

## **Of places and names: working with northern Canadian communities to enhance subject access to digital resources**

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### **Abstract:**

*This paper describes a collaboration between researchers at the University of Alberta, staff at the Inuvialuit Cultural Resource Centre, and communities within the Inuvialuit Settlement Region (ISR) of Canada's Northwest Territories to develop a culturally appropriate and relevant metadata framework for a digital library of cultural resources. To develop the first draft metadata framework, the Digital Library North (DLN) project team carried out an extensive critical examination of relevant literature, conducted surveys and interviews with community members, and completed an information audit of a core collection for the digital library. Analysis of the information audit, survey responses, and interview transcripts indicated that the metadata should include resource type, language(s) and dialect(s), topic(s), variant forms of names of people and places, individuals or organizations and their roles, audience, and access and reuse conditions, and should allow for community addition of*

*metadata in the form of keywords, tags or stories. A digital library prototype including several key collections and incorporating many of the metadata desiderables has been developed and will be tested with the community in May 2016. As broad a range of community members as possible will interact with the digital library and will be asked to provide feedback on the look and feel and ease of use of the prototype, and to respond to specific questions about the metadata elements (including their names and content). The feedback gained from the community will inform the next iteration of the metadata framework and the digital library interface.*

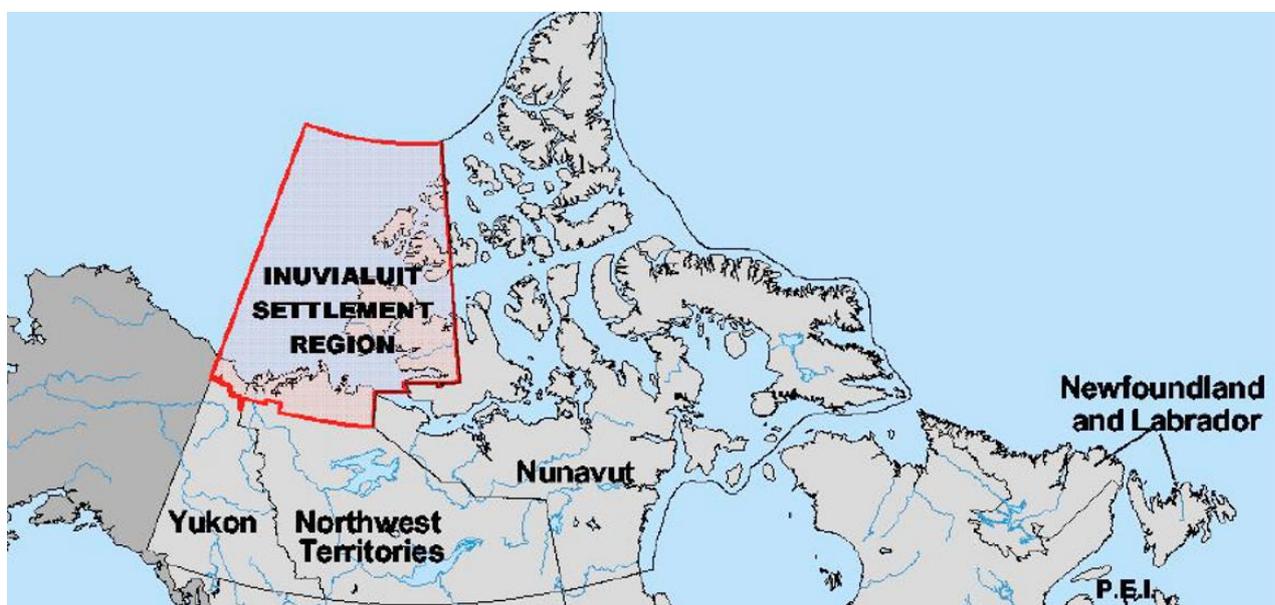
**Keywords:** digital libraries, metadata, Inuvialuit Settlement Region, cultural resources, community collaborations

