Abstract

The World Indigenous Nations University Hawaii Pasifika (WINUHP) is a 501 (c) (3) nonprofit organization affiliated with the World Indigenous Nations Higher Education Consortium (WINHEC) is the lead applicant for *Lau ā Lau ka ʻIke* . Project partners include ULUKAU: Hawaiian Electronic Library (managed by Ka Haka ʻUla o Keʻelikōlani (College of Hawaiian Language) at the University of Hawaiʻi at Hilo, Nā Hawaiʻi ʻImi Loa, the Hawaiian Librarian Professional Association, and Hawaiʻinuiakea: School of Hawaiian Knowledge at the University of Hawaiʻi at Mānoa.

Lau ā Lau ka ʻIke (Knowledge Abounds) will create a collaborative, Hawaiian controlled vocabulary which can be used to provide culturally-appropriate organization and representation within library catalogs and other digital collections and to improve access for Native Hawaiian users, particularly Hawaiian language speakers (students, teachers, researchers, community), information professionals, and the Hawaiian community as a whole. This one-year project will begin December 2018.

Additionally, *Lau ā Lau ka ʻIke* will foster a community of practitioners, scholars, and cultural experts focused on improving access to Hawaiian collections via metadata, in turn providing a platform for raising further discussions of linking digital collections.

Lau ā Lau ka ʻIke will also contribute to scholarly research, to cultural heritage institutions, and to Hawaiian and other indigenous communities by identifying a prioritized work plan and developing best practices for creating collaborative, community-driven controlled vocabularies across collections with appropriate cultural protocols.

Considered one of the world's top indigenous-language websites, Ulukau has surpassed 148 million hits (page views) since its inception in 2002. With patrons from all four Hawaiʻi counties; all 50 states and the District of Columbia, and at least 170 countries with over 57 organization partners. Currently, the annual hits (page views) for Ulukau is 17 million.

By the end of the project, Ulukau (Hawaiian Electronic Library) users will be able to use the first controlled Hawaiian vocabulary developed for a Hawaiian digital repository.

Lau Ā Lau Ka ʻIke
(Knowledge Overflowing)

1. STATEMENT OF NEED

In the 2010 U.S. Census, Native Hawaiians living in Hawaiʻi make up about one-fifth of the total population with 289,970 living across the islands. According to the most recent Native Hawaiian Educational Assessment, Native Hawaiians continue to have the lowest mean income, highest incarceration rate (nearly 40%), and highest homeless population (40%) of all the major ethnic groups in Hawaiʻi. More than one in five Native Hawaiian children live in poverty (21.9%).

Of particular concern to educators, Native Hawaiians in the public school system have the lowest rates of timely graduation of all major ethnic groups in the state. High school graduation rates for Native Hawaiians is 69.4%. Dropping out of high school increases the likelihood of unemployment, incarceration, and poverty. Native Hawaiians are facing a cycle of challenges.

Organization Profile

The World Indigenous Nations University Hawaii Pasifika (WINUHP) is a 501 (c) (3) nonprofit organization affiliated with the World Indigenous Nations Higher Education Consortium (WINHEC). Formed in 2014, with the express purpose to recognise and reaffirm the educational rights of all Indigenous Peoples united in the synergy of self-determination through the control of higher education, WINUHP seeks to accomplish this by: 1) living as Indigenous peoples; 2) producing graduates who are scholarly and culturally astute Indigenous leaders who can be successful in the global world no matter where they live; 3) enjoying a high standard of living and good health; 4) promoting cultural and educational systems of Indigenous peoples; 5) profiling the scholarship of Indigenous knowledge and knowledge systems as epistemological and pedagogical instruments for advancing well-being and fostering cross cultural understanding and respect; and, 6) developing collaborative partnerships.

WINUHP is committed to promoting the ideals and principles of the United Nations Declaration on the Rights of Indigenous Peoples, specifically for Native Hawaiians and Pacific Islanders. WINUHP's vision is to preserve, perpetuate, and promote ancestral knowledge and wisdom for the next generation of Native Hawaiians, including such cultural practices as language, protocols, stories, songs, chants, dance, and values. Our mission is to raise up the next generation of Native leaders, entrepreneurs, healers, land stewards, cultural practitioners, scholars, and Ambassadors of Aloha for the benefit of our people, our planet, and prosperity for all.

