Developing a Framework for Measuring Reuse of Digital Objects
Abstract

The Digital Library Federation (DLF) Assessment Interest Group (AIG) User Studies Working Group (USWG) Reuse Subgroup seeks $97,209 to conduct a robust digital cultural heritage community needs assessment focused on developing use cases and functional requirements for a future digital content reuse assessment toolkit.

Challenges in assessing digital library content reuse were identified in 2015, when the DLF AIG generated a white paper titled, "Surveying the Landscape: Use and Usability Assessment of Digital Libraries."[1] Content reuse, defined as how often and in what ways digital library materials are utilized and repurposed, is a key indicator of the impact and value of a digital collection. However, traditional library assessment analytics focus almost entirely on simple access statistics. These statistics, although appropriate for many more traditional library materials, do not provide a nuanced picture of how different user communities utilize, or transform, unique, library-hosted, materials from digital collections. This lack of distinction, combined with a lack of standardization in the assessment approaches that are applied to these collections, impacts an institution in two ways: its ability to build strong infrastructures and collections that respond to user needs; and its leverage in showing value to stakeholders. It also presents significant challenges in the development of appropriate staffing and long-term funding models needed to support rapidly expanding digital collections.

IMLS funding, through a National Forum Grant, will support a formal needs assessment, which will include data collection and analysis aimed at understanding the desired components of reuse assessment. Data collection will occur through in-person and virtual focus group sessions as well as via pre- and post-surveys. The outcomes of this one year project will be documented, publicly shared, widely publicized, functional requirements and use cases for the development of a reuse assessment toolkit that can be utilized by cultural heritage organizations working with digital content. This work will also be instrumental in normalizing approaches to evaluation and assessment in this emerging, and critical, arena.

This project advances the National Digital Platform concept by identifying sustainable and vetted assessment techniques that can be applied to a broad array of digital library collections. It promotes exemplary stewardship of library and museum digital collections, and ultimately will allow cultural heritage organizations to better understand the ways users engage with, reuse, and transform digital content. Finally, it will standardize approaches and best practices for communicating the economic, educational, scholarly, scientific, social, and cultural impact of digital collections, and will support the use of evidence-based approaches to build inclusive user-centered platforms and systems.

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[1] Santi Thompson, Joyce Chapman, Jody DeRidder, Megan Hurst, Elizabeth J Kelly, Martha Kyrillidou, Caroline Muglia, Genya O'Gara, Ayla Stein, Rachel Trent, Liz Woolcott, Tao Zhang, "Surveying the Landscape: Use and Usability Assessment of Digital Libraries," Digital Library Federation Assessment Interest Group (2015): https://osf.io/uc8b3/.

DLF Assessment Interest Group

Developing a Framework for Measuring Reuse of Digital Objects

The Digital Library Federation (DLF) Assessment Interest Group (AIG) User Studies Working Group (USWG) Reuse Subgroup (hereafter, "the Project Team") seeks $97,029 to conduct a robust digital cultural heritage community needs assessment focused on developing use cases and functional requirements for a future content reuse toolkit.

1. Statement of National Need

Content reuse, defined as how often and in what ways digital library materials are utilized and repurposed, is a key indicator of the impact and value of a digital collection. Articulating the value of these materials, and the work and infrastructure needed to both preserve and make them accessible, is a fundamental challenge facing libraries, archives, and cultural heritage organizations (CHOs) of all stripes.

Currently, traditional library assessment analytics focus almost entirely on simple access statistics. These statistics, although appropriate for many more traditional library materials, do not provide a nuanced picture of how different user communities utilize, or transform, unique, library-hosted materials from digital collections. This lack of distinction, combined with a lack of standardization in the assessment approaches that are applied to these collections, impacts an institution in two ways: its ability to build strong infrastructures and collections that respond to user needs; and its leverage in showing value to stakeholders. It also presents significant challenges in the development of appropriate staffing and long-term funding models needed to support rapidly expanding digital collections.

