LG-36-19-0036-19, Council on Library and Information Resources

The Digital Content Reuse Assessment Framework Toolkit (D-CRAFT)

Abstract

The Digital Library Federation (DLF) Assessment Interest Group (AIG) Content Reuse Working Group (hereafter: the "Project Team") seeks $249,998 in funding from an IMLS National Leadership/Project Grant (LG-36-19-0036) to support the creation of the Digital Content Reuse Assessment Framework Toolkit (D-CRAFT), an Open Access, collaboratively-developed toolkit that would detail available assessment tools, best practices, and a code of ethics for measuring the reuse of digital assets, facilitating both standardization and impact measurement in the digital library field.

In 2015, members of the D-CRAFT Project Team released "Surveying the Landscape: Use and Usability Assessment of Digital Libraries" (hereafter: "Surveying the Landscape"). This white paper outlined the challenges institutions face in assessing digital repository content reuse. The subsequent "Developing a Framework for Measuring Reuse of Digital Objects" (hereafter: Measuring Reuse) IMLS National Forum Grant (LG-73-17-0002-17) attempted to better understand both the broad barriers that make reuse assessment a challenge for cultural heritage and knowledge organizations (CHKOs) and the distinct needs for a future toolkit dedicated to assessing reuse. The results of project data collection and analysis identified and confirmed community needs and barriers for digital repository assessment overall and reuse assessment specifically. Collectively, these use cases suggest that any future toolkit should provide targeted substance that emphasizes outcome-based assessment techniques, tools, and strategies. Use cases generated from project data and prioritized by the community also indicate that the toolkit would not be complete without information that helps practitioners navigate privacy and culturally-sensitive issues that are intertwined with better understanding and assessing content reuse.

IMLS funding will support the creation of the D-CRAFT toolkit which will facilitate assessing reuse of digital content held in digital libraries and repositories. The priorities and activities identified in the Measuring Reuse project will be used to define the approach to this grant project proposal: a code of ethics for measuring reuse and recommended/best practices for a specific set of use cases. The D-CRAFT project will take place in two phases, over the period of 2.5 years and will include eight activities including creation of a code of ethics, recommended practices, and training opportunities. Throughout the project, the Project Team will facilitate community critiques, releasing the Code of Ethics for Assessing Reuse, Recommended Practices, and Education and Engagement Tools for open, public comment. The project team along with the consultants and advisory group will support the evaluation of existing tools, review the development of new tools, and if applicable, create a set of functional requirements for tools that do not yet exist but would support the CHKO community's assessment efforts. The project team does not anticipate building new tools during this grant timeline, but will include an assessment of potential tools in the final report of the grant.

As the Measuring Reuse project included a wide-scale assessment of the barriers to adoption of tools and services to assess digital library reuse, D-CRAFT will be developed to directly support the IMLS priority of National Digital Infrastructures and Initiatives by including realistic and scalable solutions to these barriers and increasing the accessibility of content and collections to a wide range of users. The Project Team is committed to ensuring that the project deliverables are readily adaptable by other institutions and communities, especially institutions supporting underserved populations. D-CRAFT promotes exemplary stewardship of library and museum digital collections and ultimately will allow libraries, data archives, and other CHKOs to better understand the ways users engage with, reuse, and transform digital library materials. Finally, it will standardize approaches and best practices for communicating the economic, educational, scholarly, scientific, social, and cultural impact of digital collections, and support the use of evidence-based approaches to build inclusive user-centered platforms and systems. By building on the needs assessment and established requirements from the previous grant, the Project Team is poised to create a toolkit to address missing variables in the digital library use and effectiveness equation. 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 CHKOs 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.

The Digital Content Reuse Assessment Framework Toolkit (D-CRAFT)

Project Team: *Primary Investigator*: Santi Thompson (University of Houston); *Co-Investigators*: Elizabeth Joan Kelly (Loyola University New Orleans), Ayla Stein Kenfield (University of Illinois at Urbana-Champaign), Kinza Masood (Mountain West Digital Library, University of Utah), Caroline Muglia (University of Southern California), Ali Shiri (University of Alberta, Canada), Liz Woolcott (Utah State University)

The Digital Library Federation (DLF) Assessment Interest Group (AIG) Content Reuse Working Group (hereafter: the "Project Team") seeks $249,998 in funding from an IMLS National Leadership/Project Grant (LG-36-19-0036) to support the creation of the Digital Content Reuse Assessment Framework Toolkit (D-CRAFT).

1. Statement of National Need

1.1 Current Challenges

Content reuse, defined as how often and in what ways digital repository materials are utilized and repurposed, is a key indicator of the impact and value of digital collections. For the purposes of D-CRAFT, the Project Team defines the scope of digital collections broadly, which they view as encompassing digitized cultural heritage materials, born digital content, and research data. Examples of reuse include incorporating digitized content into educational lesson plans, remixing content in games, artwork, and other multimedia, and the development of internet memes. Traditional library assessment analytics, however, focus almost entirely on access statistics. These do not provide a nuanced picture of how users repurpose or transform unique materials and data from digital repositories. This lack of distinction, combined with a lack of standardized assessment approaches, makes it difficult for institutions to develop user-responsive collections and to highlight the value of these materials. This in turn presents significant challenges for developing the appropriate staffing, system infrastructure, and long-term funding models needed to support digital collections [1].