As a young and emerging Indigenous educational institution of higher learning, WINUHP has managed to compete for and was awarded a $20,000 Native Youth and Culture Fund from the First Nations Development Institute in 2017. The grant was entitled, ʻŌPIO Learning Academy (OLA) that allowed WINUHP to introduce and mentor 20 Native Hawaiian youth in the traditional Hawaiian healing arts from 4 Native Hawaiian practitioners in Hoʻoponopono (conflict resolution), Lāʻau Lapaʻau (herbal medicines), Lomilomi (massage), and Hula (dance for physical movement). The project concludes May 30, 2018 in a community Hōʻike (public demonstration of knowledge and skills acquired).

While WINUHP is relatively young, its Governing Board is experienced and well educated, with many years of experience in writing and managing state, federal, and foundation grants. We take seriously our role and responsibility to educate and mentor the next generation of native youth. We are of the communities that we

serve, and are therefore held to higher standard of trust and duty of care. We also feel a great debt of gratitude to our ancestors who sacrificed and struggled so that we may be at this point in our lives and careers. Each succeeding generation of Native Hawaiians and Pacific Islanders have paid dearly in the loss of our cultures and languages. This grant will allow us to reassemble remnants of who we are as a people, community and nation.

Purpose of Lau Ā Lau Ka ʻIke

Lau Ā Lau Ka ʻIke is the name given to this project. Lau means "to be much, many; numerous" (Pukui & Elbert, 1986). ʻIke is translated as "knowledge"; it also means "to see" and, at the same time, "to know, feel, experience, and understand" (Pukui & Elbert, 1986). Taken together, the name can be translated as "knowledge overflowing" and describes knowledge as being ever-multiplying. In recognizing the expanse of Hawaiian knowledge, this project seeks to draw from Hawaiian ancestral methodologies to make Hawaiian knowledge accessible for future generations.

The purpose of this project is to normalize the use of ʻŌlelo Hawaiʻi (Hawaiian language) and increase access to ʻike Hawaiʻi (Hawaiian knowledge). To accomplish this, the project will analyze existing, local descriptive metadata, compile best practices in the development of an indigenous knowledge organization system, strengthen partnerships with Hawaiʻi libraries that manage significant Hawaiian collections, and develop a culturally-appropriate plan for the development of a controlled vocabulary for Hawaiian knowledge materials. Designed for Hawaiian communities and collections, the development of a controlled vocabulary would increase access and, subsequently, better support Hawaiian research and learning.

Project Needs

Lau Ā Lau Ka ʻIke will address the following needs:

1) *Normalization of ʻŌlelo Hawaiʻi (Hawaiian language)*. Although repositories try to account for Hawaiian language terminology and subject areas, issues persist due to difficulties with use of or lack thereof of diacritical markings, challenges with translation from the Hawaiian language to English (e.g. terms with kaona or multiple meanings), and a lack of Hawaiian language controlled vocabularies in general. This issue with Hawaiian language becomes glaringly apparent when users are forced to translate their information needs from Hawaiian to English. This can be problematic as Knowledge Organization Systems (KOS) are culturally-specific and, in Hawaiʻi's case, are primarily in English. Both the DDC and the LCC were created based upon American and European histories and perspectives and thus maintain their biases. In fact, the LCC and LCSH are intended for the 'majority users' of the Library of Congress and therefore designed for white, Christian, heterosexual males (Olson, 2002). Olson (1998) asserts that classifications cannot be all inclusive as limits are inescapable in notationally controlled vocabularies.

Agreeably, digital technologies provide an opportunity for information professionals and digital repository creators to capitalize on technology's affordances in order to be more inclusive and to provide additional context and relationships. However, we must pay close attention to the design of digital repositories and to the description and organization of materials if there is to be any realized improvements to access. While controlled vocabularies, and knowledge organization systems in general, may not always include pejorative descriptions or be otherwise harmful, they are not neutral (Byrne, 2005). The creation of the Brian Deer Classification Scheme and Ngā Ūpoko Tukutuku Māori Subject Headings substantiates the need for the development of a Hawaiian KOS to increase access to Hawaiian languge content.