Over the last decade, the development of library-hosted digital materials has increased exponentially. Increasingly, libraries, archives, and museums digitize and host their unique and rare materials online, as well as create and support online scholarship and data repositories, publications, and sites where information can be shared. Further, nonprofit, mission-driven organizations, such as the Digital Public Library of America (DPLA), are taking on the traditional roles of aggregators by providing gateways to individual institutions' digital library holdings.[1] However, best practices for evaluating how these unique library-hosted digital assets are being used still need to be established and widely adopted in order to increase and improve upon reuse research, and to build stronger user-centered digital collections moving forward. A National Forum (NF) Grant will support a robust digital library community needs assessment, focused on developing the use cases and functional requirements for a freely available, collaboratively-developed toolkit. As envisioned, the Digital Content Reuse Assessment Framework Toolkit (D-CRAFT) would detail available assessment tools, best practices, and use cases for studying the reuse of digital assets, facilitating both standardization and impact measurement in the digital library field.

The scope of the challenges in this arena were identified in 2015, when the Digital Library Federation (DLF) Assessment Interest Group (AIG) User Studies Working Group (USWG) generated

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[1] In the introduction to "Takedown and Today's Academic Digital Library," Schofield and Urban discuss the extensive and recent growth in libraries and archives of all types utilizing digital means to preserve and provide access to diverse locally-hosted digital materials. Schofield, Brianna L. and Urban, Jennifer M., Takedown and Today's Academic Digital Library (November 2015). UC Berkeley Public Law Research Paper No. 2694731. Available at SSRN: https://ssrn.com/abstract=2694731 or http://dx.doi.org/10.2139/ssrn.2694731.

a white paper titled, "Surveying the Landscape: Use and Usability Assessment of Digital Libraries."[2] As part of this group's work, the digital library community's measurement and assessment of content reuse as a key indicator of value for libraries, archives, and CHOs was examined. The group found that there has been some focused but limited scholarship in how content reuse is measured. The research surfaced prominent gaps in the current literature, including almost no standardization in institutional approaches to the measurement of content reuse. For example, while the measurement of content reuse using hyperlinks is a strength of many institution's approaches, there is a dearth of studies examining other mechanisms for tracking reuse of digital objects such as using embedded identifiers. This lack of research is exacerbated by a lack of consistent citation metrics for digital cultural heritage objects. Obstacles also exist for researchers attempting to analyze digital object reuse of materials residing on un-indexed platforms. Web log analysis as a method for predicting user needs lacks best practices and, without the ability to track individual objects via persistency in URLs and identifiers, analysis may lead to potentially biased perceptions of user needs. In addition, none of the methods examined allowed for tracking non-digital reuse of once digital material (i.e. physical exhibits, print publications, etc.).

Building on the recommendations put forward in the whitepaper, a working group, titled the DLF AIG USWG Reuse Subgroup (the Project Team), was formed. Specifically, the Project Team proposes leveraging an NF Grant to directly engage stakeholders nationally in the planning of D-CRAFT, a freely-available toolkit for institutions of all sizes and types that would centrally locate important resources and scholarship, help in the development of standardization and best practices for digital libraries and archives moving forward, and support the full lifecycle of a reuse assessment project. This project will engage digital librarians, archivists, curators, scholars, and administrators who have an investment in standardized, accessible assessment measures for digital library objects.

This critical needs assessment will lay the groundwork for the provision of D-CRAFT. Structured as a roadmap, it will contain tools, techniques, and use cases to assess the reuse of materials within digital libraries. This approach will support CHOs in planning and delivering digital library content to specific user groups. Understanding that diverse institutions have widely varying needs, the goal of the resources gathered is to provide analysis of the purpose, strengths, and weaknesses of available tools, while allowing the user to choose the vetted resources that best fit their assessment requirements. Included materials will support the complete range of reuse assessment -- from defining goals and assembling well-scrutinized tools to highlighting current studies and research in this area. This freely available, community-driven resource will directly support the IMLS priority area of the development of a National Digital Platform and will further help libraries, archives, and other CHOs make data-informed decisions about their investments in digital library resources and infrastructure.