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 websites. Further, nonprofit, mission-driven organizations, such as the Digital Public Library of America (DPLA), are moving beyond the traditional roles of aggregators by providing gateways to individual institutions' holdings, thematic collections compiled from across institutions, and curated content for specific use cases such as primary source collections for teachers. 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 [2].

1.2 Current Content Reuse Assessment Literature

In 2015, members of the D-CRAFT Project Team released "Surveying the Landscape: Use and Usability Assessment of Digital Libraries" (hereafter: "Surveying the Landscape"). This white paper outlined the challenges institutions face in assessing digital repository content reuse including: difficulty in identifying who uses digital libraries (sometimes due to user privacy safeguards) and how research focus (e.g. general vs. scholarly use) affects what materials are reused and how; a lack of research on methods to track online reuse through hyperlinking; and difficulties measuring the reuse of digital objects in virtual and analog environments. The white paper made several recommendations, including a call for additional studies to better understand diverse user groups, the connection between reuse and repository design, and when users can ethically and legally reuse digital library content. Most importantly for this proposal, the authors recommended "the development of a reuse assessment framework and an accompanying toolkit or best practices to help unify future studies and discussions of reuse in the digital library field" [3].

Several recent articles have tackled the challenge of formulating analytical frameworks for assessing reuse. In "Beyond Clicks, Likes, and Downloads: Identifying Meaningful Impacts for Digitized Ethnographic Archives" researchers devised a framework for "documenting, demonstrating, and assessing the impact of digitized ethnographic collections" [4]. They formulated six topical areas of potential impact, including: knowledge, professional discourse, attitudes, institutional capacity, policy and relationships. They note that

these areas can assist how "institutions and communities articulate and assess major sorts of impact that are most relevant to institutional projects to digitize and share knowledge" [5]. A future toolkit could draw upon this framework, particularly when assessing reuse through the lens of diverse content and collections [6].

Additionally, the D-CRAFT Project Team's own article "Barriers and solutions" details one of the most comprehensive analyses of content reuse assessment frameworks. The article recounts the multiple approaches included in the authors' needs assessment and emphasized results from two data collection activities: an initial survey and focus groups. Analyzing the results of these activities suggested to the authors that an emergent need "is looking for field-wide approaches for assessing the impact of reuse in order to better understand, and tell the story of, what has been learned or gained by a user when they repurpose a digital object" [7]. A future toolkit would be a central hub for documenting and disseminating such field-wide approaches [8].

1.3 The "Measuring Reuse" Project: Identifying Reuse Assessment Barriers

The "Developing a Framework for Measuring Reuse of Digital Objects" (hereafter: Measuring Reuse) IMLS National Forum Grant (LG-73-17-0002-17) attempted to better understand both the broad barriers that make reuse assessment a challenge for cultural heritage and knowledge organizations (CHKOs) [9] and the distinct needs for a future toolkit dedicated to assessing reuse. The results of project data collection and analysis identified and confirmed community needs and barriers for digital repository assessment overall and reuse assessment specifically [10].

A foundational survey administered by the Measuring Reuse Project Team addressed both overall and reuse assessment. 60% of respondents did not collect reuse information, the most common factors being: nonexistent methodology or standards (35.7%); a lack of staff and/or time to do assessment (16.43%); assessment not being a priority or focus for their institutions (14.29%); and that they did not have the ability or knowledge for this type of assessment (7.14%). Ultimately, the Measuring Reuse Project Team found that respondents wanted to do more reuse assessment and indicated that creating documented standards would be the best support for digital repository assessment work [11].

Focus groups, organized to ascertain the most important uses cases for CHKOs around reuse assessment, demonstrated that practitioners needed assessment methodologies that functioned across platforms, were simple to implement, and reliable. Identifying and developing tools that reduce the amount of time needed to collect and analyze reuse data where needed, would be an integral part of closing the capacity gap for institutions lacking staffing, time, and knowledge of assessment practices [12].

The team used focus group data to generate a range of use cases that a future toolkit would need to satisfy. Three categories emerged:

1. **Data collection, analysis, and reporting** use cases addressed how reuse data is being assembled, interpreted, and communicated to various audiences and stakeholders.
2. **Collection development** use cases centered on how to assess aspects of a digital collection based on reuse data.
3. **Privacy, rights management, and ethics** use cases focused on the assessment of reuse through legal, ethical, and culturally-aware perspectives.

The group administered a follow-up survey to determine, based on responses from CHKO practitioners, prioritized resources, guidance, and tools that address increasing the awareness of assessment results and developing strategies for communicating these results to various stakeholders. The prioritized use cases were:

1. Understanding how content is being reused in a variety of contexts by various audiences (social media, classrooms, scholarly works, genealogy, digital humanities, etc.)
2. Tell stories of impact with the reuse data that has been captured and tailor it to specific audiences/stakeholders
3. Assesses quality and quantity of items reused to inform digitization projects and priorities
4. Enable/encourage attribution of materials in various reuse contexts, including through sharing and reposting on social media, integration into classroom instruction, citing in scholarly works, or through non-academic avenues
5. Know and understand digital repository users without violating user privacy.