2) Increase access to ʻike Hawaiʻi (Hawaiian knowledge). Libraries and archives around the world contain significant collections of Hawaiian knowledge materials. These collections are oftentimes central to research on genealogy, the ongoing settlement of land claims, language revitalization, and cultural preservation. Language

revitalization efforts have made use of audiovisual and written recordings of mānaleo (native speakers), ʻōlelo Hawaiʻi (Hawaiian language) newspapers, and other documentation found in libraries and archives (Nogelmeier, 2010). It's estimated that two-thirds of Hawaiian language newspapers have already been digitized and are being made available online (Crabbe, Fox, & Coleman, 2017). Hawaiian scholars are increasingly investigating, researching, writing and telling our histories and experiences – thereby reclaiming and reasserting our stories which have for so long been controlled by missionaries and non-Hawaiians.

Access is largely dependent on users' abilities to map their information needs with Knowledge Organization Systems (KOS).

Baseline Data

In 2014, a committee with members representing major players in education (e.g., Kamehameha Schools, Office of Hawaiian Affairs, Native Hawaiian Education Council, State of Hawaiʻi Department of Education Hawaiian Studies and Language Programs, ʻAha Kauleo, ʻAha Pūnana Leo, Hālau Kū Mana) met to create strategic goals for Hawaiian education that would be executed in 10 years. At the end of the three days, almost 200 participants of the Summit, collectively voted and agreed to the following goals:

Goal 1: ʻŌlelo Hawaiʻi (Hawaiian language)—In the next 10 years, Hawaiʻi's learning systems would:

- Advance ʻŌlelo Hawaiʻi expectations by developing and implementing a clear set of expectations for ʻŌlelo Hawaiʻi that permeates all levels of education.
- Actualize a Hawaiian-Speaking Workforce by increasing a prepared ʻŌlelo Hawaiʻi workforce to ensure community and ʻohana access and support.
- Amplify Access and Support by increasing ʻŌlelo Hawaiʻi context & programming to support the kaiāulu (community)
- Achieve Normalization by pursuing normalization of ʻŌlelo Hawaiʻi

.Goal 2: ʻIke Hawaiʻi—In the next 10 years, our learning systems will:

- Actualize ʻike Hawaiʻi by increasing use of knowledge from traditional and diverse sources.
- Amplify Leo Hawaiʻi by increasing ʻohana and kaiāulu learning and participation.
- Advance Hana Hawaiʻi by increasing resources to support practice and leadership.

Approach

With the growing quantity and depth of research related to Hawaiian knowledge coupled with the ever-expanding demand for digital resources, and a recent increase in Native Hawaiian information professionals, the need for a Hawaiian controlled vocabulary is evident.

The intellectual organization of items in repositories is crucial to the accessibility and usability of collections and must be made a prominent part of any discussion to pursue a digital project. Creating a Hawaiian controlled vocabulary with a strong foundation of Hawaiian language and perspectives will allow for better representation and enhance the description and organization of digital collections. Such a controlled vocabulary will be essential to accessing accurate information linking people, places, artifacts, and stories.

Inclusion of stakeholders throughout the process is key to the development of an indigenous controlled vocabulary to warrant cultural lens and perspectives. In recognizing the intersections in the work of libraries, archives, and other fields in this area, the project will involve participants from a range of domains and sectors in a series of working groups on Maui, Hawaiʻi and Oʻahu. The project will gather and compile much needed

data concerning best practices for representation and organization of Hawaiian knowledge and foster sustaining relationships amongst project partners and participants to address user needs.

2. PROJECT DESIGN

Project Question

"How can we better support normalization of Hawaiian language and build upon existing metadata practices to enhance access to Hawaiian collections?"

Goal 1: Normalization of ʻŌlelo Hawaiʻi (Hawaiian language).
Objective 1: By the end of project, will have developed a Hawaiian language controlled vocabulary.

