

NEH Start-Up Grant: Level II

PI: Dr. Kimberly Christen

Mukurtu: an Indigenous archive and publishing tool

I. Enhancing the humanities through innovation

We are seeking a Level II Digital Start-Up Grant to create a working prototype of an open source, standards-based, archiving and publishing tool adaptable to the local cultural protocols and complex intellectual property rights systems of Indigenous communities. As the third phase of an on-going project, this software differentiates itself by providing Indigenous communities with a customizable, turnkey solution to their archive and web-publishing needs. Through fieldwork with Aboriginal communities in Australia over the last decade, the production of two distinct digital archive projects with Indigenous communities, and in consultation with the Indigenous Language Institute, the American Folklife Center, and the American Library Association, it is clear that Indigenous communities are being underserved by the explosion of Web 2.0 technologies and digital innovation more generally.¹ Let me briefly explain:

In 2002, after years of collaboration with the Warumungu Aboriginal community in Central Australia on several projects, the Principal Investigator on this project, Dr. Kimberly Christen, accompanied a group of community members to visit the National Archives in Darwin. Looking through the images and documents there was both tension and relief. The tension centered on the violation of cultural protocols observed by Warumungu people in the distribution, circulation and reproduction of cultural materials and knowledge.² For example, images of people who were deceased were catalogued with no warnings; pictures of sacred sites were divulged with no connection to the ancestors who care for those places; ritual objects were disconnected from the practices, people, and places they need to be efficacious, and so on. In addition to this archival material, the community had received thousands of photos back from former missionaries, schoolteachers and researchers. These virtually repatriated digital objects posed a challenge because they could be reproduced endlessly, accessed more easily, and distributed without consent or consultation. Everyone who viewed the photos on Christen's computer's slideshow knew who should view them, what should be restricted, and if they could be reproduced. These cultural protocols did not need to be spoken, but everyone knew when they were violated. The cultural protocols surrounding the viewing, reproduction and distribution of images and knowledge were implicit in the actions of the community as they interacted with these newly acquired digital images.

Most digital and analog archives share the same paradigm: preservation and access are their first priority, while the social life of the objects is secondary, if considered at all. What the Warumungu community wanted, instead, was an archive *and* search engine whose primary goal was respect for the dynamic social and cultural systems, relationships, and cultural protocols within which information is embedded and access defined. Looking over the commercial off-the-shelf content management systems such as ContnetDM, we discovered a set of unmet needs: cultural protocol driven metadata fields, differential user access, and flexible user-interface templates were not available. We were not the only ones to come to this conclusion. Based on feedback from Native communities in the U.S., the National Museum of the American Indian (NMAI) at the Smithsonian Institution conducted a survey of commercial off-the-shelf content management systems and came to the same conclusion.³

After two and half years of software development, design and community consultation, we produced the alpha-version of the Mukurtu Wumpurrarni-kari archive (www.mukurtuarchive.org).⁴ The archive allows Warumungu people to dictate the terms of access to and distribution of *their cultural materials* through an interface that links each community member to each piece of content via an extensive user profile (see figure 1, Appendix I). All content is linked to a set of cultural protocols defined by the community as significant for circulating cultural materials and knowledge (see figure 2, Appendix I and Christen 2008). When people access the archive using their password they, essentially, produce their own "mini-archive" of material to which they are related and over which they have the responsibility to

¹ For examples of institutions involving both Indigenous and non-Indigenous peoples addressing these issues see: Protocols for Native American Archival Materials by the First Archivists Circle (<http://www2.nau.edu/libnap-p/endorsements.html>), the Society for American Archivists recently formed Working Group on Cultural Property (www.archivists.org/council/Council0809/0809-1-II-E-CulturalPropWG.pdf), the American Library Association's Traditional Cultural Expressions and Libraries white paper (<http://wo.ala.org/tce/>).

² Christen, Kimberly. 2008. "Archival Challenges and Digital Solutions in Aboriginal Australia." *The SAA Archaeological Record*. Volume 8: pages 21-24.