6. Generate reports of collection item reuse for analysis
7. Employ qualitative and quantitative methods to collect reuse data
8. Assess quality and quantity of item reuse to identify strengths and gaps in digital collections
9. Provide ability for marginalized communities to report incidents of reuse that the community perceives as culturally exploitative [13]

A full list of use cases can be found in Appendix B.

Collectively, these use cases suggest that any future toolkit should provide targeted substance that emphasizes outcome-based assessment techniques, tools, and strategies. The prioritized use cases also indicate that the toolkit would not be complete without information that helps practitioners navigate privacy and culturally-sensitive issues that are intertwined with better understanding and assessing content reuse [14].

1.4 D-CRAFT: Addressing Reuse Assessment Barriers

A National Leadership Project Grant for Libraries will support the development of D-CRAFT, an Open Access, collaboratively-developed toolkit that would detail available assessment tools, best practices, and a code of ethics for measuring the reuse of digital assets, facilitating both standardization and impact measurement in the digital library field. This timely work directly advances the IMLS project category of National Digital Infrastructures and Initiatives by identifying sustainable and vetted assessment methods that can be applied to a broad array of digital collections. It promotes exemplary stewardship of library and museum digital collections and ultimately will allow libraries, data archives, and other CHKOs to better understand the ways users engage with, reuse, and transform digital library materials. Finally, it will standardize approaches and best practices for communicating the economic, educational, scholarly, scientific, social, and cultural impact of digital collections, and support the use of evidence-based approaches to build inclusive user-centered platforms and systems [15].

2. Project Design

2.1 Project Goals, Assumptions, and Risks

IMLS funding will support the creation of the D-CRAFT toolkit which will facilitate assessing reuse of digital content held in digital libraries and repositories. The priorities and activities identified in the Measuring Reuse project will be used to define the approach to this grant project proposal: a code of ethics for measuring reuse, recommended/best practices for a specific set of use cases. The D-CRAFT project will take place in two phases, over the period of 2.5 years and will include eight activities.

Phase I will be the longest phase, consisting of project planning and the bulk of the initial toolkit building work. The project will begin with an introductory meeting for the Project Team and the Assessment, Privacy, and Diversity consultants (Activity 1). At this gathering, the Project Team and consultants will review the prioritized use cases and functional requirements identified by the CHKO community in the Measuring Reuse project. The time will be spent formalizing project logistics, including: outlining the D-CRAFT project goals, timelines, and deliverables; establishing a communication plan specifying expectations and channels; implementing our active data management plan; and organizing into working groups.

With the organizational procedures in place,the Project Team will commence work on drafting an initial Code of Ethics for Assessing Reuse (Activity 2), focusing on indigenous and underrepresented communities' concerns and ideas, as well as user privacy. The need for a Code of Ethics for Assessing Reuse was identified in Measuring Reuse focus group discussions centered around privacy, cultural sensitivity, and controversial reuse of digital collection materials.The Project Team, along with the Diversity and Privacy consultants, will begin devising the Code of Ethics by first identifying existing work regarding the ethical consumption and reuse of cultural heritage artifacts, knowledge, and data. The Project Team fully realizes the delicate nature of this endeavor, and aims to create a starting point for the Code of Ethics in the first few months of the project. During the initial drafting period, it will also undergo review from the CHKO Advisory Group, an eight member board who will represent diverse CHKO institutions and critique each set of deliverables as they are created. Once a preliminary draft has been compiled, input and contributions will be intentionally solicited from diverse and traditionally underrepresented populations prior to asking for feedback from the digital library community at

large (particularly indigenous, LGBTQAI+, communities of color, and disabled communities). After each comment period, the team will revise the Code of Ethics for Assessing Reuse as needed. The Project Team stresses that this Code of Ethics is a starting point that will undergo iterative evaluation and revision throughout the course of the D-CRAFT project, and it will ultimately serve a purpose beyond the scope of this project.

The next step in Phase I will be to gather or create a set of recommended practices for each of the identified use cases (Activity 3). Along with the Assessment Consultant, the Project Team will conduct an environmental scan to identify any current recommended practices or tools that exist as well as to identify gaps in community knowledge that may need to be furnished. The Project Team and Assessment Consultant will compile established guidelines and compose any new recommendations needed for each of the use cases. This work happens alongside the Code of Ethics for Assessing Reuse to ensure that information developed in each process informs the other. Recommended practices will first be reviewed by the CHKO Advisory Group and then released to the digital library community for feedback and revision.

Based on community input, the recommended practices for the prioritized use cases will be accompanied by the development of Education and Engagement Tools (Activity 4). Tutorials and quick start guides will provide examples and templates to demonstrate practical implementation of the use cases. The Project Team will seek out, evaluate, and compile existing education and engagement tools where possible. This activity will be supported by the Assessment Consultant, Accessibility Consultant, and an Instructional Design Consultant, with an evaluation period by the CHKO Advisory Group. The project team along with the consultants will support the evaluation of existing tools and if applicable, create a set of functional requirements for tools that do not yet exist but would support the CHKO community's assessment efforts. The project team does not anticipate building new tools during this grant timeline, but will include an assessment of potential tools in the final report of the grant. .