In preparation for the submission of this application, the Project Team has conducted an environmental scan of existing tools and resources as well as examples of effectively implemented toolkits in order to identify the ideal components to include in a future toolkit. A NF Grant will enable stakeholders from a variety of institutions and groups to meet with members of the Project Team to

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[2] Santi Thompson, Joyce Chapman, Jody DeRidder, Megan Hurst, Elizabeth J Kelly, Martha Kyrillidou, Caroline Muglia, Genya O'Gara, Ayla Stein, Rachel Trent, Liz Woolcott, Tao Zhang, "Surveying the Landscape: Use and Usability Assessment of Digital Libraries," Digital Library Federation Assessment Interest Group (2015): https://osf.io/uc8b3/.

discuss the issues facing implementation of content reuse assessment, the tools and resources identified in the environmental scan, necessary infrastructure for D-CRAFT, and next steps towards D-CRAFT development. Although the DLF community represents a wide range of institutions and digital libraries, the Project Team has identified additional groups that will broaden and deepen the scope of input in this undertaking. These identified groups will participate in users studies (both in-person and virtual) and as advisory board members. Central to this effort is ensuring that the resulting recommendations and tools are inclusive and representative of the diversity of the digital library community's needs. A full list of potential partners can be found in Appendix A: Potential Advisory Board Members and Focus Group Participants List.

The outcomes of this project will be documented, publicly shared, widely publicized, functional requirements and use cases for the development of a reuse assessment toolkit that can be utilized by information professionals working with digital libraries. This timely work directly advances the National Digital Platform concept by identifying sustainable and vetted assessment techniques that can be applied to a broad array of digital library collections. It promotes exemplary stewardship of library and museum digital collections and ultimately will allow libraries, archives, and other CHOs to better understand the ways users engage with, reuse, and transform digital library content. Finally, it will standardize approaches and best practices for communicating the economic, educational, scholarly, scientific, social, and cultural impact of digital collections, and will support the use of evidence-based approaches to build inclusive user-centered platforms and systems.

2. Project Design

2.1 Project goals, outcomes, and assumptions

IMLS funding will support a formal needs assessment, which will include data collection and analysis. The approach outlined here will ensure that the defined needs of the assessment toolkit are collaboratively developed by the communities that will employ the final product. Data collection will occur through (1) in-person and (2) virtual focus group sessions as well as via (3) pre- and (4) post-surveys. Additionally, the Project Team will form an advisory group to provide critical feedback on methods used for data collection and analysis and on the drafting of final recommendations.

The end product of the NF Grant will consist of well-defined functional requirements and use cases for the construction of D-CRAFT. These requirements will serve as the building blocks that will drive the future development of this resource. The ultimate goal of D-CRAFT will be to provide tools and documentation to assess the reuse of materials within a given digital library in order to help these institutions plan and deliver content to different user groups, as well as develop appropriate infrastructure and funding for digital library projects.

For the purposes of this needs assessment, the Project Team adopts Krystyna K. Matusiak's definition of a digital library: "collections of digitized or digitally born items that are stored, managed, serviced, and preserved by libraries or cultural heritage institutions, excluding the digital content purchased from publishers."[3] Popular types of digital repositories include digitized special collections (such as the Digital Public Library of America and HathiTrust), disciplinary and institutional repositories (such as Arxiv and PubMed Central) and data repositories (such as the Inter-university

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[3] Krystyna K. Matusiak, "Perceptions of usability and usefulness of digital libraries," *Journal Of Humanities & Arts Computing: A Journal Of Digital Humanities*, 6 (1/2) (2012): 133-147, doi:10.3366/ijhac.2012.0044.

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Consortium for Political and Social Research at the University of Michigan's Institute for Social Research). Rather than pre-determine the digital community's needs, the Project Team will allow focus group participants to define the scope of the need assessments. Project outcomes are aimed at audiences who operate, manage, and administer digital repository systems, including repository practitioners, administrators, software developers, and assessment staff at various types of libraries, archives, and CHOs.