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## Introduction

Digital Library North (DLN) is a three year collaboration between researchers at the University of Alberta (Edmonton, Canada), staff at the Inuvialuit Cultural Resource Centre (Inuvik, Canada), and communities within the Inuvialuit Settlement Region (ISR) (Northwest Territories, Canada) to develop a digital library infrastructure to support access to cultural resources. The project's key objectives are to investigate and identify the information needs and information seeking behaviour of community members in the ISR, develop a digital library of cultural resources, explore appropriate methodologies for treatment of cultural heritage information, create a culturally appropriate metadata framework as a basis for resource description and discovery, develop requirements for multilingual user interfaces that support the dominant languages and dialects, conduct a user-centred evaluation of the digital library, develop a sustainability strategy for the digital library to ensure long-term access to digital information, and provide training in information management to local project participants.

The Inuvialuit Settlement Region (ISR) of the Northwest Territories in Canada covers 91,000 square kilometres and is comprised of six communities: Paulatuk, Ulukhaktok, Sachs Harbour, Tuktoyaktuk, Inuvik and Aklavik.



*Figure 1. Inuvialuit Settlement Region relative to Canada*

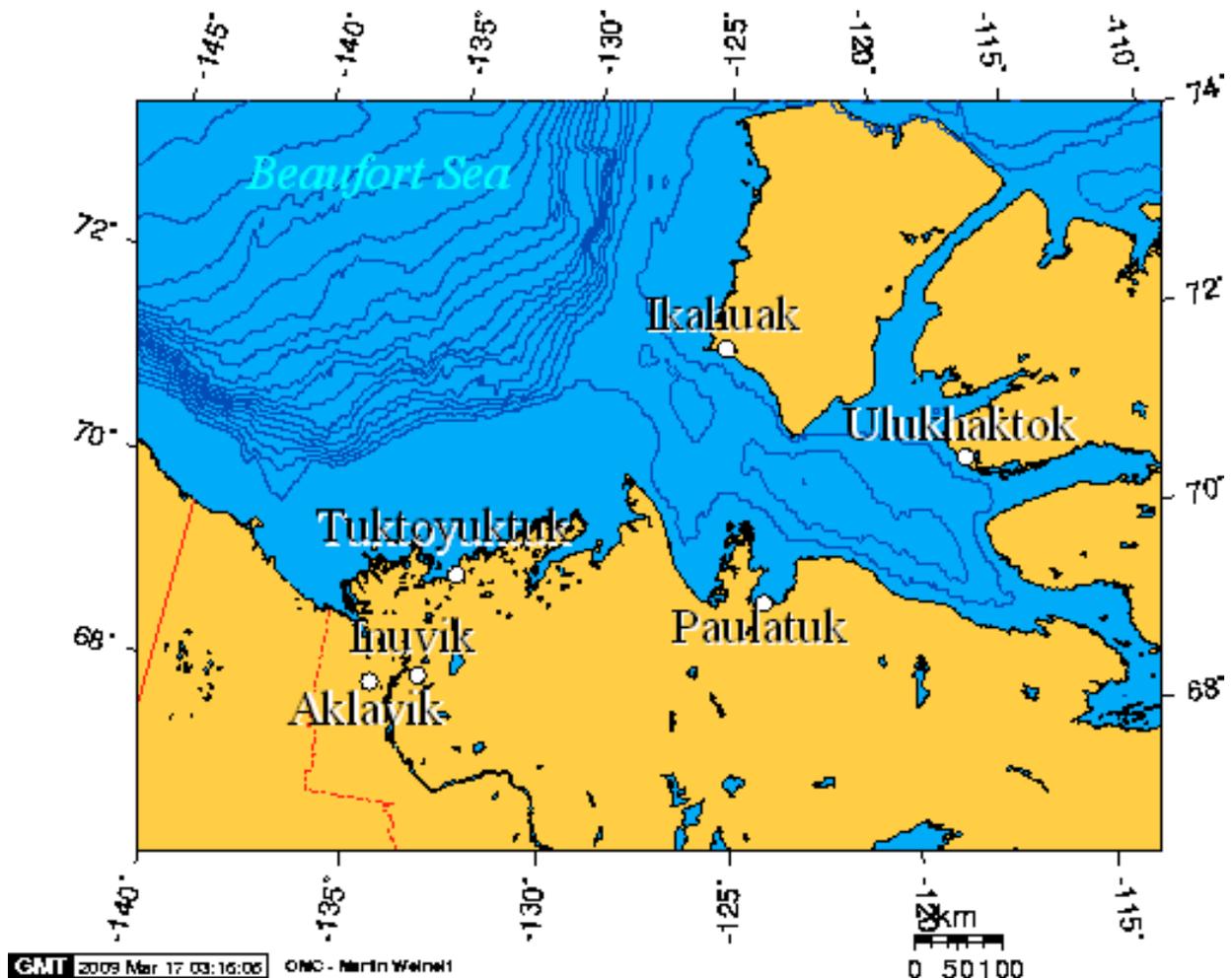


Figure 2. Inuvialuit Settlement Region Communities

The region has an immensely rich culture and history, but its geographic remoteness and isolation has posed challenges for enabling easy access to cultural heritage resources.

The Inuvialuit Cultural Resource Centre (ICRC), a division of the Inuvialuit Regional Corporation (IRC), was opened in 1998 with a mandate to work with elders and others within the ISR communities to preserve the heritage and culture of the peoples of the region and to promote the development of the Inuvialuktun language. The ICRC is the steward of rich cultural materials including textual and image archives, language learning resources, and audio and video recordings of oral histories, music and dance, events and activities. It is these rich cultural resources which community members regularly seek out and which the ICRC wishes to make more easily discoverable and accessible for those community members through a digital library.

“Digital libraries are constructed, collected and organized, by (and for) a community of users, and their functional capabilities support the information needs and uses of that community” (Borgman, 2009, p. 234). Increasingly, local communities in Canada’s north and elsewhere are seeing the potential of digital technologies for gathering and curating collections of resources according to their own contexts and protocols to ensure the continued growth and