Action Step and Activity

> 1.1 Project Director will schedule monthly Project Team meetings to carry out project activities and assess project workflows and progress.
> 1.2 Project Team will document project activities in Slack project management tool and submit monthly progress reports to Project Director.
> 1.3 Project Director will hire Graduate Research Assistant for project.
> 1.4 Project Coordinator will create project website.
> 1.5 Project Team will develop, plan, and implement details for working groups.
> 1.6 Project Coordinator will develop and monitor data collection instruments and routines for documenting and assessing project activities.
> 1.7 Project Director and Graduate Research Assistant will examine existing local descriptive metadata for possible inclusion in new, project-created Hawaiian language controlled vocabulary.
> 1.8 To identify terms for a Hawaiian language controlled vocabulary, Project Team will convene 3 working groups of 4-6 participants each. Participants will include Hawaiian language experts, cultural practitioners, and information science professionals. Working groups will be based on Maui, Oʻahu, and Hawaiʻi Island, respectively, and will convene in-person twice throughout the life of the project. Including working groups from multiple islands will ensure the project better accounts for and incorporates the unique perspectives, insight, and experiences of our communities.
> 1.9 Project Coordinator will administer and collect evaluations from participants upon completion of working groups to assess workflows and progress.
> 1.10 Project Director will compile working group data and create and apply codebook for analysis of qualitative data (e.g., in the thematic coding procedures, codes will be developed in the inductive manner, after close iterative examination of the working group notes, audio files, and other documentation).
> 1.11 Project Team will generate Hawaiian language controlled vocabulary list.
> 1.12 In collaboration with Nā Hawaiʻi ʻImi Loa (NHIL) and Hawaiʻinuiākea School of Hawaiian Knowledge (HSHK), Project Team will plan, coordinate and implement Hoʻokele Naʻauao: A Hawaiian Librarianship Symposium which will focus on access to, and description and representation of, Hawaiian collections.
> 1.13 Project Coordinator will make resulting controlled vocabulary available on project website for access by users and any organizations interested in implementing it.
> 1.14 Project Team will upload finalized documentation to project website for participants and the general public to access after completion of project.
> 1.15 Project Director & Project Coordinator will compile and submit IMLS Final Report.

Goal 2: Increase access to ʻIke Hawaiʻi.
Objective 2: By the end of project, install controlled vocabulary onto Ulukau: the Hawaiian Electronic Library

<u>Action Step and Activity</u>

> 2.1 Project Team will develop, plan and implement details for pilot testing of controlled vocabulary onto selected digital collection in Ulukau.
> 2.2 Project Director will work with Database Administrator to pilot test controlled vocabulary.
> 2.3 Database Administrator will compile a report on pilot testing.
> 2.4 Project Team will upload finalized documentation to project website for participants and the general public to access after completion of project.
> 2.5 Project Director & Project Coordinator will compile and submit IMLS Final Report.

Partnering Organizations

To fulfill project goals, objectives, and activities Project Team will collaborate with the following organizations:

1. *Ulukau: The Hawaiian Electronic Library* is a digital library that makes English and Hawaiian resources available for the use, teaching, and revitalization of the Hawaiian language and for a broader and deeper understanding of Hawaiʻi. Ulukau is co-sponsored by Ka Haka ʻUla O Keʻelikōlani College of Hawaiian Language at the University of Hawaiʻi at Hilo and the Native Hawaiian Library, ALU LIKE, Inc. With more than 1.5 million hits per month, Ulukau is arguably the single most-accessed site for Hawaiian language materials. Ulukau: The Hawaiian Electronic Library will pilot test the KOS.

2. *Nā Hawaiʻi ʻImi Loa* (NHIL) is a professional organization dedicated to advancing Hawaiian knowledge systems, services, and research in the library and information science profession. NHIL will support the Project Team with planning, coordinating, and implementing Hoʻokele Naʻauao: A Hawaiian Librarianship Symposium. Event theme will focus on access to, and description and representation of, Hawaiian collections. Featured speakers will include cultural experts, scholars, information professionals, and educators with expertise in the areas of Hawaiian methodologies and indigenous knowledge organization systems.

3. *Hawaiʻinuiākea School of Hawaiian Knowledge* (HSHK) has agreed to host Hoʻokele Naʻauao: A Hawaiian Librarianship Symposium. HSHK is the only indigenous-serving college in a Research I ranked institution. The mission of HSHK is to pursue, perpetuate, research, and revitalize all areas and forms of Hawaiian knowledge.

3. IMPACT

Project will: 1) Normalize usage of ʻŌlelo Hawaiʻi (Hawaiian language) and 2) Increase access to ʻIke Hawaiʻi (Hawaiian knowledge).

Performance Goals and Outcomes

This project would initiate steps for the creation of a collaborative, Hawaiian controlled vocabulary which can be used to provide culturally-appropriate organization and representation within library catalogs and other digital collections and to improve access for Native Hawaiian users. In the process, the project will foster a community of practitioners, scholars, and cultural experts focused on improving access to Hawaiian collections via metadata and in turn provide a platform for raising further discussions of linking digital collections.

This project would also contribute to scholarly research, to cultural heritage institutions, and to Hawaiian and other indigenous communities by identifying a prioritized work plan and developing best practices for creating collaborative, community-driven controlled vocabularies across collections with appropriate cultural protocols.