³ J. Hunter, B. Koopman, J. Sledge, "Software Tools for Indigenous Knowledge Management", Museums and the Web 2003, Charlotte, March 2003

⁴ See: Christen, Kimberly. Ibid 2008. Mukurtu means "a safe keeping place" in Warumungu.

maintain, circulate and reproduce. The archive also promotes community discussion by allowing people to comment on the content and flag content that they believe has been tagged incorrectly.

Mukurtu was installed in Australia in 2007 and updated in 2009. During this time Christen and lead developer, Dietrich presented the archive's capabilities to many groups: Indigenous communities, archivists, librarians and museum scholars. What became clear was that there was a similar set of archival and content management needs by Indigenous communities globally. The Squamish nation in Canada wanted an archive whose protocols could accommodate their intricate clan and family system; in New Zealand the Maori wanted a system that could deal with extensive *iwi* (kin-based social networks) relations, and in Kenya the Maasai wanted a system that would allow them to differentiate materials meant for commercial purposes from those meant only for internal circulation through intellectual property management tools. In every case, however, these Indigenous communities shared the need for: flexible cultural protocols to drive the distribution, circulation and reproduction of their cultural heritage, customizable templates to fit their linguistic and cultural differences, adaptable user-access levels to meet the diverse needs of their complex social networks, and clear intellectual property management tools so they could make informed decisions about the circulation of their own materials as well as those they share with institutions.

Heeding the call of Indigenous communities, archivists and museum professionals, a fully adaptable Mukurtu⁵ software tool will facilitate 1) the "virtual repatriation" of museum and archival materials from collecting institutions to source communities, 2) metadata transfer between collecting institutions and Indigenous communities, 3) cultural protocol-driven access parameters based on Indigenous knowledge systems 4) clear licensing parameters for content within the archive, 5) the option to publish to the web full or partial collections using flexible templates, and 6) the production of iterative archival material through user-generated content (video, audio, images, and text). Mukurtu will provide a turnkey solution for Indigenous communities who wish to manage their own materials as well as provide a reliable interface between source communities and collecting institutions facilitating the sharing of collections materials and metadata, as well as distinct knowledge sets related to the materials. Each of these decisions would be made through the backend of Mukurtu where a series of administration pages (see figures 3-5, Appendix I) prompts the community to make decisions about the protocols by which their materials would be defined and the requirements for their user-profiles, as well as, the look and feel of the site.⁶

By creating an easy-to-use, cultural protocol-based archival and presentation platform, Mukurtu seeks to fill the void left by current content management systems and Web 2.0 social networking sites that focus on large institutions and the general public, respectively. Mukurtu aims to: 1) highlight the concerns of Indigenous stakeholders who are often left out or marginalized within the public domain of collections-based material 2) create a tool to fill the void of existing digital archival management systems and 3) allow for real-time collaboration and engagement between Indigenous communities and the institutions that hold their cultural heritage.

The proposed tool will take the form of an open source software package that any Indigenous community can download, adapt and link up with collecting institutions to import and export both content and metadata. The tool will have the flexibility of blogging tools where users can download templates and define fields, the standards and interoperability of Humanities-based production tools like Omeka (www.omeka.org) and the flexible licensing options of Creative Commons (www.creativecommons.org). The benefit of these existing tools is that they allow users to choose from a range of templates and features to customize their blogs, publish their museum collections or license their works. Unfortunately, however, while these tools aim to be expansive they adopt the intellectual, legal and cultural protocols of their target audience: the (largely) Western "public." The test of most software has been to ask: can it scale? That is, can it have a global reach and wide commercial appeal? This question frames both corporate-driven projects and many Humanities-based ones. While this one-size-fits-all approach certainly has its benefits, one of the promises of the Digital Humanities as an emerging field should also be to focus our historically astute lens on the needs of specific communities—particularly those underserved by the current digital landscape.⁷

Our aim with this open source project is to focus the customization areas, template options, and software features on the specific needs of Indigenous communities by adding language customization, templates with built-in fields for cultural protocols, customized intellectual property rights options, and features such as on-the-fly audio recording. Features such as language customization are vital to documenting, reviving and teaching Indigenous languages; building in flexible data fields for cultural protocols facilitates the perpetuation of Indigenous knowledge systems; adding in custom licensing options gives Indigenous people control over the circulation of their cultural heritage in commercial and non-commercial realms; and features such as on-the-fly recording and song transcription take

⁵ The elders gave permission in July 2009 for the name to be used in the production of a customizable software tool.