Because the development and accessibility of these deliverables are geared towards the CHKO community, the Project Team will facilitate community critiques, releasing the Code of Ethics for Assessing Reuse, Recommended Practices, and Education and Engagement Tools for community review and comment. The Project Team intends to use annotation tools such as hypothes.is and CommentPress to facilitate engagement with deliverable drafts; or services such as the Winnower, which are designed to enable open discussion and debate of research and scholarship. Connecting to diverse and underrepresented communities for input will be iterative and take place via multiple avenues, potentially including but not limited to: harnessing DLF's existing affiliations and partnerships to organizations such as the Historically Black Colleges and Libraries (HBCU) Library Alliance and the Antiquities Coalition; the Project Team's existing connections to underrepresented groups such as Indigenous and LGBTQ communities; communication avenues for the affiliates of cultural heritage professional organizations such as the ALA ethnic caucuses; and with guidance from the Advisory Board, as well as the Diversity and Accessibility Consultants on building connections with stakeholders from disabled and underrepresented communities who would be interested in providing feedback on the D-CRAFT deliverables.

The Project Team will stagger these releases to maximize overall community engagement, allow experts an opportunity to provide meaningful feedback on their focus areas, and allow the Project Team to receive, analyze, and implement the feedback. Thus the Code of Ethics for Assessing Reuse will be released to the community in February 2020, Recommended Practices in October-November 2020, and tutorials and quick start guides in February-March 2021.

The final activities of Phase I will be to build and populate a living space for D-CRAFT with the deliverables from this project (Activities 5 and 6). The Project Team envisions D-CRAFT to be one of a suite of digital library planning and assessment services hosted on the DLF Dashboard [16]. The Project Team will also maintain a separate website as a way to efficiently communicate information about the project, as well as provide access to project updates, blog posts, conference presentations, and publication announcements. The permanent repository for all final project deliverables will be a dedicated Open Science Framework (OSF) project repository.

Phase 2 will translate the main deliverables of Phase 1 (Code of Ethics, Recommended Practices, and Education and Engagement tools for each of the use cases) into training opportunities for the digital library community. This phase will take place over the last nine months of the project and will feature the development of in-person and online trainings, guided by an Instructional Design and an Accessibility consultant, to ensure that trainings will be functional for as many people as possible. Members of the Project Team will then conduct these training sessions for the community. Training opportunities will include three in-person workshops conducted in locations supporting underserved populations, a minimum of three webinar-based workshops, and self-guided online courses to reach the broader community. In-person workshops are supported by travel grants for eighteen trainees per session for a total of 54 in-person pupils. During the Measuring Reuse grant exploration, respondents who worked in institutions supporting underserved populations identified in-person trainings as an important mechanism to implementing new recommendations and standards. Therefore, the D-CRAFT toolkit will build in this aspect of training to meet those needs and also include travel grants as a way to minimize the traditional hurdles towards attaining training on new recommendations and standards.

The D-CRAFT toolkit is built on a series of assumptions identified during the "Surveying the Landscape" project and refined through surveys and focus groups with the CHKO community during the "Measuring Reuse" grant. These include: (1) content reuse is an important indicator for the impact of a digital collection; (2) CHKO institutions would find value in the ability to assess the reuse of digital objects and (3) access to tools and resources through a toolkit alone will not reduce barriers to adoption; a toolkit must be supported with training. Since the project is intended to engage participation from a varied CHKO population, the Project Team recognizes that not capturing diverse perspectives on the value and utility of the toolkit and associated deliverables is a primary risk with this project design. Additionally, not supporting diverse communities in the adoption of the tools and recommended practices through training will disadvantage some CHKO institutions, particularly those supporting underserved populations. The team is mitigating these risks by engaging key expert consultants to participate in all aspects of the project activities and an Advisory Group with representatives from an array of CHKOs to offer guidance throughout the project. The Project Team is also committed to community feedback and comment on all activities, thus facilitating a regular exchange with all stakeholders. It is the Project Team's intention to tailor in-person trainings towards the needs of institutions supporting underserved populations to ensure that the deliverables and resources provided from this project can be widely employed.

2.2 Project Resources: Personnel, Timeline, Financial, Project Management

2.2.1 Personnel

All members of the Project Team are members of the DLF AIG Content Reuse Working Group [17]. 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 repositories. He publishes on the assessment of digital repository metadata, software, and content reuse. Santi is currently the co-facilitator of the DLF AIG [18].
- Elizabeth Kelly, Digital Programs Coordinator at Loyola University New Orleans, manages digitization activities for Special Collections & Archives and is also responsible for collecting, maintaining, and assessing usage data for the library's digitized collections in addition to managing digital scholarship training activities and the library Web Team. 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 [19].
- Ayla Stein Kenfield, Repository Services Librarian and Assistant Professor at the University of Illinois at Urbana-Champaign (UIUC), leads IDEALS, the University's institutional repository program, and coordinates between the Library's other digital repositories: the Illinois Data Bank, Illinois Digital Collections, and the Medusa preservation repository. She has published and presented on digital

repository assessment, metadata development for data repositories, and digital library system migration. Her research interests include digital repositories; metadata and linked data; and the intersections of library technology with critical librarianship.