The project will analyze needs for and feasibility of a controlled vocabulary for Hawaiian knowledge materials which can be implemented in libraries and archives with Hawaiian collections; compile best practices in the development of an indigenous knowledge organization system; strengthen partnerships with Hawai'i libraries and archives that manage significant Hawaiian collections; and develop a culturally-appropriate work plan for the development of a Hawaiian controlled vocabulary.

The project increases public access to information, ideas, and networks through libraries and museums (IMLS Agency Goal 3) with the creation and implementation of indigenous controlled vocabularies, which will improve the discovery of knowledge and cultural heritage for indigenous communities and for researchers as a whole. Projects such as the Brian Deer Classification Scheme and the Ngā Ūpoko Tukutuku Māori Subject Headings demonstrate the value for the inclusion of indigenous people and their perspectives in creating systems for library collections. This project will identify steps to linking libraries with communities through an inclusive approach to gather contextual information that expands access and bolsters cultural understanding. Its contributions in practice will be to identify best practices for creating a collaborative, community-driven controlled vocabulary with appropriate cultural protocols in multiple institutions and digital collections.

To monitor objectives and outcomes, project will use the following framework to collect data:

Objective 1: Learning Outcomes. Hawaiian language controlled vocabulary created and installed onto selected collection housed on Ulukau.		
Measure	**Data Source**	**Data Interval**
Working groups will identify Hawaiian language controlled vocabulary.	Project Team will document vocabulary words generated by working groups	End of working groups
Objective 2: Learning Outcomes. Ulukau users will use Hawaiian controlled language vocabulary.		
Measure	**Data Source**	**Data Interval**
Ulukau users will have the necessary instrument to retrieve digital information ('ike Hawai'i).	Ulukau Data Administrator will collect data on number of hits (page views) of collection with controlled vocabulary	Before and After Controlled Vocabulary Installed

4. COMMUNICATION PLAN

The project's target audience includes: Hawaiian language educators and learners, Project Coordinator will be responsible for outreach, which will include there transct updates will be added to the website at least once a month. The controlled vocabulary and findings will be published to the website by the project's end. Project Team will inform target audience of project website at the end of every community-based, controlled vocabulary building session and at local and national meetings and conferences.

Listservs. Information professionals and educators interested in or working directly with metadata and/or reference for Hawaiian collections will receive project information and updates via existing professional email distribution lists, including WINU, ULUKAU, Nā Hawaiʻi ʻImi Loa (NHIL) Listserv, Hawaiʻi Library Association (HLA) Listserv, and Association of Hawaiʻi Archivists (AHA) Listserv.

Hoʻokele Naʻauao: A Hawaiian Librarianship Symposium. Project Director will present an overview of the project and its status. This will provide university students and the general public the opportunity to learn about the project and Hawaiian methodologies and knowledge organization generally.

2019 International Conference of Indigenous Archives, Libraries, and Museums. Project Team will attend and present at the Association of Tribal Archives, Libraries, and Museums' annual conference to allow for sharing about the project and its findings, particularly in regard to best practices that might inform similar projects for other indigenous communities.

Ulukau: The Hawaiian Electronic Library. The project's partner will post grant activities and updates on Facebook page to inform users of introduced Hawaiian controlled vocabulary.

Nā Hawaiʻi ʻImi Loa. The project's partner is supportive of our activities and readily shares updates with their board and membership upon request, and vice versa.

5. SUSTAINABILITY

The project's deliverables will continue to impact Native Hawaiian communities and Hawaiian collections well beyond the grant period. This project will lead to systemic change in Native Hawaiian communities and those affected by Hawaiian collections. With increased use of the resulting controlled vocabulary, there is opportunity to facilitate enhanced discovery of Hawaiian collections housed across repositories. As the population of Hawaiian language speakers grows, the use of speaking the language in every aspect of their daily lives becomes more prevalent.

As a result of the project's completion, the Project Team, including the Graduate Research Assistant, will be positioned with the skills to continue to build and develop a Hawaiian knowledge organization system. Additionally, the project documentation, housed on the project website, will continue to be accessible to Native Hawaiian communities and information professionals so as to serve as a template for the further development of a Hawaiian knowledge organization system.