The Project Team begins work on the needs assessment with a series of assumptions refined during the "Surveying the Landscape" project, to be tested as project activities are completed. These include: (1) the team assumes that content reuse is an important indicator for the impact of a digital collection; and (2) the team assumes that other institutions would find value in being able to assess the reuse of digital objects. Surveys and focus group participants will help the Project Team explore the scope and extent of content reuse as a viable assessment indicator.

Because the project is intended to engage participation from a diverse community, the team recognizes that not receiving a diverse set of perspectives on content reuse is a primary risk with this data collection approach. The team is mitigating this risk by holding a series of public engagement sessions/focus groups both in person and virtually to connect with as many different stakeholders, across, as wide a range of institutions, as possible. It is the Project Team's intention to solicit input from perspectives of CHOs who may not be represented on the Project Team, such as museums and Historically Black Colleges and University (HBCU) libraries.

2.2 Participants

The Project Team is comprised of members of the DLF AIG USWG Reuse Subgroup.[4]

The team will form an advisory group to provide critical feedback on methods used for data collection and analysis and on the drafting of final recommendations. The Project Team will invite participants to this board; selection criteria will emphasize recruiting members who are leaders and visionaries in the field of digital heritage collections and assessment. Potential invitees include:

Participants in the grant activities will also include survey takers and focus group members. Survey takers will be solicited through a call for participation administered by the Project Team. Focus group members will be solicited through invitation and through a call for participation. Selection criteria for focus group participation include:
- those with demonstrated experience, such as direct work experience or an active research agenda around building, preserving, and assessing digital heritage collections;
- representatives from organizations with diverse and inclusive collections;

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[4] Digital Library Federation Assessment Interest Group, "Assessment: User/Reuse," https://wiki.diglib.org/Assessment:User/Reuse.

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- and representatives from CHO types that might not be represented in the Project Team membership.

Identified invitees include:

The Project Team will make every attempt to include participants in categories representing a wide range of institutions in regards to institutional context, financing, mission, and geography. See Appendix A: Potential Advisory Board Members and Focus Group Participants List for a more extensive list of identified institutions and groups that could be invited to participate in the Advisory Board or in a focus group.

2.3 Planning, preparation, and implementation

The activities of the Project Team include administering pre- and post-surveys; conducting four in-person focus groups (two groups being interviewed during two conferences); and administering two virtual focus groups. In addition, the Project Team will facilitate virtual meetings between the Project Team and the Advisory Board throughout the grant period; coordinate Institutional Review Board applications across all Project Member institutions; track and update the grant budget; write grant reports; write a final report/white paper; and present the grant project and results at three different conferences. All members of the Project Team will generate questions for the surveys and focus groups; at least two members of the Project Team will administer each focus group. Grant administration activities will be divided among the team members, and meetings facilitated by the PI.

The Project Team will circulate a pre-survey to the groups and institutions identified above to begin identifying how stakeholders currently assess digital library reuse. The survey will consist of five to six questions asking participants to identify barriers for reuse and to prioritize potential solutions and next steps.

The results of the pre-survey will be provided to both in-person and virtual focus group participants to inform discussion. Through the virtual and in-person meetings, the Project Team aims to identify the assessment needs of the community related to reuse, the tools and methods currently and historically used by the community, the features and functionalities needed for a reuse toolkit, and the financial and institutional cost contributors for building and maintaining a toolkit. The focus group questionnaire will contain five to six questions that will each be discussed with the group. Note taking by a facilitator will take place as will audio recording. The Project Team will use the audio recording to check against the notes from the focus group and will destroy the audio recording within 48 hours of the completion of each focus group. Potential focus group facilitations questions could include: (1) How does your institution measure and report the value of your digital collections? (2) What barriers have stopped you from collecting reuse statistics in the past? (3) How could software or other types of technology improve the tracking, reporting, and measurement of content reuse? The

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Project Team will develop this list of questions during the grant activity period and will solicit Advisory Board feedback on the final number, type, and focus of questions.

