closer to reaching its stated goals as we recruit a more and more diverse group of experts, survey respondents and users.

Currently, diversity is often focused on the content in question. For example, an artwork made by a person with a specific identity might be best described by a writer who shares that identity. Certainly, this is an improvement compared to a status quo of material homogeneously described by members of privileged groups. But an individual exhibition or performance may also attract a diverse audience. How can we account for not only the diversity of artists, but also the diversity of art's audience?

National Impact

Our project would create a chain reaction of impact, echoing out from the national audience of our own library to other archives, institutions and fields. First, the research, planning and development of standards and practices will immediately provide a concrete, easy to use set of solutions that existing archives of art documentation, from small, artist-run individual art spaces up to major libraries and institutions, can use to immediately transform their ability to support the needs of visitors to their websites and archives. These will be outlined on a new, easy-to-use and friendly website as described in our project description.

One of our key partners in this project, nationally recognized accessibility consultant, researcher and leading disability advocate Sina Bahram, does important work with major institutions and corporations throughout the country to implement existing best practices and standards. In addition to participating as a member of our working group, Bahram will be advising us as we assemble the group, helping us ensure our digital convenings are fully accessible, and providing deep technical feedback and testing during our piloting phase. Bahram's work as a consultant and advocate will amplify the findings of this project and inform his work with clients across many cultural areas, thereby extending the impact of our work broadly through his practice and creating an ongoing flow of feedback and ideas for improvement as he implements our standards in projects used by millions of users.

Right now, documentation of contemporary art is currently dispersed and fragmented, with small bodies of material siloed on websites with varying, but generally poor degrees of accessibility and systems of navigation. This planning grant will prepare us fully for and begin the process of making our own library fully accessible, providing the public with a central, organized place to find a large body of documentation in a standard and reliable format that people with access needs will feel welcome to use, immediately transforming the status quo. Our websites are visited more than 1 million times each year, including by professionals, educators

and students, who use it in their work. So being able to implement an innovative new approach to accessibility in this context will immediately improve the experiences of a broad audience across the country.

Implementing these new best practices will also impact the many important institutions whose archives we'll be including. We will be able to provide them with tools and content that many of them do not have the time or organizational capacity to produce on their own. Our descriptions, captions and other accessibility content from the pilot and within Contemporary Art Library in general will be available to those partners, who will then use them on their own websites in service of an even broader audience.

We hope to immediately follow this project with a larger initiative, using these standards to partner with a substantial group of institutions from around the country to make their archives part of Contemporary Art Library and in so doing make them accessible, while also assisting them in bringing their own websites and online archives up to the standards we develop. This planning project will position us to be able to begin work on that project, which will have broad national impact.

Our project will also broadly impact the field of digital archiving, as we'd be developing new best practices and industry standards that can be applied across disciplines. We will share all of our findings, but more importantly, we will be an example that raises expectations for accessibility in our field and for online archives generally.

In addition to users who would currently like to use archives of art documentation and are not able to, we hope that this and other accessibility projects in the arts unlock new generations of artists and scholars who grow up able to learn about these fields as freely as anyone else. And, even more broadly, we see the powerful cultural influence of art as an ideal vehicle for contributing to a broader momentum toward higher expectations that public life be inclusive for everyone. According to the social model of disability, it's our field and our society which have erected barriers to access, and it is our responsibility to take them down.

Budget Summary

The total amount requested is \$73,566. This accounts for the following:

- Professional services costs for individual meetings with 12 experts - \$3,000 total
- Two staff members to conduct these calls - \$985.68
- Conference preparation and coordination - \$3,943.68
- Professional services fees of \$500 per invitee totaling \$6,000
- Event staffing for two-day conference - \$2,595.20
- Event costs including CART (Communication Access Realtime Translation) writer(s) (live captioning), visual description services, and a \$250 contingency for unforeseen accessibility requirements - \$1,610

- \$13,025.28 for our Web Developer and Executive Director to work with our Lead Accessibility Consultant (Sina Bahram) to design specific implementations for the pilot program
- Coding and other implementation on an estimated sample size of 960–1,440 projects over 6 weeks depending on the recommendations of the working group requiring an estimated \$17,651.20 for our Web Developer, Lead Accessibility Consultant, Library staff, and assistant to produce content and implement new features
- A second, day-long digital convening with the original 12 participants to whom we'd present our findings and prototypes and solicit feedback (professional services fees, preparation, event costs, and event staffing) - \$9,417.16
- 32 hours for Web Developer to incorporate conference feedback and user surveys - \$1,760
- 8 hours for Accessibility Consultant to work with Web Developer to incorporate conference feedback and user surveys - \$1,600
- Final dissemination costs amounting to \$11,978.24 to cover the production of a functional requirements document by our Accessibility Consultant and a website and webinar by Library staff