The project activities will receive ongoing community support beyond the grant period. In fact, one of our project partners, Nā Hawaiʻi ʻImi Loa, has already expressed their support and is invested in continuing the work of this project, as it aligns with their mission and objectives to implement best practices and standards for Hawaiian information resources.

The Hawaiian language controlled vocabulary list will remain publicly accessible to Native Hawaiian communities, information professionals, and the general public on Ulukau: The Hawaiian Electronic Library beyond the life of the project.

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Schedule of Completion

Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Project Begins	▪											
Set-up project website	▪											
Hire Graduate Research Assistant	▪											
Collect and examine existing local descriptive metadata (including controlled vocabularies)	▪	▪	▪									
Plan and coordinate Hoʻokele Naʻauao: A Hawaiian Librarianship Symposium for Hoʻokele Naʻauao: A Hawaiian Librarianship Symposium	▪	▪	▪	▪	▪	▪						
Organize and conduct working groups		▪	▪	▪	▪	▪	▪					
Generate Hawaiian language controlled vocabulary					▪	▪	▪	▪				
Compile and analyze working group data, including participant evaluations					▪	▪	▪	▪				
Co-host Hoʻokele Naʻauao: A Hawaiian Librarianship Symposium with Nā Hawaiʻi ʻImi Loa						▪						
Finalize revisions to controlled vocabulary and deposit on project website for public access									▪	▪		
Develop, plan, and implement details for pilot testing of controlled vocabulary										▪	▪	▪
Attend and present at ATALM											▪	
Year-end assessment: compile, analyze, compose, and disseminate project reports and documentation for IMLS Final Report											▪	▪
PROJECT ENDS												▪

DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (i.e., digital content, resources, assets, software, and datasets). The products you create with IMLS funding require careful stewardship to protect and enhance their value, and they should be freely and readily available for use and re-use by libraries, archives, museums, and the public. However, applying these principles to the development and management of digital products can be challenging. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

Instructions

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

If you ARE creating digital products, you must provide answers to the questions in Part I. In addition, you must also complete at least one of the subsequent sections. If you intend to create or collect digital content, resources, or assets, complete Part II. If you intend to develop software, complete Part III. If you intend to create a dataset, complete Part IV.

Part I: Intellectual Property Rights and Permissions

A.1 What will be the intellectual property status of the digital products (content, resources, assets, software, or datasets) you intend to create? Who will hold the copyright(s)? How will you explain property rights and permissions to potential users (for example, by assigning a non-restrictive license such as BSD, GNU, MIT, or Creative Commons to the product)? Explain and justify your licensing selections.

The primary digital products of this project will be the Hawaiian language controlled vocabulary and related supporting documentation. The controlled vocabulary is being created for inclusion in, and free, public sharing through, Ulukau: The Hawaiian Electronic Library. A project website will also be created and made publicly accessible. Any supplementary materials that are created during the course of the grant (presentations, interview protocols, etc.) will be deposited on the website and licensed using open and free licensing, e.g. Creative Commons.

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.

World Indigenous Nations University - Hawaii Pasifika (WINUHP) does not assert any ownership rights beyond what is described in A.1. Use of supplementary materials for personal use will be unrestricted.

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.

We anticipate the project materials will have little to no possibility for the above concerns. The project will be reviewed by an Institutional Review Board prior to the formation of working groups. Project Team will work directly with participants to collect written permissions to record activities of working groups or presentations. Participants will be free to withdraw consent and discontinue participation in the working groups or project at any time for any reason.

Part II: Projects Creating or Collecting Digital Content, Resources, or Assets

A. Creating or Collecting New Digital Content, Resources, or Assets

A.1 Describe the digital content, resources, or assets you will create or collect, the quantities of each type, and format you will use.

Project website. A project website will be created and made publicly accessible. Any supplementary materials that are created during the course of the grant (presentations, interview protocols, etc.) will be deposited on the website. Final versions of all materials will be deposited and disseminated in PDF format. *Existing local controlled vocabularies.* This will consist of controlled vocabulary lists in Microsoft Excel (.xlsx) and non-proprietary formats (e.g. CSV). Lists will be compiled into a single Microsoft Excel file. Once compiled, other Microsoft Excel files will be generated for the new, project-created controlled vocabulary list. See Part IV Datasets for more details. *Working group dataset.* Working group documentation will include notes, audio recordings, photographs, and survey responses. See Part IV Datasets for more details. *Pilot test dataset.* This portion of the project will generate data schemas and workflows, primarily MARC and text files, viewable via common word processing software. See Part IV Datasets for more details.