The in-person focus group sessions will be positioned strategically around prominent conferences focused on digital heritage collections theory and administration, such as the DLF Forum, DPLA Fest, Open Repositories, Museums and the Web, and the Society of American Archivists' Annual Conference. The Project Team will coordinate two simultaneous focus groups at two conferences for a total of four in-person focus groups. Each of these groups will contain five participants and two members of the Project Team (one member to facilitate discussion and another to record results). Two virtual focus groups will be held to allow greater participation beyond the in-person sessions. Ten participants will be included in each virtual focus group session.

Following the focus groups, the Project Team will compile and analyze the data collected and use it to create digital collections materials reuse use cases. A post-survey will then be circulated through the same channels used to circulate the pre-survey. The post-survey will include the use cases generated from the focus groups and ask participants to prioritize them in order to identify the most useful functions of a digital library reuse toolkit. The Project Team will regularly consult with the project schedule and the advisory board both to evaluate their performance throughout the grant period and to ensure that the grant is on track to achieve intended results.

2.4 Communications Plan

The Project Team will disseminate the results of the project via four methods: (1) progress updates and final results, compiled as a white paper, will be shared on the team's website, on the Open Science Framework platform, and through the Council on Library and Information Resources (CLIR)/DLF publication channels; (2) presentation proposals for national conferences, to introduce this work and to share final results; (3) the Project Team will deposit project data to a freely accessible data repository; and (4) after the completion of the grant, the team will document the methodology, results, and analysis in an article and submit it to an open access, peer reviewed journal.[5] Throughout the grant period, the Project Team will solicit feedback from the Advisory Board as well as from participants and attendees at conference presentations. This feedback will be incorporated into the final project outputs.

2.5 Project Resources: Personnel, Timeline, and Budget
2.5.1 Project Team

All members of the Project Team are members of the DLF AIG USWG Reuse Subgroup.[6] The Project Team will be donating their professional service time for this grant.

- Santi Thompson, Head of Digital Research Services at the University of Houston (UH), will serve as Primary Investigator for the project. Santi develops policies and workflows for the digital components of scholarly communications, including digital research support and digital

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[5] Santi Thompson, Genya O'Gara, Elizabeth J Kelly, Martha Kyrillidou, Caroline Muglia, Ayla Stein, and Liz Woolcott. 2016. "Content Reuse Subgroup." Open Science Framework. http://osf.io/36npw.

[6] Digital Library Federation AIG, "DLF AIG Wiki," https://wiki.diglib.org/Assessment.

repositories. He publishes on the assessment of digital repository metadata, software, and content reuse. Santi is currently the co-facilitator of the DLF AIG.[7]

- Elizabeth Kelly, Digital Initiatives Librarian at Loyola University New Orleans, manages digitization activities for Special Collections & Archives and is also responsible for collecting, maintaining, and assessing usage data for both Special Collections and Archives and the library's digitized collections. Kelly publishes and presents on archives, digital library assessment, and library pedagogy, and is co-founder and co-chair of the DLF Digital Library Pedagogy group.[8]

- Genya O'Gara serves as the Associate Director of the Virtual Library of Virginia (VIVA), a consortium of 72 academic libraries. In this position she: implements collaborative projects on behalf of the consortium; coordinates the assessment of collections and services; develops workflows for the management of collections; negotiates purchases on behalf of members; supports committees and working groups; and assists in the preparation and management of consortial library grants. She has written and presented on emerging models of content development and assessment, with a focus on the roles of academic libraries in scholarly publishing, digital collections, and the management of locally created materials.

- Caroline Muglia, Head of Resource Sharing and Collection Assessment Librarian at the University of Southern California (USC), manages the InterLibrary Loan and Document Delivery department and leads the collection assessment efforts for the Library system. In this capacity, she is responsible for qualitative and quantitative assessment and evaluation of all resources, the return on investment, and ways in which the library resources support research at the institution. Her current research interests include collection assessment, open education resources (OER), and streaming media opportunities in libraries.

