Preserving and Disseminating Emerging Forms of Digital Scholarship in Academic and Research Libraries

Abstract

The University of Utah's J. Willard Marriott Library in partnership with our collaborators, the Entertainment Arts and Engineering (EAE) program, Spencer S. Eccles Health Sciences Library (EHSL), and the Mountain West Digital Library (MWDL), submit this IMLS Sparks grant proposal, *Preserving and Disseminating Emerging Forms of Digital Scholarship in Academic and Research Libraries*, to develop and deliver recommendations for libraries seeking practical guidance to preserve and disseminate emerging forms of digital scholarship generated on university and college campuses. Addressing the successful integration of digital scholarship requires a 360-degree approach which includes current library practices in metadata, copyright, data management, library acquisitions, institutional repository archiving, digital preservation, and public dissemination.

EAE's digital scholarship is a perfect proof of concept of emerging complex forms of digital scholarship, since it includes an executable file to manage dependent files. Because of this, preservation and access can be studied and documented as it relates, on the one hand, to a single file, and on the other hand, as it relates to a larger group of interdependent files, collectively reliant on an executable file in order to function as intended. The library community, in order to acquire and integrate digital scholarship into their collections, will need to know and understand how to manage born-digital files singlely, and also collectively, where they are a collection of dependent files and their executable file.

EAE is highly motivated to archived their scholarship due of the loss of files for the game Erie, which is considered to be a flagship game of the program. In 2012 a well-known vlogger posted a YouTube video playing Erie. This video has been viewed more than 4 million times. Since the source files for Erie were not archived, it is not possible to migrate Erie to newer platforms. Erie has become orphaned, stranded on platforms that are gradually being phased out as newer platforms emerge. Currently, the video of Erie on YouTube remains the only publicly available example of the game. By developing new mid-range and long-range preservation systems, this loss will be avoided in the future.

With the ultimate goal of publishing the practical guidelines and recommendations for preserving complex digital scholarship, our year-long project has four outcomes. The first outcome is to form the EAE Library Advisory Task Force to allow our key stakeholders a venue for input and discussion. The second outcome is to embedded relevant library instruction into the curriculum to educate the students on topics such as copyright, data management, and version control. The third outcome is a mid-range preservation system to publicly display the thesis games. The fourth outcome is a long-range preservation for the thesis games. The resulting library-hosted open access eBook, "A Report on Preserving and Disseminating Emerging Forms of Digital Scholarship in Academic and Research Libraries," will be foundational to the theory and practice of addressing the challenges of archiving and preserving complex digital content. As stewards of rich authentic content, this project will catalyze efforts across the library and preserve other complex forms of digital scholarship. For the games studies field, this project will provide a public repository of EAE games for research and play, in addition to a framework for preserving other locally-created games.

Preserving and Disseminating Emerging Forms of Digital Scholarship in Academic and Research Libraries
Narrative

Statement of National Need

The University of Utah's Engineering and Entertainment Arts (EAE) program has risen to the top tier of programs available in the US for those seeking a degree in Game Arts, Game Engineering, and Game Production; currently both its graduate and undergraduate programs are nationally ranked #3 by the Princeton Review. Our project is based on the fateful story of Erie, one of the earliest games from the program. Erie's story is significant for two reasons, first because of the 4 million views it received from a 2012 YouTube video made by a well-known vlogger. And, secondly, because the loss of its dependent and executable files meant it was not possible to migrate Erie from the platforms it operated on in 2012 to the operating systems in use today. Erie, widely-regarded as EAE's flagship game, has in effect become marooned on an obsolete operating system. The plight of Erie is representative of the preservation crisis facing higher education programs that are at the forefront of digital scholarship creation. Digital scholarship works have unique archival and preservation needs that frequently fall outside of the expertise of the department they were created in. In a recent scan of peer game programs at similar institutions, we were unable to locate an archiving and preservation plan for game scholarship, nor was game scholarship represented in the institutional repositories or library collections of those same institutions. As Dr. Jose Zagal states in his letter,

> We currently struggle with how to best archive, preserve, and disseminate the videogame thesis projects our students develop. It is my understanding that similar programs across the nation face the same issues. The findings and results of this research project will prove invaluable not only to us, but to our colleagues in game studies more broadly.[1]