development of their cultural traditions (Christie, 2005). Metadata, an integral component of a digital library that allows users to access the content through multiple facets, including subject, type, author, etc., and enables both browsing and searching, should reflect the interests and needs of the community(ies) for which the digital library is designed. Nakata, et al (2008) further note that metadata design and application need to reflect, and protect, the needs of Indigenous people.

One of the key objectives of the DLN project is to work with the ISR communities to develop a culturally appropriate metadata framework for resource description and discovery that will enable the digital library to reflect their interests and serve their needs. Metadata design will be driven by an investigation of the information use and seeking behaviour of community members using interviews, surveys, information audits, and examinations of cultural objects and existing descriptions, and it will be informed by in-depth study of the scholarly and professional literature on the topic of culturally aware and appropriate metadata for digital libraries.

This paper outlines a first draft culturally appropriate and relevant metadata framework for the ISR digital library based on findings from engaging with the communities, the digital objects and related literature; describes a first iteration of the digital library seeded with sample content and metadata; and outlines plans for engaging with the communities to assess the metadata used in the first iteration and incorporating that feedback into further iterations.

## **Setting the Stage**

Development of the metadata framework for the ISR digital library will be an iterative process, driven by the needs and interests of the community. It will be informed by information gathered from the community through interviews and surveys, similar to those used by Walts (2011), Bushnell (2009), and Lee (2011), best practices and trends found in the literature dealing with metadata for Indigenous communities' digital resources, an understanding of the characteristics of the digital resources themselves, and user evaluation of the digital library platform.

Given the multifaceted nature of this project, a wide range of data gathering methods and techniques have been adopted. In 2015, DLN team members conducted interviews with members of the community and also conducted a survey; both the interviews and survey addressed broad topics of information access. The survey included questions designed to gather basic demographic information including age, community of residence, languages and dialects spoken, and general internet usage (where, when, and on what type of device). Other questions asked about the kinds of cultural resources or topics of interest, where and when those are or could ideally be searched for and accessed, and how discovery and access could be improved.