⁶ See also a short 3 minute video describing the features: <http://www.mukurtuarchive.org/demos.php>

⁷ See the digital Humanities Manifesto 2.0 (<http://www.digitalhumanities.ucla.edu/>) 2009.

seriously the literacy deficiencies found in most Indigenous communities and the need to maintain language through active preservation strategies.

This project has significance to Humanities scholars, students, Indigenous communities and the many publics that use the digital resources of collecting institutions. In one of the only collections on information technology and Indigenous communities worldwide, Laurel Evelyn Dyson, Max Hendricks and Stephen Grant argue that, “Traditional knowledge and language resources are often stored away in museums and libraries, placed there by anthropologists and linguists in the past, but largely inaccessible to the indigenous owners.”⁸ The physical distances between Indigenous communities and their cultural heritage and oftentimes very personal histories held in museums and archives is part of the legacy of colonial nation-building where museums were seen as “part of the checklist for being a nation.”⁹ Since the mid 1990s, museums, archives, libraries worldwide have recognized the need to include Indigenous communities in their outreach activities and curation process. Dyson, Hendricks and Grant suggest that, “The multimedia capabilities, storage capacity and communication tools offered by information technology provide new opportunities to preserve and revitalize indigenous cultures and languages, and to repatriate material back to communities from national cultural institutions.”¹⁰ Mukurtu will facilitate knowledge sharing between source communities and collection institutions. Mukurtu will benefit Indigenous communities by providing a solution to their cultural heritage management needs that are not being addressed in commercial products, at the same time it will allow collecting institutions to enlarge their knowledge base and provide scholars with a wide-range of knowledge sources for materials that have been previously minimally described.

II. Environmental Scan

1) Reciprocal Research Network (http://www.moa.ubc.ca/RRN/about_overview.html): The Museum of Anthropology team at UBC is creating a network for scholars, institutions and source communities to share and contribute metadata to existing collections. Although the RRN project shares some of our methodologies, particularly its accessibility to source communities, it is not a software tool that communities can use themselves or customize to suit their specific cultural protocols. One of the reasons the software tool is necessary is because many Indigenous communities do not have (or have limited access to) the Internet, particularly at the speeds necessary for loading high-resolution images, audio or video. The RRN is implementing international standards in metadata (as we propose) so it is feasible that users of our proposed software could import/export content from the RRN.

2) Our Story v. 2 (http://www.ntl.nt.gov.au/our_story_version_2_project):

The Northern Territory Libraries (Australia) is in the planning stages of creating a browser-based archive system (an update of the Ara Irititja system built in FileMaker Pro, <http://www.irititja.com/>) for use in Aboriginal communities throughout the Northern Territory of Australia. While the Our Story project shares our goal of creating access to cultural heritage collections, it does not seek to link collecting institutions to source communities’ knowledge sets. Their goal is primarily providing access to local content for Aboriginal communities. At this date it is also unclear what type of license NTL will use for the software (I was an unpaid consultant for this project in 2008).

3) Omeka (<http://omeka.org/>). Omeka is a “web platform for publishing collections and exhibitions online.” It allows institutions and scholars to create online exhibitions using adaptable templates and is interoperable with international collections metadata standards. It does not provide linkages between collecting institutions and source communities and does not have the feature-set that grows out of the particular needs of Indigenous communities. However, many of Omeka’s customization features are similar to Mukurtu and we will be consulting with them and adapting some of their open-source plug-ins and features that work in our plan.