In order to close the gap between programs producing digital scholarship, and the role of libraries to collect scholarship, the University of Utah's J. Willard Marriott Library in partnership with the EAE program, Spencer S. Eccles Health Sciences Library (EHSL), and the Mountain West Digital Library (MWDL), submit this IMLS Sparks grant proposal to develop and deliver recommendations for academic and research libraries seeking practical guidance to preserve and disseminate new and emerging forms of digital scholarship generated on university and college campuses. Addressing the IMLS's agency-level goals to demonstrate exemplary stewardship of library collections, and to use technology to facilitate access and discovery, we propose undertaking a project that will preserve and disseminate the degree-bearing born-digital scholarship of EAE graduate and undergraduate students. Falling under the National Digital

[1] See page 3 of Supportingdoc1

Platform project category, our proposal addresses the intersection of digital issues facing libraries in the cutting-edge area of new and emerging forms of digital scholarship like Erie, which rely upon dependent files and an executable file in order to remain migratable and accessible.

A work of digital scholarship not too long ago was typically a single file, be it a video, image, or sound file; currently, digital scholarship works, such as Erie, are composed of a complex network of files created with a variety of softwares. The files are intended to work interdependently in order to present a nuanced scholarship product. Digital scholarship works of this nature have become increasingly common on college campuses.

Video game design, as a type of digital scholarship, lives at the intersection of art, technology, business, and humanities; video games shape and reflect culture and become an object of study for humanists. This project will expand the boundaries of the libraries and archives' work with the games. Currently, most libraries simply circulate commercial video games or host video game events. Other librarians have created games as teaching tools, such as Gaming Against Plagiarism and Zombies Ate My Evidence. Despite interest in games amongst libraries, there have not been many attempts to move beyond commercial game preservation. Two notable attempts in preserving non-commercial student-created games are Prom Week and the multiple games created by The GApp Lab.

The current preservation practice for most game studies programs are external hard drives and/or zip files stored locally, usually in faculty offices. Obviously, this is not a sustainable solution. Due to the loss of the executable and dependent files for Erie, EAE is highly motivated to work with us on this project. Moreover, if libraries are to fulfill their research missions, they must archive and disseminate the executable and dependent files associated with games studies scholarship. While it seems that game studies programs and other programs generating digital scholarship, are perhaps not recognizing that libraries could be an important partner in addressing the growing digital scholarship preservation crisis, this project has the potential to create opportunities for libraries to bring their considerable expertise to bear in order to develop new networks of information transfer and archiving with programs in need of such support.

This university's library has tremendous demand for archiving digital content. While there are strategies in place for mid-term preservation, there are not strategies for long-term preservation, nor are there staffing resources in place to address developing a long-term preservation plan. A long-term preservation plan would better ensure the future playability of a game. The grant seed funding will help us to develop a strategic partnership with EAE to address the challenges that developing a long-term preservation strategy for complex digital objects presents, and to share our findings with others.

Our project complements the work of librarians, institutional repository managers, and digital preservationists to develop sustainable repositories and reliable digital preservation strategies, by focusing on how to incorporate complex forms of digital scholarship into institutional repositories and digital preservation systems. This will build upon Educopia's Electronic Thesis and Dissertations (ETD+ Toolkit) project which created online modules and guides on the topics of copyright, data organization, file formats, metadata, storage, version

control. Additionally, another IMLS-funded project, the GAme MEtadata and CItation Project (GAMECIP), will be useful in implementing known ontologies. Depending upon the digital scholarship, the University of Utah's research data repository, the Hive, may also be leveraged.

Project Design

The goal of this project is develop and deliver recommendations for academic and research libraries seeking practical guidance to preserve and disseminate emerging forms of digital scholarship generated on university and college campuses. The recommendations will be presented at the conclusion of the grant period in an open access ebook "Report on Preserving and Disseminating Emerging Forms of Digital Scholarship in Academic and Research Libraries."

This project represents an endeavor to preserve individual works of digital scholarship from a games studies program for the benefit and use of future consumers from all types of libraries and user communities. To develop the recommendations we plan to include in the report, this project will address four projected outcomes. The first outcome is to develop a new EAE Library Advisory Task Force. The second outcome is to embed library instruction concerning research, data management, scholarship, and copyright into the EAE curriculum. The third and fourth outcomes are to develop and implement a mid-term and long-term preservation strategy.