Contemporary Art Group Schedule of Completion: 9/1/2021 - 9/1/2022

	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug
Activity 1	■											
Activity 2		■	■	■								
Activity 3			■	■								
Activity 4				■	■	■						
Activity 5						■	■					
Activity 6						■	■	■				
Activity 7							■	■	■			
Activity 8									■			
Activity 9									■			
Activity 10									■			
Activity 11										■		
Activity 12										■	■	
Activity 13											■	
Activity 14											■	■

Activity 1. Assemble working group

Activity 2. Conduct one-on-one meetings

Activity 3. Issue and collect user surveys

Activity 4. Conference preparation

Activity 5. First 2-day conference

Activity 6. Design and code new accessibility features based on conference findings

Activity 7. Implement new features on sample size of Library projects

Activity 8. Send preview to select audience and solicit feedback via survey

Activity 9. Ask select users to test pilot features

Activity 10. Second conference preparation

Activity 11. Second day-long conference

Activity 12. Incorporate feedback in pilot

Activity 13. Generate functional requirement document

Activity 14. Produce website and/or webinar with our findings



DIGITAL PRODUCT FORM

INTRODUCTION

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to digital products that are created using federal funds. This includes (1) digitized and born-digital content, resources, or assets; (2) software; and (3) research data (see below for more specific examples). Excluded are preliminary analyses, drafts of papers, plans for future research, peer-review assessments, and communications with colleagues.

The digital products you create with IMLS funding require effective stewardship to protect and enhance their value, and they should be freely and readily available for use and reuse by libraries, archives, museums, and the public. 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

If you propose to create digital products in the course of your IMLS-funded project, you must first provide answers to the questions in **SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS**. Then consider which of the following types of digital products you will create in your project, and complete each section of the form that is applicable.

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS

Complete this section if your project will create digital content, resources, or assets. These include both digitized and born-digital products created by individuals, project teams, or through community gatherings during your project. Examples include, but are not limited to, still images, audio files, moving images, microfilm, object inventories, object catalogs, artworks, books, posters, curricula, field books, maps, notebooks, scientific labels, metadata schema, charts, tables, drawings, workflows, and teacher toolkits. Your project may involve making these materials available through public or access-controlled websites, kiosks, or live or recorded programs.

SECTION III: SOFTWARE

Complete this section if your project will create software, including any source code, algorithms, applications, and digital tools plus the accompanying documentation created by you during your project.

SECTION IV: RESEARCH DATA

Complete this section if your project will create research data, including recorded factual information and supporting documentation, commonly accepted as relevant to validating research findings and to supporting scholarly publications.

SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS

A.1 We expect applicants seeking federal funds for developing or creating digital products to release these files under open-source licenses to maximize access and promote reuse. What will be the intellectual property status of the digital products (i.e., digital content, resources, or assets; software; research data) you intend to create? What ownership rights will your organization assert over the files you intend to create, and what conditions will you impose on their access and use? Who will hold the copyright(s)? Explain and justify your licensing selections. Identify and explain the license under which you will release the files (e.g., a non-restrictive license such as BSD, GNU, MIT, Creative Commons licenses; RightsStatements.org statements). 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.

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.

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.

SECTION II: 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 the format(s) you will use.

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

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG, OBJ, DOC, PDF) you plan to use. If digitizing content, describe the quality standards (e.g., resolution, sampling rate, pixel dimensions) you will use for the files you will create.

Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan. How will you monitor and evaluate your workflow and products?

B.2 Describe your plan for preserving and maintaining digital assets during and after the award period. Your plan should 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).

Metadata

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

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

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).

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, delivery enabled by IIIF specifications).

D.2. Provide the name(s) and URL(s) (Universal Resource Locator), DOI (Digital Object Identifier), or other persistent identifier for any examples of previous digital content, resources, or assets your organization has created.

SECTION III: SOFTWARE

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 or similar functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

Technical Information

B.1 List the programming languages, platforms, frameworks, 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), URL(s), and/or code repository locations for examples of any previous software your organization has created.

Access and Use

C.1 Describe how you will make the software and source code available to the public and/or its intended users.

C.2 Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository:

URL:

SECTION IV: RESEARCH DATA

As part of the federal government's commitment to increase access to federally funded research data, Section IV represents the Data Management Plan (DMP) for research proposals and should reflect data management, dissemination, and preservation best practices in the applicant's area of research appropriate to the data that the project will generate.

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

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 sensitive information? This may include personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information. If so, detail the specific steps you will take to protect the information while you prepare it for public release (e.g., anonymizing individual identifiers, data aggregation). If the data will not be released publicly, explain why the data cannot be shared due to the protection of privacy, confidentiality, security, intellectual property, and other rights or requirements.

A.4 What technical (hardware and/or software) requirements or dependencies would be necessary for understanding retrieving, displaying, processing, or otherwise reusing the data?

A.5 What documentation (e.g., consent agreements, data documentation, codebooks, metadata, and analytical and procedural information) will you capture or create along with the data? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the data it describes to enable future reuse?

A.6 What is your plan for managing, disseminating, and preserving data after the completion of the award-funded project?

A.7 Identify where you will deposit the data:

Name of repository:

URL:

A.8 When and how frequently will you review this data management plan? How will the implementation be monitored?