- Kinza Masood, Director, Mountain West Digital Library (MWDL), University of Utah, engages with member repositories to aggregate and host content through a searchable portal on the MWDL website. She also conducts research and collaborates with partner institutions around the Mountain West region to improve and develop digital library infrastructure and workflows.
- Caroline Muglia, Co-Associate Dean for Collections; Head of Resource Sharing at the University of Southern California (USC), oversees the strategy and budget of the Collections Division including Technical Services and InterLibrary Loan and Document Delivery. She also leads the qualitative and quantitative collection assessment efforts for the Libraries. Her current research interests include collection assessment, collaborative collection development, and feminist management. She is a member of the 2018-2019 ARL Leadership Fellows cohort.
- Ali Shiri, Professor at the School of Library and Information Studies, University of Alberta, Canada, teaches courses in the areas of digital libraries and information organization and retrieval. His research areas center on digital libraries, search user interfaces, user interaction with digital information and learning analytics. Shiri's federally-funded research projects have focused on the development and evaluation of digital libraries and learning analytics applications and search user interfaces.
- 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.

The project team will work with five consultants for deeper knowledge in key areas including a Privacy Consultant and Diversity Consultant to help devise a Code of Ethics for Assessing Reuse, an Assessment Consultant to help craft the Recommended Practices and Engagement and Educational Tools for the prioritized assessment use cases, and an Accessibility Consultant and Instructional Design Consultant to help review content on the toolkit platform (DLF Dashboard) and develop the tutorials, webinars, and in-person trainings. The project team will also work with DLF's web development expert, Wayne Graham, to build the toolkit into DLF's Dashboard. Additionally, the team will also form a CHKO Advisory Group to provide critical feedback for each of these project deliverables. This eight member team will be composed of practitioners representing public and and academic libraries, institutional and community archives, institutional and public museums, as well as institutional and data repositories. The Project Team will invite participants to this board; selection criteria will emphasize recruiting members who are leaders, visionaries, and experienced practitioners in the field of digital collections and assessment, while prioritizing those individuals from diverse and traditionally marginalized communities. For a list of potential consultants and advisory group members, see Appendix C. Note that the Project Team has not solicited any individuals for these positions. They are supplying information to be illustrative of the types and varieties of expertise the Project Team will seek if the project is awarded.

2.2.2 Timeline

Phase / Activity	Timeframe	Description	Deliverables
Pre-Grant	May-July 2019	**Hire Five Key Consultants** (Assessment, Diversity, Privacy, Accessibility, and Instructional Design) **Invite CHKO Advisory Group**, composed of one representative each from public libraries, academic libraries, institutional archives, community archives, institutional museums, public	**Consultants and Advisory Group** are selected and ready to participate

		museums, institutional repositories, data repositories	
Phase 1, Activity 1	August 2019	**Kick-off for team and advisors** ● Review previous grant and next steps ● Develop working groups ● Communications plan and expectations *Key consultants: Assessment, Diversity, Privacy*	
Phase 1, Activity 2	August 2019-March 2020	**Draft Code of Ethics for Assessing Reuse** ● Review existing codes and ethical standards ● Compile and draft Code ● Submit draft to CHKO Advisory Group for review ● Implement CHKO Advisory Group recommendations ● Release for community evaluation ● Implement community recommendations *Key consultants: Privacy, Diversity* **Community Evaluation and Comment** ● February 2020: Code of Ethics	P**roposed Code of Ethics for Assessing Reuse** that will set the foundation for the nine use cases
Phase 1, Activity 3	October 2019-December 2020	**Develop recommended practices for use cases** ● Conduct environmental scan of methods, tools, etc. for each of the use cases ● Identify existing methodologies that support the use cases ● Create or define methods for use cases where none exist ● Compile and draft Recommended Practices ● Submit draft to CHKO Advisory Group for review ● Implement CHKO Advisory Group recommendations ● Release Recommended Practices for community review ● Revise and incorporate community feedback *Key consultant: Assessment* **Community Evaluation and Comment** ● October-November 2020: Recommended Practices	Set of **recommended practices** for each use case
Phase 1, Activity 4	January 2020-April 2021	**Develop engagement and educational tools** ● Utilize recommended practices to create tutorials guides, templates, or examples ● Document the functional requirements of new tools needed by the community ● Submit tools to CHKO Advisory Group for review ● Implement CHKO Advisory Group recommendations ● Release engagement and education tools for community feedback ● Revise and incorporate community feedback *Key consultant: Assessment* **Community Evaluation and Comment** ● February-March 2021: Engagement and Educational Tools	**Engagement and educational tools** such as tutorials, guides, templates, or examples to support each use case