This project assumes that complex born-digital scholarship, similar to EAE's games, will continue to be developed on university campuses. Also, the project assumes that other university campus departments will create similar complex multiple independent and dependent files for their scholarship. Finally, this project assumes that the technology needed for organizing and preserving this scholarship will continue to be supported and developed as new forms of born-digital scholarship are created.

The major risk for this project is developing agreement concerning intellectual property between the libraries, EAE, thesis office, and graduate school for preserving the thesis games, since students own their intellectual property. The EAE students have published 30+ games since 2012. The intellectual property and commercialization of student games is a high priority for EAE faculty. As Dr. Roger Altizer states in his letter,

> We believe publishing a game allows our students to graduate as game developers, rather than game developers-to-be… As the students own 100% of the IP on their projects, and the projects will be commercially published, this represents a series of unique challenges. There are technical hurdles in archiving software and maintaining systems to run and support it. There are legal challenges regarding intellectual property. There are entrepreneurial challenges, traditionally games that are already publicly available will have a hard time finding publishing opportunities.[2]

Due to these known concerns, negotiating the best method to accomplish our outcomes is a potential risk. To mitigate this risk, the EAE Library Advisory Task Force, representatives from

[2] See page 1 of Supportingdoc1

the thesis office and graduate school, the copyright librarian, and the co-PIs will meet immediately to build consensus. Fortunately, archiving digital scholarship has been at the forefront of concerns for the EAE program and an identified need years ago. Due to an unfortunate loss of Erie, everyone wants to ensure this does not happen to another game.

There are two concurrent phases for this project. The phases are library instruction and digitally preserving EAE's graduate-level digital scholarship. Each PI will manage and oversee a phase based upon their expertise. These concurrent phases will run parallel to one another with the PIs routinely discussing progress. The months of December 2018, May 2019, and June 2019 will be largely dedicated to writing the manuscript of recommendations. Progress between the co-PIs will be tracked through documentation, scheduled quarterly meetings, and ad hoc meetings as needed. The documents will be shared between the co-PIs as the project progresses via cloud computing (Google Drive). These documents will be continuously updated and created as needed. This will allow for constant communication and tracking. Additionally, these documents will allow the co-PIs to efficiently and effectively create a manuscript. The project timeline with goals and outcomes will be the main driving force for these meetings and documents.

Immediately, at the beginning of this project, a new EAE Library Advisory Task Force will be formed (outcome 1). The task force will consist of EAE faculty, staff, and student representative(s). Both faculty and students within the EAE program approach games from differing educational backgrounds, such as communications, user experience, and production. Many of the EAE's adjunct faculty work in the local game development industry. Additionally, the thesis games are created by a team of students, which includes a producer, artist, engineer, and sometimes a technical artist. The interdisciplinary nature of EAE student teams and faculty backgrounds will allow for more diverse range of knowledge and expertise. This strategic partnership will ensure that our project will have a broader impact on the game studies field.

The task force will work on both phases of the project. They will approve documents and provide feedback on the ingest form, curriculum development and evaluation, user interface, metadata, copyright, and both a mid-term and long-term preservation plan. The task force will provide a concrete venue for conversations and project development with the libraries. As key stakeholders, these strategic collaborators will strengthen our expertise and enable an expanded reach of this project. Although critical stakeholders, the members of the EAE Library Advisory Task Force will not receive financial support. Their participation will be considered service to the University and profession.

In July 2018, the PIs will meet with the EAE Library Advisory Task Force, copyright librarian, and representatives from the Graduate School and Thesis Office to discuss the logistics of securing the thesis games for preservation. A generic ingest form is generally utilized to transfer items from the owner to the library's collections. Due to student intellectual property and commercialization concerns, a clear conversation is needed to move forward. The EAE faculty must be supportive of the ingest form, so they can encourage student participation and advocate for this project. This initial meeting will mitigate the major risk for this project.