- Ayla Stein, Metadata Librarian at University of Illinois at Urbana-Champaign (UIUC). She supports the metadata needs for scholarly communication, data curation, and preservation in the Library. She has published and presented on digital repository evaluation, metadata development for data repositories, and digital library system migration. Her research interests include digital repositories and metadata; linked data in library technology; and the place of metadata in critical librarianship.

- Liz Woolcott, Head of Cataloging and Metadata Services at Utah State University, manages the MARC and non-MARC metadata creation of the University Libraries. She publishes and presents on workflow and assessment strategies for library technical services, innovative collaboration models, the impact of organizational structures on library work, creating strategic partnerships for libraries, and building consortial consensus for metadata standards.

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[7] For more information on the DLF Assessment Interest group, visit the group's wiki page: https://wiki.diglib.org/Assessment.

[8] For more information on the DLF Digital Library Pedagogy Group, visit the group's wiki page: https://wiki.diglib.org/Pedagogy.

2.5.2 Timeline/Schedule of Completion

Phase	Timeframe	Activity
Pre-grant Activities		● Assemble Advisory Board
Planning	July - August 2017	● Virtual meeting #1 with Project Team and Advisory Board ● Generate pre-survey questions ● Administer pre-survey ● Generate focus group questions and rubric
Focus Groups	September 2017 - March 2018	● Present project launch at conference ● Identify focus group participants ● Administer virtual focus groups ● Administer in-person focus groups ● Virtual meeting #2 with Project Team and Advisory Board ● Present mid-project report at conference
Post-survey	April - May 2018	● Generate post survey questions ● Virtual meeting #3 with Project Team and Advisory Board ● Administer post survey
Assessment and dissemination	May - June 2018	● Generate whitepaper ● Generate final report ● Deposit project data to a freely accessible data repository ● Present project conclusion report at final conference

2.5.3 Budget

The total amount requested from IMLS is $97,029: (a) $47,500 to conduct focus groups and virtual advisory board meetings; (b) $8,500 to providing stipends for participants; (c) $14,850 to present at three professional conferences; and (d) $26,179 for indirect costs related to program administration, which are calculated based on DLF's federally negotiated rates. A full breakdown of the project budget can be found on the IMLS Budget Form and Budget Justification.

3. National Impact

This project directly advances the IMLS priority of a National Digital Platform and the goal of "improving the management of the Nation's content and collections" by gathering experts and practitioners in conversation to address the underdeveloped metric standards of content reuse. This project will develop the community best-practices and requirements needed to address this topic in a systematic, inclusive way that creates both a community conversation and a dataset of feedback employable by the entire digital library field. It will address this by developing the use cases and functionality requirements to build D-CRAFT, a toolkit that will pull together best practices, standards, and tools into a centralized location to facilitate discovery and directly address the lack of appropriate, standardized measurements for analyzing the impact and reuse of digital library material. The goal of this planning project is to gather the wide and varied use cases for measuring reuse from the diverse regions of libraries, archives, and CHOs and build a profile of an effective

toolkit. Creating D-CRAFT with a far-reaching range of potential users creates a significant challenge. Because the reuse of digital materials is a concern faced by many types of organizations, the Project Team will cast a wide net in gathering the input of the practitioners in libraries, archives, and CHOs. Without the ability to reach out to the variety of institutions and utilize the wealth of information from experts in the field, the functionality of this toolkit would be limited to the perceptions and needs of a self-selected few and the conversation the digital library community needs to have in order to build an effective field-wide consensus on the definition and metrics of content reuse will remain unvoiced.

As libraries, archives, and CHOs develop budgets for digital projects, weighing one worthy project against a host of others, the key piece of evidence frequently missing in decision making is a clear and consistent strategy for benchmarking the impact of digital collections. While the initial and ongoing costs of digital collections for an institution can be calculated, as of yet, no standardized method for assessing the benefits and use of digital collection materials has been established. As pointed out in the "Surveying the Landscape" white paper, the digital library community continues to struggle to apply return on investment (ROI) metrics because the community has not yet characterized the essential elements of the value or "return" of a digital object in a given field. Up until now, nascent strategies have relied on access statistics to demonstrate use, but these figures do not easily translate to value or usefulness. Current strategies imply a generic presumptive "build it and they will come" mentality by relying on a two-dimensional approach of usage, such as website hit count, leaving out more meaningful feedback measurements of reuse, user engagement, and ongoing collection development needs. Essentially, digital library managers are publishing material with a "make it available and they will use it" approach without any standardized methods for assessing or projecting user needs.