Phase 1, Activity 5	January-March 2021	**Develop toolkit on DLF Dashboard** *Key consultants: Web Developer, Accessibility, Instructional Design*	**Website** on which all of the deliverables will be housed
Phase 1, Activity 6	February-May 2021	**Populate D-CRAFT toolkit with Project Deliverables** *Key consultants: Web Developer, Accessibility, Instructional Design*	
Phase 2, Activity 1	April-June 2021	**Develop webinars and in-person training based on deliverables from Phase 1 activities** *Key consultants: Accessibility, Instructional Design*	**Lesson plans and audio/visual material** for workshops and webinars
Phase 2, Activity 2	July-December 2021	**Deliver webinars and in-person training** ● Provide 3 in-person workshops, designed to facilitate institutions supporting underserved populations. ● Provide travel grants to broaden engagement to diverse community ● Provide 3 webinars	**In-person workshops and webinars**
All phases	As needed over grant period	**Outreach** to CHKO communities and conference participation to provide project updates	**Conference presentations, white paper, and peer reviewed articles** to keep the CHKO community up to date on the work and deliverables of the project

2.2.3 Financial

The total amount requested from IMLS is $249,998: This amount reflects: (1) $24,547 for salaries and wages for Council of Library and Information Resources (CLIR) staff, who will perform grant administration; (2) $65,620 for stipends to fund five key consultants, a web developer, and advisory group, who will help develop or advise on the D-CRAFT toolkit platform, content, and training materials; (3) $140,825 for travel to conduct three workshops and provide 54 travel scholarships for the CHKO community as well as reimburse conference travel for project team members; and (4) $7,249 for training and workshop costs. Additionally, we seek $11,758 for indirect costs related to program administration, which are calculated based on CLIR's federally negotiated rate (47.9%). The Project Team will be donating their professional service time for this grant. A full breakdown of the project budget can be found on the IMLS Budget Form and Budget Justification.

2.2.4 Project Management

The project will be managed by the core Project Team with Santi Thompson serving as primary investigator. Having worked collaboratively in the previous grant and DLF sub-committee, the Project Team is familiar with

a structure to maximize capacity for our group. This includes bi-weekly, hour-long meetings to report on benchmarks and provide project updates; development of smaller working groups to manage initiatives or tasks; regular meetings with the Advisory Group; and regular engagement with key consultants depending on the deliverables associated with the timeline. The Project Team engages in collaborative web-based note taking and iterates where needed for the best and most sustainable outcomes.

2.3 Audience

The audience for this project is CHKO community digital repository practitioners. The Project Team worked directly with the CHKO community during the Measuring Reuse grant to identify the key use cases that will support their day-to-day work with evaluating the use of their digital repository material. The team will continue that pattern to regularly engage the CHKO community in developing sustainable and relevant tools related to reuse of digital assets. Each of the grant deliverables will be vetted through the community in two ways: 1) through the use of a CHKO Advisory Group composed of digital repository practitioners in libraries, museums, archives, and repositories who will provide input throughout the process; and 2) an open comment and feedback period by the larger CHKO community to ensure that the broadest perspectives are incorporated into the Code of Ethics for Assessing Reuse, Recommended Practices, and Education and Engagement Tools. That valuable exchange will ensure that the deliverables from the project can be utilized by the CHKO community to address topics related to reuse of digital assets.

2.4 Evaluation and Performance Measurement

The project design includes regularized evaluation to support iterative development of project deliverables. This includes evaluation and feedback by the Advisory Group and as well as formal open peer evaluation by the CHKO community through web-based evaluation platforms to capture all comments. After each formal evaluation period for the Code of Ethics, Recommended Practices, and Engagement and Education tools, the Project Team will analyze and implement the feedback. A driving goal of the Project Team is to develop a toolkit that the CHKO community can directly apply to and guide their work. As such, evaluation and feedback will unquestionably shape the project deliverables. Additionally, the project team will incorporate survey feedback at each workshop and webinar to evaluate the training experience for attendees. Feedback will be reviewed after each event and incorporated into subsequent events.

2.5 Sharing Project Findings

Once developed, D-CRAFT will be hosted on the DLF dashboard platform and made available to anyone. These open access materials will include all of the project deliverables, including recommended practices, a code of ethics, and actionable outputs such as templates, samples, or examples of successful implementations that practitioners can use or modify to their unique needs. Additionally the Project Team has built in a significant amount of outreach to the community, including webinars and in-person trainings to provide more directed engagement with the toolkit offerings. Furthermore, the Project Team will engage in formal professional communication channels, such as conference presentations and open access peer-reviewed articles or white papers to further document the process and exhibit the tools available.

3. National Impact

As the Measuring Reuse project included a wide-scale assessment of the barriers to adoption of tools and services to assess digital library reuse, D-CRAFT will be developed to directly support the IMLS priority of National Digital Infrastructures and Initiatives by including realistic and scalable solutions to these barriers and increasing the accessibility of content and collections to a wide range of users. The Project Team is committed to ensuring that the project deliverables are readily adaptable by other institutions and communities, especially institutions supporting underserved populations. We have positioned ourselves to meet these needs by examining data from these populations independently from general responses in our previous grant in order to determine what concrete steps could be taken to provide support for practitioners at these institutions. As respondents representing institutions serving underserved populations (particularly tribal institutions and Hispanic communities) showed a significantly higher interest for in-person trainings and webinars, we have

included three in-person training workshops designed to prioritize the needs and participation of institutions supporting underserved populations as part of the project, budgeted for a Diversity Advisor to ensure we are indeed reaching a diverse community of library practitioners, and planned for separate webinar training sessions in order to maximize involvement.