The second outcome is to embed library instruction concerning research, data management, scholarship, and copyright into the EAE curriculum. By working with EAE faculty, the library faculty will ensure that the library instruction is timely and relevant to the students as they create

their digital scholarship. The instruction will place the student in the center. This component is necessary, since the students will provide the library with their thesis digital scholarship projects. Moreover, the students will utilize these principles as they enter the workforce and participate in their local communities and our global society.

The library instruction component will be informed by the ADDIE model, an instructional system design framework to build educational training. The five phases of ADDIE are analysis, design, development, implementation, and evaluation. The co-PI has taught semester-long credit-bearing courses, in-person one-shot sessions, a series of in-person sessions, self-paced online modules, and asynchronous online discussion boards. During the analysis phase, the co-PI will consult EAE faculty on the best instructional option. Most likely, the instruction will be provided in either a series of in-person teaching sessions or online instruction.

With this digital scholarship preservation project, there are several topics that the students should understand. For example, the topics of research, data management, version control, scholarship, and copyright are very relevant to the success of preserving the digital scholarship of EAE and preparing students for the workforce. These topics will be taught with local experts and complemented by Educopia's ETD+ Toolkit online modules and guidance briefs. Based upon EAE faculty recommendations, these topics will be taught throughout the year as the teams develop their thesis games (September 2018 - April 2019). Ideally, instructional sessions will follow this order: resources for researching (September 2018), data management and version control (October 2018), scholarship and citations (February 2019), and copyright (March 2019). Finally, the archive's ingest form will be reviewed at the end of the spring semester before EAE's public demonstration day (April 2019). During the remaining months of the semesters, the co-PI will be available for teams to meet for personalized consultations. In addition to time, the library instruction may require these resources: learning management system (Canvas), presentation technologies, physical handouts, and other learning objects, such as the Game of Research.[3]

After each library instruction session, the materials and delivery of content will be evaluated by the students with post-session reflections. Post-session reflections will follow the format the co-PI routinely uses in the classroom: 1) list something you learned, 2) list something that is still confusing or unclear, and 3) optional, provide your contact information if you want clarification. This simple reflection provides two key performance measures. First, the students pause to self-evaluate their learning. Secondly, if there are themes concerning unclear or confusing topics, the instructor will need to improve the delivery of that topic. Finally, when students give their materials to the library for preservation, their understanding of the concepts will be further evaluated. This will be easily recognized by whether they applied the concepts of data management, citations, etc. into their delivered digital scholarship.

The EAE faculty will evaluate and provide feedback regarding session content and timing within the curriculum. This information will be gathered through conversations (in-person and

[3] Baluchi D, Casucci T, Patterson B, and Wimmer EN. Adapting a Game for Teaching Research Methods. Paper presentation for the Medical Library Association Annual Meeting, Atlanta, Georgia, May 18-23, 2018.

email). The evaluation from EAE faculty will allow the library instructors to improve their teaching. Additionally, these conversations will allow EAE and library faculty to plan improvements for the following school year.

The second concurrent phase, archiving EAE's digital scholarship, will begin with first refining an ingest form with the EAE Advisory Task Force, Thesis Office, and Graduate School Office during the summer months (July-August 2018). After building consensus around the ingest form, we will develop a mid-term preservation strategy known as 'bit-level' preservation. Bit-level preservation involves maintaining onsite and offsite backup copies of the wrap kit files, virus checking each file, and conducting fixity-checking of the files to ensure their stability (August-Oct. 2018). The bit-level preservation strategy will be tested and refined by applying it to the already collected 2016/17 EAE cohort's "wrap kits" (October 2018). The "wrap kits" contain all the necessary files to run the game, including executable code, art, assets, and promotional materials. Since some wrap kits were collected last year, the library team can use these as a pilot collection. The metadata will be developed both by the student's suggestions on the ingest form and the findings from the Game Metadata and Citation Project. This mid-term preservation outcome will facilitate the discovery of knowledge and cultural heritage of video games.

While bit-level preservation is managed on the backend, the frontend, or public repository, will be used for search and discovery, as well as for the display of visual and text-based materials intended to demonstrate the concept of the game and how it is played. The EAE Library Advisory Task Force will provide input on the frontend and metadata at the start of the project and again in March 2019. As researchers with varying backgrounds, the EAE Library Advisory Task Force will ensure the collection facilitates the discovery of knowledge and cultural heritage of games at the University of Utah.