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.

All materials will be created on a PC using the following software: Word processing for Project Team meeting minutes and administrative documentation, working group notes, and report may be completed in one of several applications (e.g., Microsoft Word, Google Drive, etc.), and visuals will be created as needed in Microsoft Excel, Google Drive, or other applications suitable for communicating data. Final, public versions will be saved in PDF format. The project website will be created using Weebly.

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).

We anticipate that project materials may include the following file formats:
Microsoft office application files (DOCX, XLSX, PPTX), PDF files for final versions of publications, HTML files for basic information and web links to resources, JPEG or PNG files for images, .mrc, .mrk, .xml

B. Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan (i.e., how you will monitor and evaluate your workflow and products).

The Project Director and the Project Coordinator will work together to monitor and evaluate day-to-day aspects of project activities and ensure the project team is meeting its designated milestones for deliverables. The Project Coordinator will be responsible for monitoring and evaluating workflows and projects. The Project Coordinator will report to the Project Director, who assumes ultimate responsibility for resolving problems related to quality control. The Project Coordinator's responsibilities will include providing sufficient templates and scaffolding to ensure continuity across participant-supplied content; providing editorial support for web content, presentations, and papers; and ensuring compliance with depositing materials in appropriate formats with complete metadata to the University of Hawai'i System Repository (hosted on the DSpace platform).

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).

During the project period, public materials will be shared via a project website, powered by Weebly. The website will remain publicly available for at least three years after the project end date. The Project Team is continuing to build a relationship with Nā Hawai'i 'Imi Loa (NHIL). The Project Team will rely on NHIL's expertise and professional networks in regards to the dissemination and maintenance of project materials, including any newly created controlled vocabulary lists, after the award period of performance.

C. Metadata

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

A key part of the project involves the creation of descriptive metadata to meet the unique needs of Hawaiian collections. A controlled vocabulary list will be compiled based upon 1) local lists from Hawai'i-based repositories and 2) findings from working groups with information professionals, cultural practitioners, and others as specified in the narrative. It will include Hawaiian language terms and therefore require a standardization of diacritical markings. Descriptive metadata will follow MARC standards, as this is the standard currently used by Ulukau (which is the database where we will pilot any descriptive metadata produced as part of this project). For any digital assets deposited into the University of Hawai'i System Repository, we will comply with its preferred metadata standards.

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

Metadata will be preserved and maintained as part of our broader strategy for digital assets outlined in B.2 Additionally, controlled vocabularies produced by the project will be open and publicly available via the project website. These will also be shared with all participating Hawai'i-based repositories and any other organizations interested in using or furthering the findings of this project. Project Team is committed to working closely with local repositories and organizations to ensure the applicability and continued use of the controlled vocabulary within their specific collections.

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).

This project is not concerned with creating a digital collection; however, through partnership with Ulukau, we will facilitate widespread awareness and use of the resulting controlled vocabulary. Additionally, while the project team will select a set of overarching keywords for the project website in support of search engine optimization (SEO) to facilitate online discovery of the resulting controlled vocabulary, another strategy for facilitating awareness and use relies on deep community engagement, established via project working groups. We will also leverage press releases and social media strategies to publicize the project and all related publications. With increased use of the resulting controlled vocabulary, there is opportunity to facilitate enhanced discovery of Hawaiian collections housed across repositories.

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).

This project will build a controlled vocabulary and final versions of project disseminations will be publicly available online for anyone interested in Hawaiian language revitalization, indigenous knowledge organization, or related areas. The access will be free and available 24-7, via the project website, which will be published on the Weebly platform and which will adhere to web accessibility requirements. The web-based access will not require any special software or tools on the part of the researcher; they will need only a web browser and internet connection. Final versions of project materials will also be shared via the University of Hawai'i System Repository as PDFs. Users will need access to a web browser, internet connection, and a PDF viewer to view these materials.

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.

An organization website is currently in-progress; we plan to launch it this summer.

Part III. Projects Developing Software

A. General Information

A.1 Describe the software you intend to create, including a summary of the major functions it will perform and the intended primary audience(s) it will serve.

A.2 List other existing software that wholly or partially performs the same functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

B. Technical Information

B.1 List the programming languages, platforms, software, or other applications you will use to create your software and explain why you chose them.