By building on the needs assessment and established requirements from the previous grant, the Project Team is poised to create a toolkit to address missing variables in the digital library use and effectiveness equation. 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 CHKOs 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.

This toolkit will be a component of the DLF Dashboard, a suite of tools and resources, including the Digitization Cost Calculator, developed by DLF groups and affiliates to support the community of practice. The Project Team draw upon DLF's experience designing and stewarding tools like the Digitization Cost Calculator when constructing and releasing D-CRAFT. Thanks to the ongoing involvement of DLF in this project, the D-CRAFT toolkit should continue to be developed, refined, and transformed beyond the funding period.

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. 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 group and hired consultants 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 reuse toolkit which will be comprised of recommended practices, code of ethics, assessment tools, tutorials, samples, and templates; and training opportunities that meet the needs of the diverse digital library/cultural heritage community. The Project Team will disseminate this information via five methods: (1) training program for CHKO community practitioners include webinars and in-person trainings, (2) progress updates and final results, compiled as a white paper, will be shared on the team's website and through CLIR/DLF publication channels; (3) the team will submit presentation proposals for at least one national conference per year of the grant, to introduce this work and to share final results; (4) the team will deposit project data to a freely accessible data repository; and (5) 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.

D-Craft *Schedule of Completion*	Pre-Grant	Year 1												Year 2												Year 3							Post Grant
29 month grant cycle	May/June 2019	July 2019	AUG	SEP	OCT	NOV	DEC	JAN 2020	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN 2021	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Pre-Grant Arrangements																																	
Hire consultants and invite Advisory Group members																																	
Phase I																																	
Activity I: Kick-off Meeting																																	
Activity II: Draft Code of Ethics for Assessing Reuse																																	
Activity III: Develop Recommended Practices for Use Cases																																	
Activity IV: Develop Engagement and Educational Tools																																	
Activity V: Develop Toolkit on DLF Dashboard																																	
Activity VI: Populate D-CRAFT Toolkit with Project Deliverables																																	
Phase II																																	
Activity I: Develop webinars and in-person training based on deliverables from Phase 1 activities																																	
Activity II: Deliver webinars and in-person training																																	
Ongoing																																	
Outreach to CHKO communities and conference participation to provide project updates																																	
At least 1 national conference to share final results																																	
Final Analysis																																	
Deposit project data to freely accessible data repository																																	
Produce and disseminate white paper shared on the team's website and through CLIR/DLF publication channels																																	
Produce peer-reviewed article to publish in open access journal																																	
Consultants and Advisory Group Participation[1] *(Project team throughout)*			Div Priv Assess	Div Priv Assess	Div Priv Assess	Div Priv Assess	Div Priv Assess CHKO	Div Priv Assess CHKO	Div Priv Assess	Assess	Assess	Assess	Assess	Assess	Assess CHKO	Assess CHKO	Assess	Assess	Assess CHKO	Assess Access Inst. Des. CHKO Web Dev.	Assess Access Inst. Des. Web Dev.	Assess Access Inst. Des. Web Dev.	Assess Access Inst. Des.	Access Inst. Des.	Access Inst. Des.							

Grant activities | Community Assessment Periods

[1] Consultants and Advisory Group code: **Div** = Diversity Consultant, **Priv** = Privacy Consultant, **Assess** = Assessment Consultant, **CHKO** = CHKO Advisory Group, **Inst. Des**. = Instructional Design Consultant, **Access** = Accessibility Consultant, **Web Dev.** = Web Developer

DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (e.g., 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. 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

All applications must include a Digital Product Form.

☐ 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.

Copyright for all D-CRAFT project outputs is held by members of the project team and will be made available via a Creative Commons Attribution ShareAlike 4.0 International (CC-BY-SA 4.0) license. This license lets others remix, tweak, and build upon your work, as long as they provide credit and license their new creations under the identical terms. The CC-BY-SA license was selected in order for our work to be implemented and built upon by anyone, while still acknowledging the efforts of the project team. The project team will articulate this license on its project website as well as via the Open Science Framework (OSF) platform, where all findings and deliverables will be hosted.

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.

All products, which may consist of documentation, survey tools, presentations, audio/video files, and papers, generated by the project team will be made freely available on the project web page. As noted, all final deliverables the group produces will be licensed under CC-BY-SA and made accessible on a dedicated OSF project page. Any submitted publications will be to open access journals. Publications may also be deposited into one or more institutional repositories in order to adhere to potential open access policies of team member institutions. Any data generated will also be deposited in open access data repositories, as appropriate.

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.

This project has no concerns regarding cultural sensitivities or privacy.

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 the format(s) you will use.

The project team will create a web page, which will make progress updates and final results freely available to the community. All final deliverables, including assessment documentation, tools, and audio/video files will also be hosted on a dedicated OSF project page. Finally, any documentation, tools, and/or audio/video files will also be hosted on the Digital Library Federation's Dashboard. The working drafts from D-CRAFT activities will be shared among the project team through the G Suite by Google (Google Drive, Docs, Sheets, etc.). All of these tools have the capability to export results into text-based file formats such as CSV or TSV, and the project team will prioritize using open file formats suitable for preservation.