The interviews asked similar questions but enabled both the interviewees and DLN team members to probe deeper into questions around the use and preservation of cultural resources through a digital library platform. Interviewees were asked about and invited to elaborate on their interest in and use of various types of cultural resources, how they feel about who should be able to access and use them and how, and how they see technology helping or hindering these processes. The research team held an open house at the Inuvialuit Cultural Resource Centre and set up information tables at various community centres and festivals to ensure that community members would feel comfortable sharing stories, making casual conversation and sharing ideas about their information needs and their information source priorities.

In addition, team members carried out an initial information audit of one of the core archival collections identified by the community for inclusion in the digital library and interviewed ICRC staff to better understand the uses and users of the collection. Through this process, staff identified important seed collections and items for the digital library based on how often they are requested and how useful they are to community members in meeting their information needs. Resources identified included several large image collections, language resources in all three dialects, and audio and video recordings of oral histories, stories and songs. In the interviews, ICRC staff discussed the nature of the collection and how it is currently organized and described. Most importantly, they reflected on who within the community uses the collection and for what, including what types or formats of items they request, and according to which characteristics (e.g., person name, topic, etc.). Notions of how and with whom resources should be shared were also probed.

Preliminary analysis of the interview transcripts, survey responses and information audit, as well as examination of items in the seed collections, has been completed and from this several metadata principles can be articulated:

- metadata should enable searching, browsing and exploration of the collection
- adoption of a core set of metadata elements that are useful, understandable and sustainable is necessary
- users should be able to contribute metadata (and content) with review and approval by ICRC staff
- access, rights and reuse conditions should be clearly articulated
- metadata must enable a system that is usable by community members of different ages, differing comfort levels with technology, and differing comfort levels in the various languages and dialects

More specific metadata desirables include:

- indication of resource type (e.g., text, audio, image, video) to enable search and browse
- indication of language(s) and dialect(s) of resources
- indication of topic(s) of resource, including names of people and places (map-based and location-based filtering of content)
- inclusion of variant forms of names of people and places, including traditional and institutional forms and variant spellings, in local languages and dialects as well as English
- inclusion of individuals or organizations involved in creation of resources and their roles
- indication of audience for resources
- clear indication of access and reuse conditions for resources
- ability for community members to add metadata in the form of keywords, tags or stories

In addition to gathering specifications from the community, the DLN team undertook a comprehensive analysis of the scholarly and professional literature dealing with metadata for Indigenous communities' digital resources to better understand trends and best practices that could be brought to bear on the project. The review included literature from Canada, the United States, Australia and New Zealand, and examined activities and issues around metadata design and application as well as specific metadata standards and schemas. Overall key themes that surfaced included the importance of community involvement in all metadata related aspects of a project; the challenges of adequately expressing appropriate access and use protocols through metadata; tensions between customization/localization and interoperability and how this can impact sustainability; and the importance of land, language, and family in Indigenous communities.

A few of these themes are very pertinent to the work of the DLN team on the ISR digital library. A great deal of the discussion in the literature revolved around the importance of using local languages, dialects and scripts in digital libraries, and the specific challenges this poses in terms of technology. Certainly within the DLN project, the goal is to ensure that the platform and metadata can support search, browse and navigation in the local dialects of the ISR region. Of importance, however, is also ensuring that the differing linguistic comfort levels and needs of the various users within the community can be accommodated (Cosijn et al., 2002). For example, those who are working to develop their skills in their traditional language must be able to use the digital library as easily as an elder who is fluent.

Much of the literature deals with the processes of customizing or localising existing metadata schemas and standards for use with particular communities (Nevile and Lissonnet, 2003). For the ISR digital library project this is very much also the case. We are looking for a standard with which we can start to design a metadata profile that will allow the flexibility required by the community to meet their needs in terms of discovery and access as well as long term sustainability. This will include the selection of localized terminology and vocabularies that are meaningful to the community. Balancing

localization/customization can pose challenges to interoperability and sustainability, but these can be worked through with the community clearly articulating their ultimate goals for the project. A very strong community desire for the ability to contribute metadata, in the form of tags or keywords, descriptions or stories, was evident throughout the literature (Cocq, 2013). This desire has been strongly articulated by the ISR communities with regard to their digital library. Through the survey, interviews, information audit and informal discussions and conversations, it has been emphasized that the ability to enhance the descriptions with the names of people or places, or with dates, or through the relating of a story, is crucial to community engagement with their digital library.