With a mid-term preservation strategy in place, the project will develop a strategy for long-term preservation (outcome 4). This outcome will leverage the prevailing standards of Open Archival Information System (OAIS), Trustworthy Repositories Audit and Certification (TRAC), and intradepartmental guidelines for data management, digital preservation and digital library systems (Nov. 2018). Pursuing a long-term preservation strategy for games studies scholarship will provide a theoretical architecture for librarians, institutional repository managers, and digital preservationists to follow for other complex digital scholarship projects.

Others will provide input and contributions from both inside and outside the library and information science field. In January 2019, the archive plans will be presented to the Spencer S. Eccles Health Sciences Library and the Mountain West Digital Library for input. Their contributions will ensure this project process moves beyond EAE games to any complex digital scholarship. In March 2019, the co-PIs will seek input from the EAE Library Advisory Task Force concerning the frontend interface. As both representatives of EAE and the games studies field, they will provide suggestions, which will aid future search and discovery by researchers.

The archive phase will be evaluated from two aspects, first in terms of its flexibility to accommodate additional forms of digital scholarship from departments and programs across campus. To this end, it is our intention at the conclusion of the grant period, for the staff of the USpace institutional repository to work with the Head of Digital Scholarship Services to present findings to campus departments and programs in order to recruit additional participants. The second aspect will be an evaluation in terms of project performance and resource drain, we will be asking questions such as "Are there efficiencies and economies that can be implemented which lessen the burden on library resources?", "Are there campus partners with deeper resources than

the library that should become involved?", and "Is this sustainable for the foreseeable future? What might interfere with sustainability and how might that be addressed?"

The end product of the grant will be an open access ebook, "A Report on Preserving and Disseminating Emerging Forms of Digital Scholarship in Academic and Research Libraries," will be integrated into the library's catalog; therefore, available to other WorldCat member libraries and, following its addition to the Mountain West Digital Library, also available through the Digital Public Library of America. The ebook will be published with a Creative Commons Attribution-NonCommercial-ShareAlike license.

National Impact

As a contribution to the field of librarianship, our ultimate goal is to develop and deliver recommendations for academic and research libraries seeking practical guidance to preserve and disseminate emerging forms of digital scholarship. These practical guidance and recommendations will influence the theory and practice as other libraries and museums integrate born-digital complex multi-file scholarship into its collections. This project will meet IMLS performance goals which focus on content and collections by broadening access, improving management, preservation, and care of the Nation's content and collections. To that end, the dissemination of this project is essential. Creating a final practical report that documents the procedures and processes that were used to address each topic area with a set of shareable recommendations. The challenges that remain, because there certainly will be several, will be presented clearly and succinctly articulated into a set of strategic next steps for libraries.

The report will be publicized locally via the library's newsletter, social media, and website. Announcements will be made on professional communication channels, such as DLF Born-Digital Access Group's slack, the Mountain West Digital Library News, and D-Lib Magazine. Presentations at both library, preservation, and game studies conferences and meetings are also anticipated. The Utah Library Association's annual meeting organizers already invited us to present about this project concept and our partnership with EAE at their 2018 spring conference. Another potential library and archive professional conferences are the Association of College and Research Libraries, the Digital Library Federation Forum, and the National Digital Stewardship Alliance annual conferences. Presentations at these conferences and meetings will inform our LIS colleagues about the project and recommendations moving forward.

Additionally, our key stakeholders, EAE plan to disseminate the project results to their game studies colleagues at Digital Games Research Association (DiGRA) and Foundations of Game Design (FDG); these international conferences bring together game studies experts. By presenting at DiGRA and FDG, the game development and game studies experts will be informed of the recommendations and be advocates for implementing them at their institutions. This has the potential to broadly elevate the role of libraries and archives across the globe.