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

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

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

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

C. Access and Use

C.1 We expect applicants seeking federal funds for software to develop and release these products under open-source licenses to maximize access and promote reuse. What ownership rights will your organization assert over the software you intend to create, and what conditions will you impose on its access and use? Identify and explain the license under which you will release source code for the software you develop (e.g., BSD, GNU, or MIT software licenses). Explain and justify any prohibitive terms or conditions of use or access and detail how you will notify potential users about relevant terms and conditions.

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

C.3 Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository:

URL:

Part IV: Projects Creating Datasets

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

Existing local controlled vocabularies. This will serve as an inventory of controlled vocabularies collected as part of a survey of Hawai'i-based repositories. This dataset will be collected toward the start of the project and continue to be analyzed and used throughout the grant period to inform the new, project-created controlled vocabulary. *Working group dataset.* Data will be collected via working groups, which involve in-person conversations, note-taking, recording, photographs. Datasets gathered from working groups will inform the new, projected-created controlled vocabulary lists. Two rounds of three working groups (one each on O'ahu, Maui, and Hawai'i Island) will take place throughout the life of the project. *Pilot test dataset.* Results from testing of the new, project-created controlled vocabulary lists on Ulukau, including data schemas and workflows, will be documented as part of the project deliverables. This dataset will be generated during the testing phase toward the end of the project (month 11).

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?

Data collection involves human subjects and requires IRB approval. IRB application will be prepared and submitted when/if the project is approved for funding.

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).

Working group participants can be identified in working group documentation (e.g. notes, recordings, photographs). PII will be stored securely and only project team members will have access to it. Participants will have the opportunity to waive confidentiality for all or a portion of their responses and to be publicly identified in project documentation, if this is their preference. Providing the opportunity for participants' contributions to be publicly acknowledged, if this is their preference, provides research subjects with agency over their participation in the research process. For interviewees who request confidentiality, in part or in whole, pseudonyms will be immediately applied to the working group documentation and its metadata. Public reports of the project findings will invoke the participants by pseudonym and not provide demographic or contextual information that could be used to re-identify the participants.

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.

All consent forms will be stored securely as digital files in a non-networked folder on a password protected computer by Project Team.

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).

Existing local controlled vocabularies. This data will be collected via email and filedrop services. File types are expected to include Microsoft Excel (.xlsx) and non-proprietary formats (e.g. CSV). The dataset will be generated in MS Excel and will be based on the existing controlled vocabularies provided by participating Hawai'i-based repositories. The new, project-created controlled vocabulary list will also be generated in MS Excel. Processed data may consist of additional spreadsheets and visualizations, which will be stored in non-proprietary formats (e.g., CSV or PNG). *Working group dataset.* Data will be collected via working groups, which involve in-person conversations, note-taking, recording, and photographs. Raw and processed data may consist of text files, audio files, and photographs. Common word processing software, multimedia players, and spreadsheets may be used to display the data. Additionally, evaluation surveys for working group participants will be administered via SurveyMonkey. SurveyMonkey results will be outputted in text files or spreadsheets. *Pilot test dataset.* Results from testing of the new, project-created controlled vocabulary lists on Ulukau will include data schemas and workflows. Ulukau utilizes MARC so the data schemas are anticipated to be MARC files. Workflows are anticipated to be recorded in text files, viewable via common word processing software.

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?

Existing local controlled vocabularies. Codebooks will be created as part of the analysis of quantitative data. *Working group dataset.* Codebooks will be created as part of the analysis of qualitative data (e.g., in the thematic coding procedures, codes will be developed in the inductive manner, after close iterative examination of the working group notes, audio files, and other documentation). Codes, their descriptions, and other documentation will be stored in text formats along with the data. The documentation will be associated with the datasets through consistent file naming practices. *Pilot test dataset.* Results from testing of the new, project-created controlled vocabulary lists on Ulukau, including data schemas and workflows, will be documented as part of the project deliverables. Documentation of project results will be shared primarily through the public project website.

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

At the conclusion of the award-funding project, any personally-identifiable data (e.g. names of working group participants) will be destroyed. Publicly appropriate data (e.g. controlled vocabulary lists, project documentation, presentations) will continue to be disseminated via the project website.

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

Name of repository: University of Hawai'i System Repository

URL: https://dspace.lib.hawaii.edu/

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

The Project Director will monitor the implementation of this data management plan throughout the duration of the project. The plan will be reviewed monthly and adjusted according to the amounts and types of data generated as needed.