III. History and duration of the project

The current stand-alone version of the Mukurtu archive uses Warumungu cultural protocols along with standard metadata protocols as the basis for archival cataloging and display. It allows the community to integrate their own metadata and narratives along with cultural protocols for the viewing, distribution and reproduction of cultural materials. It was built using the industry standard (and open source) database tool and scripting language (MySQL and PHP,

⁸ Laurel Evelyn Dyson, Max Hendricks, and Stephen Grant, *Information Technology and Indigenous People*. IGI Global Press, 2006, xvi.

⁹ Kratz, Corinne and Ivan Karp. 2006. “Introduction” in *Museum Frictions: Public Cultures/Global Transformations*. 1-31. Durham: Duke University Press, 2006, 3.

¹⁰ Laurel Evelyn Dyson, et al. *Information Technology and Indigenous People*. IGI Global Press, 2006., xvi

respectively) to produce a recursive database structure running a browser-based interface to allow for dynamic linkages between materials in the archive and the parameters for their accessibility. The system is in use by the Warumungu community in Australia on one computer in their community cultural center.

Building from this technological and methodological base, Christen has been working with Mukurtu lead developer, Craig Dietrich, Washington State University digital initiatives librarian Alex Merrill, and collaborating with Washington State University's Plateau Center for American Indian Studies, Museum of Anthropology, and the Manuscripts, Archives and Special Collections libraries to produce the Plateau Peoples' Web Portal.¹¹ Funded by a Northwest Academic Computing Consortium "proof of concept grant" (2008-2009) and an ACLS Digital Innovation fellowship (2009-2010) our technical team leveraged the original Mukurtu system's backend to create an interactive, educational, web-based environment that allows the Plateau peoples' cultural materials held in WSU's collections and at the National Anthropological Archives (NAA) at the Smithsonian Institution, to be curated by Plateau Tribes.¹² The current beta version of the portal holds 75 collection items, the original metadata from the academic sources of the collectors, "tribal knowledge" added by tribal representatives through a password protected login mechanism, and comments by the general public. The system allows the tribes involved to add metadata, narratives (written and oral) and tags to the content. The site highlights the layered history for each piece of content, linking histories of collection and colonization with those of survival and adaptation and thus expanding both the historical record and the range of expert voices online. For example, the Chalcraft-Pickering lanternslide collection digitized as part of the first phase of the project contains images from the Chemawa boarding school in Oregon. This collection spans tribal affiliations showing the connection of Plateau peoples' histories and colonial encounters in the American Northwest. One image in particular, of the bakery, spawned a lengthy textual entry by a Yakama tribal member and two audio links by Umatilla tribal members. Accessing the image, users can read about the school and its history, see the site on the map, listen to contemporary Umatilla elders remember the food served at the school and read the catalogue record (see figure 6, Appendix I).¹³

Accessing the site tribal members, scholars, students and general Internet users see the same materials but interact with them and define them based on different knowledge sets. Tribes, affiliated scholars and institutional affiliates (such as the NAA) can upload content, add metadata, map content, and add narratives. Rather than assume a view of "crowd sourcing" that presumes all knowledge to be equal, this portal highlights the unique knowledge sets of Native peoples of the Plateau *alongside* scholars who have contributed to these collections (see figure 6, Appendix I). Visitors to the site can add comments, tags and create individual "myCollections" areas for future research. Whereas in many museum and archive settings knowledge is "given" by experts, and tags or comments are seen as anecdotal, here we have aimed to create a space to open dialogue and allow many perspectives sit side by side where Native views and academic information are given equal space. Thus, we are not "correcting" the record, but expanding it to show the range of historical narratives and knowledge surrounding cultural materials.