Ultimately, the long-term outputs of a successfully implemented toolkit will promote exemplary stewardship of digital library, archives, and museum collections by identifying sustainable and vetted assessment techniques that can be applied at a wide range of institutions. It will encourage the development of streamlined approaches and best practices for communicating the economic, scientific, educational, scholarly, cultural, and social impact of digital collections. Before D-CRAFT can be built, however, a functional needs assessment must be conducted. Considering the variety of digital content management systems, the staffing and funding structures, the geographic and economic diversity, the differing expectation of user communities, the consortial commitments and needs, and a host of yet to be identified variables, this exploratory stage is crucial to developing an effective toolkit. To that end, the Project Team members will investigate the projected needs and current methodologies used by libraries, archives, and CHOs to establish functional requirements and develop projections for the financial, human, and institutional costs for building and maintaining D-CRAFT. The Project Team will work with a diverse and representative group of stakeholders in the cultural heritage community to explore the variety of use cases and essential functions for the toolkit. The makeup of the Project Team itself adds to the national reach and impact of this project through a geographically dispersed roster, representing a variety of institution types, spanning small and large public and private university libraries, and an academic library consortium. The advisory board will serve to round out areas of expertise and further ensure that focus groups and surveys reach out to the broader library, archives, and CHO communities.

Successful implementation of this grant will be measured in the completed outline of a proposed reuse toolkit, use cases, relevant literature, and a needs assessment report that appropriately reflects the complexities and diversity of the digital library/cultural heritage community. The Project Team will disseminate this information via four methods: (1) progress updates and final results, compiled as a white paper, will be shared on the team's website and through CLIR/DLF publication channels; (2) the team will submit presentation proposals for three national conferences, to introduce this work and to share final results; (3) the team will deposit project data to a freely accessible data repository; and (4) after the completion of the grant, the team will document the methodology, results, and analysis in an article and submit it to an open access, peer reviewed journal.

With the collected needs assessment and established requirements, the Project Team will be poised to create a toolkit to address the missing variables in the digital library use and effectiveness equation. Following the successful completion of this planning phase, the next step for the Project Team is to pursue additional grant funding to build the reuse toolkit employing the use cases and functional requirements developed in this planning phase. The ability to not only measure a definable instance of reuse, but evolve those metrics into value statements that can be used by libraries, archives, and CHOs to show organizational impact, develop solid arguments for funding, inform budget decisions, and build user-centered collections, will empower institutions to make user-focused decisions about locally managed digital library content.

12 month grant cycle	JUL 2017	AUG	SEP	OCT	NOV	DEC	JAN 2018	FEB	MAR	APR	MAY	JUN
Planning												
Pre-Grant: Assemble Advisory Board												
Conduct first Advisory Board meeting	■											
Generate and administer pre-survey	■	■										
Generate focus group questions and rubric		■										
Focus Groups												
Present project launch at conference (ex: Digital Library Federation Forum)			■	■	■							
Select participants and administer first in-person focus group			■	■	■							
Select participants and administer first virtual focus group				■	■	■						
Conduct second Advisory Board meeting						■						
Select participants and administer second virtual focus group						■	■	■				
Select participants and administer second in-person focus group							■	■	■			
Present mid-project grant report at conference (ex. DPLAfest, Museums and the Web)								■	■			
Post-survey												
Conduct third Advisory Board meeting										■		
Generate and administer post-survey										■	■	
Assessment and dissemination												
Generate whitepaper										■	■	■
Generate final grant report										■	■	■
Deposit project data to data repository											■	■
Present project conclusion report at final conference (ex.: Open Repositories, Society of American Archivists)											■	■

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.

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.

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.

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.

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).

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).

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).

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).

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).

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).

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.

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?