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.

Software used will include Microsoft Office and G Suite by Google.

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).

File formats include, but are not limited to, the following: .xlsx, .csv, .html, .xml, .doc, .pdf, .gsheet, .gdoc, .mp3, and .mp4.

B. Workflow and Asset Maintenance/Preservation

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

This project is focused on gathering and creating assessment documentation, tools, and audio/video files used to help practitioners better understand how to assess content reuse. Therefore the advisory team and project team will use the Schedule of Completion to monitor and evaluate the development of the toolkit over the two phases outlined in the grant proposal. The project team will ensure the public dissemination of compiled results are released to the community as planned.

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 project team plans to make the results of this work, as described in Section 1, freely available on a web page, on DLF's Dashboard, as well as through the OSF platform. During the in-progress stage of the grant work all working files will be stored and accessed via Google Drive and restricted to the project team. The project team already has existing workflows and norms in place for Google Drive, so this will require no transition time. Description of the grant, a redacted proposal, progress reports, initial results, and other status updates will be made available on a project web page that will be built using Wordpress. At the completion of the project, all deliverables, including progress reports, assessment documentation, tools, and audio/video files will have longer-term access and preservation as an OSF project.

C. Metadata

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

The project will not generate products with metadata. The deliverables will be deposited into the OSF project repository and described per OSF required and optional metadata fields.

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

The project deliverables will be deposited in an OSF project.

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).

As noted previously, all materials will be shared via a project webpage, the DLF Dashboard, and/or the OSF platform.

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 project deliverables will be made accessible to the public via the project website (Wordpress), the DLF Dashboard, and/or the OSF project. The wordpress site will allow crawlers so the project team can regularly save it to the Internet Archive.

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 larger DLF Assessment Interest Group, Content Reuse Working Group, makes its work available on a open DLF Wiki page (https://wiki.diglib.org/Assessment:User/Reuse) and its OSF project page (https://osf.io/36npw/). The previous project, Developing a Framework for Measuring Reuse has a website (https://reuse.diglib.org/) and OSF project page (https://osf.io/y5tjh/).

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.

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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.

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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.

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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.

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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

N/A Since this project is focused on developing content for a toolkit, including documentation, tools, and audio/video files.

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.

We intend to collect data from multiple project-related activities, including from open peer evaluations of the Code of Ethics, Recommended Practices, and Engagement and Education tools as well as on workshop evaluations from attendees. Data collection and analysis will follow the project's schedule of completion, including key dates outlined for community assessment periods for feedback on the Code of Ethics(February 2020), Recommended Practices (October and November 2020), and Engagement and Education tools (February and March 2020). Data will be collected via online and in-person surveys and questionnaires.

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?

The project team will seek IRB approval through a cross-institutional agreement model. The team previously used this approach, with the University of Houston acting as the institution-of-record, during a previously-funded IMLS grant project (Measuring Reuse). The project team will submit the IRB application and any required instruments and documentation to the University of Houston's IRB office. Once initiated, project team members will use the pending formal agreement between the project team and the University of Houston as their submission to their respective IRB offices. The final protocol approved by the University of Houston will also be approved by the six other IRB offices.

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).

No. The project team will ensure that any survey or feedback compilation does not require identifying participant information. Additionally, the results will be released in aggregate, further obscuring potential for identifying an individual’s contribution.

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.

The survey/questionnaire produced during public open comment or during workshop feedback sessions will include an informed consent section describing participant rights, any potential risks, contact information for the project team and a statement that participation is completely voluntary. Consent information will be saved in a Google Drive folder that is restricted only to members of the project team. The project team will also use Drive to preserve a copy of the raw survey data (including consent agreements, which will be completely restricted to members of the project team and retained for a minimum period of 3 years).

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).

Data will be collected using the Qualtrics software. The software allows for export of all the data into .csv format, which is readable by any spreadsheet or text editor program, and a preferred preservation format. Beyond a generic spreadsheet or text editor, there are no technical dependencies to understand the collected data. The project team will compile open public comment feedback from the and categorize it using spreadsheets and/or a common word processing program such as Microsoft Word or LibreOffice Writer. All text documents will be saved as pdf, an openly available file format. There are no technical dependencies beyond access to a generic spreadsheet software or PDF reader.

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?

The project team will create a readme file for the project data based on the readme template from Cornell University: https://cornell.app.box.com/v/ReadmeTemplate. Additional documentation will also include generated data dictionaries from the Qualtrics survey software which include question text and variable definitions and are available in PDF formats. The anonymized survey data will be packaged with its appropriate dictionary in a zip folder. Feedback from public open comments will be in the form of scribed notes, which will be compiled and categorized during the analysis. Definitions of the resulting concepts will be included in a data dictionary.

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

The datasets will be preserved and made available along with the grant project deliverables in an OSF project space.

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

Name of repository:

Open Science Framework

URL:

https://osf.io/

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

The data management plan will be reviewed by the project team tri-annually with the advisory team during scheduled advisory board meetings.