These projects lead logically to questions of reuse, adaptability, and interoperability: Can these systems be the foundation of a software tool that allows Indigenous communities to manage their own cultural heritage materials and to interface with major collecting institutions' content management systems? Can a flexible template system work to both produce extensible metadata and a new curation paradigm? The goal of this project is to answer these questions by providing a working prototype of a turnkey software tool, "Mukurtu" for use by Indigenous communities already working with 1) the Plateau Portal project and 2) the World Intellectual Property Organization's (WIPO) Creative Heritage Project focused on creating sustainable digital archives for Indigenous communities (see below: Final Product and Dissemination). This product will be a flexible, adaptable, template-based program allowing Indigenous communities to generate a digital archive based on their own cultural protocols, intellectual property needs, and community knowledge systems. To address sustainability issues the team has delegated technical development to USC, outreach and distribution to WIPO, and project management to Dr. Christen. Formally, we are producing a Memorandum of Understanding (MOU) between these institutions to address the issues of technical sustainability within Indigenous communities and continued outreach for future use. The MOU will detail the sustainability of the software after the prototype has been tested in Indigenous communities, continued funding and technical updates to the system.

IV. Work Plan (March 2010 – June 2011)

This phase of the project's lifespan will begin with a series of video conferences with digital archive and intellectual property specialists Jennifer O'Neal, Dr. Michael Taft, Dr. Wendy Seltzer, and Wend Wendland (see bios in the

¹¹ To access the portal: <http://libarts.wsu.edu/plateaucenter/portal/html/ppp/index.php>

¹² The "proof of concept" phase of the project in 2008-2009 included the Umatilla, Yakama and Coeur d'Alene nations. For more information see: <http://libarts.wsu.edu/plateaucenter/portalproject/>

¹³ <http://libarts.wsu.edu/plateaucenter/portal/html/ppp/display.php?tid=2&cid=3&fid=101&pgst=0>

appendix). Each of these consultants is already familiar with the existing Mukurtu software, technical and cultural parameters, and the project's methodology.

Our main goal in consulting with the archival specialists (O'Neal and Taft) is to build a set of best practices for Mukurtu aimed specifically at import/export between source communities and collecting institutions. Their familiarity with the existing systems and their expertise in associated industry standards will guide the technical production. Consultation with legal specialists (Seltzer and Wendland) will allow us to build the intellectual property management function as robustly as possible so as to facilitate a set of accurate and adaptable licensing choices for Indigenous communities globally. Following the meetings, Christen and the technical team at USC will create a standards document resulting from this collaboration. This document will be the foundation for building the prototype. The document will be sent back to the consultants for comment and one final video conference will be held to complete the task of creating the standards document.

Software development:

The meat and bones of this project is software development. Because this is Phase 3 of a long-term project (1: Mukurtu, 2: Plateau Portal) we already have a firm grasp on the necessary features of the tool itself based on Indigenous communities' use of the previous iterations of the software and our consultation with Indigenous communities. These include: flexible templates, adaptable protocol features, easy-to-use administration pages for customization, Indigenous language keyboards for data input in Indigenous languages, on-the-fly recording, integrated mapping features to include Indigenous mapping strategies, flexible data fields for filtering content, XML-based export/import system for interaction with collecting institutions, easy to use intellectual property tags/documentation for content (at item and collections levels). Christen, Dietrich and the developers will prepare a systems requirement document and wireframes of the proposed system. The team will follow this timeline:

March – August 2010: team meetings every 2 weeks

- A.** Development focusing on integrating: (software team: Dietrich-lead advisor, 2 developer positions to be hired through USC)
 - a.** Open archives metadata standards
 - b.** Development of template-based customization features:
 - i.** Language tools (for Indigenous language customization)
 - ii.** Cultural protocol choices
 - iii.** CSS (cascading style sheets)
 - iv.** Metadata standards view options
 - v.** Intellectual property choices (licensing)
 - c.** Administration pages (built from existing ones),
 - d.** XML-based import/export function.
 - e.** Interface with collecting institutions
 - f.** Customized licensing template
 - g.** Mapping protocols and flexible structures
- B.** Design emphasis on theme selection/flexibility of templates (Designer 1, to be hired through USC)
 - a.** Design theme templates: clear user-choices, flexible CSS
 - b.** Installer package
 - c.** Direct feedback loop for user-groups