Goal / Outcome	Activity	July 2018	August 2018	September 2018	October 2018	November 2018	December 2018	January 2019	Febuary 2019	March 2019	April 2019	May 2019	June 2019
Goal	Write document												
	Publish document												
Outcome 1: EAE Advisory Task Force	Form												
	Seek input & feedback												
Outcome 2: Library instruction	Analysis												
	Design												
	Development												
	Implementation												
	Evaluation												
Outcome 3: Mid-term preservation and Octcome 4: Long-term preservation	Refine ingest form												
	Finalize ingest form												
	Develop mid-term preservation strategy												
	Test mid-term preservation												
	Develop long-term preservation strategy												
	Seek insight from EHSL digital collections & Mountain West Digital Library												
	Develop integratable user interface												
	Secure EAE 2019 digital scholarship												
	Preserve 2019 graduate wrap kits												

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

- ☐ Please check here if you have reviewed Parts I, II, III, and IV below and you have determined that your proposal does NOT involve the creation of digital products (i.e., digital content, resources, assets, software, or datasets). You must still submit this Digital Product Form with your proposal even if you check this box, because this Digital Product Form is a Required Document.

If you ARE creating digital products, 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.

The status of the digital product created will be open access content presented as an ebook. The co-PI's, as authors of the work, will hold the copyright according to the University of Utah's policy on copyright ownership (http://regulations.utah.edu/research/7-003.php) We will use the Creative Commons Attribution-Noncommercial-Sharealike license (https://creativecommons.org/licenses/by-nc-sa/4.0/) so that we may fully share the work, and further ensure that any derivatives are sharealike.

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.

The organization will not assert ownership over the digital product according to the institution's policy on copyright ownership (http://regulations.utah.edu/research/7-003.php).

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.

Not applicable

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 will create one ebook that will be stored on the library's servers

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 use a Wordpress platform to create and house the content for the book.

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).

Not applicable

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).

Metadata and MARC catalogers will create and maintain the catalog records according to the relevant metadata standards. Digital Preservation archivists will create and maintain the ebook's PREMIS record in order to digitally preserve the ebook. The library's Digital Infrastructure Development team will maintain the Wordpress site on library servers.

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).

The ebook will be preserved in Rosetta, the library's digital preservation system. The ebook will be cataloged and added to WorldCat, where it will be available to other libraries wishing to add the work to their public access online catalog. The ebook will also be in the institutional repository, Uspace https://collections.lib.utah.edu/search?facet_setname_s=ir_uspace&q=

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).

A metadata cataloger at the library will add metadata to the digital product according to current Dublin Core standards. The ebook will receive a MARC catalog record in order for it to be added to the library's online catalog and Worldcat, thus integrating it into the library's collections. The record generated to store the ebook in Rosetta, the digital preservation system, uses PREMIS metadata structure.

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

The institutional repository staff will maintain the metadata relevant to the ebook in USpace. The digital preservation staff will maintain the metadata relevant to the digitally preserved copy of the ebook. MARC catalogers will maintain the MARC catalog record for the ebook in the online public access catalog

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).

Points of discovery for the ebook include: 1. In the institutional repository, USpace, the ebook is searchable by keyword and openly accessible; 2. In the library's online public access catalog, Primo, the ebook is searchable, openly accessible, and grouped with similar resources, according to applied keywords; 3. In WorldCat, ebook is searchable and available for download to the online catalog of libraries using 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 ebook will be openly available online, stored and maintained on library servers. The underlying software platform will be WordPress. The ebook will be available under a unique url with a .lib.utah.edu root. The ebook will be added to the institutional repository, USpace https://collections.lib.utah.edu/search?facet_setname_s=ir_uspace&q= . USpace is part of the library's Digital Library which runs on Hydra digital asset management software. The ebook will also be preserved in Rosetta, the library's digital preservation system. The ebook will be cataloged and added to WorldCat, where it will be available to other libraries wishing to add the work to their public access online catalog.

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.

The library's digital scholarship services department has a ten-year history of publishing and hosting open access digital scholarship works for the campus community. Currently hosted publications are reflected in the library's public access catalog, in WorldCat, and in USpace, these publications include online journals https://epubs.utah.edu, songhelix database http://songhelix.lib.utah.edu, etextbook Research with Diverse Populations http://rdp.lib.utah.edu, Consuming Music http://consumingmusic.lib.utah.edu , eAnthology Writing with New Eyes http://writingwithneweyes.lib.utah.edu , and Ethics of Suicide sourcebook https://ethicsofsuicide.lib.utah.edu/

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?