September 2010:

- A.** All team meeting on site in LA: (McPherson, Christen, Dietrich and development team)
 - 1.** Discuss issues arising in development and modify plans if needed
 - 2.** Finalize development plan based on feedback

October 2010

- A.** Send out a beta demo version to institutional consultants from initial phase (Christen/lead)
 - 1.** User-testing on site
 - 2.** Collect feedback

November-December 2010: (Dietrich, design and development team)

- 1.** Designer produces 2 mock-ups for basic CSS for the tool
- 2.** Developers focus on refining system based on consultants' feedback

January-March 2011

- A.** Dissemination to Indigenous communities involved through WIPO and Portal project (Christen and Wendland)

B. Consult with collecting institutions (NAA & NMAI-O'Neal) and provide link with Indigenous communities from Portal project using the software [Christen, Adams (Yakama)]

April-May 2011:

A. Updates based on user feedback from Indigenous communities (Dietrich and development team)

June 2011

A. Official launch at IML and WIPO including: (Christen, Dietrich, McPherson, Wendland)

1. Designated website for the project hosted at IML
2. Easy to access installer + instructions for installation
3. Software documentation

B. Draft plans for sustainability

1. Review MOU with USC, WSU and WIPO
2. White paper on collaboration between collecting institutions and Indigenous communities specific digital archival needs.

V. Staff

1. Dr. Kimberly Christen, Principal Investigator: Assistant Professor, Washington State University, Director Mukurtu and Plateau Peoples' Web Portal project.
2. Craig Dietrich, Lead Developer and Software Advisor: Institute for Multimedia Literacy (IML), University of Southern California (USC).
3. Jennifer O'Neal, Archival Standards Consultant: Head Archivist, National Museum of the American Indian, Cultural Resource Center, Smithsonian Institution.
4. Dr. Michael Taft, Archival Standards Consultant: Head of the Archive of Folk Culture at the American Folklife Center, Library of Congress.
5. Dr. Tara McPherson, Development and Distribution partner: Institute for Multimedia Literacy/Center for Transformative Scholarship at University of Southern California (USC).
6. Wend Wendland, Development and Distribution partner: Acting Director and Head of the Traditional Knowledge Division, WIPO.
7. Dr. Wendy Seltzer, IP consultant: Fellow, Silicon Flatirons Center at University of Colorado Law School Fellow, Berkman Center for Internet & Society at Harvard University.
8. Developers and designer to be hired through the USC's staff (see position description in appendix).

VI. Final Product and Dissemination

Distribution:

1. Mukurtu will be made available to Indigenous groups already working with the system on the Plateau Portal project (Yakama) as well as the Maasai who will continue their partnership with WIPO, Duke and The American Folklife Center testing Mukurtu as their archival platform.
2. WIPO will use their network of Indigenous communities focused on preservation and access of cultural materials to distribute the software more widely in the year after the initial testing, this will be based on the products use within the test communities.
3. Mukurtu will be made available for free download on a dedicated website hosted by the University of Southern California's (USC) Center for Transformative Scholarship, as a digital humanities center, the CTS is well placed to act as the distribution center for the software.
4. NMAI and NAA will promote Mukurtu via links on their websites and through their unique outreach programs with Native communities throughout the United States.
5. USC will maintain the tool and the website in connection with WIPO and Dr. Christen as they pursue long-term funding together and draft an MOU that will define each parties roles in sustainability.
6. USC will promote the tool on their website and host development groups as a way to continue expansion of the project through software updates and the creation of plug-ins as needs arise.

Presentation and Media:

Christen will present the working model of the software at the Society of American Archivists annual meeting, the annual international Ethnographic Praxis in Industry Conference and the annual Digital Humanities Conference upon completion of the NEH grant. In addition, Christen plans media exposure through the BBC's Digital Planet series. The program director, Julian Siddle, invited her to come back to the show once after her initial discussion of the Mukurtu project in January 2008.