The rich input from the community with respect to metadata and the issues and trends surfaced through the literature review have come together to inform the first draft metadata framework for the ISR digital library.

### **Draft Metadata Framework**

The first draft metadata framework consists of a basic set of elements driven by the information gathered from the community and from the literature review and information audit. Details on the metadata elements are summarized in Table 1. below.

<b>Element Name</b>	<b>Element Definition</b>	<b>Controlled Vocabulary</b>	<b>Required?</b>	<b>Repeatable?</b>
Language	Language(s) of resource content	Dropdown menu (Inuvialuktun, English)	Yes (where applicable)	Yes
Dialect	Dialect(s) of resource content	Dropdown menu (Kangiryuarmitun, Uummarmitutun, Siglitun)	Yes (where applicable)	Yes
Title	Name of the resource		Yes	Yes
Date	Date associated with the resource		Yes (when available)	Yes
Type	Type of resource	Dropdown menu (audio, video, text, image)	Yes	Yes
Creator	Creator of the resource	Canadiana Authorities	Yes (when available)	Yes
Contributor	Contributor to the resource	Canadiana Authorities	No	Yes
Subject	Topic of the resource	Canadian Subject Headings, Thesaurus for Graphic Materials, AANDC Subject Thesaurus, FAST	Yes	Yes
Description	Brief summary of the resource		No	No
Identifier	Identifier for the resource		No	Yes

Is Part Of	Name of a resource of which the described resource is a part		No	Yes
Spatial Coverage	Geographic topic(s) of the resource	Canadian Geographic Names Data Base	Yes (when applicable and available)	Yes
Rights	Use conditions for the resource		Yes	No
Audience	Individuals or groups for whom the resource may be targeted		No	Yes

*Table 1. First draft ISR digital library metadata elements*

The basic schema for the metadata is qualified Dublin Core with custom elements (e.g., dialect). For this first draft the language of the metadata will be mainly English. It should be noted that this first draft metadata profile certainly does not capture all of the metadata needs identified by the community, nor does it reflect all of the localized vocabularies and information sources that will be incorporated. Work with the community in the coming months (discussed in detail in the Community Work 2016 section below) will inform these and other enhancements and developments. For example, a key facet of discussions with the community will be understanding access and reuse protocols and how to capture them in the metadata.

### **ISR Digital Library Prototype**

The first version prototype of the ISR digital library includes eleven collections consisting of just under 2,100 digital resources of four different types: audio recordings, video recordings, images and textual materials. All items were ingested in batches with basic metadata (title and type) and work on enhancing metadata based on the first draft framework is under way. Browse by collection is available, as is basic searching on the content of metadata fields.

The images below are from the first version prototype of the ISR digital library, which incorporates the initial metadata framework as informed by the community and the scholarly and professional literature. This prototype is the basis of the forthcoming work with the community to develop and enhance further the metadata framework (as well as interface design and functionality, content, etc.)

**Dublin Core**

**Language**  
Inuvialuktun

**Title**  
Who Do You See?

**Date**  
2014

**Type**  
Text

**Subject**  
Children's books  
Language training

**Description**  
A children's book with colorful illustrations of a young boy, his grandfather, and his grandmother.

**Creator**  
Inuvialuit Cultural Resource Centre (ICRC)

**Spatial Coverage**  
Canada, Northwest Territories, Inuvik

**Is Part Of**  
Book Collection

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**DLN Custom Item Metadata Item Type Metadata**

**Dialect**  
Kangiryuarmitun  
Siglilitun  
Uummarmiutun

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**Social Bookmarking**



*Figure 1. Metadata for a language resource in the ISR digital library*

<b>Title</b>	Airplane flying over waterfront
<b>Date</b>	1968-1969
<b>Type</b>	Image
<b>Subject</b>	Digital images Waterfronts--Northwest Territories--Inuvik Airplanes--Canadian--Northwest Territories--Inuvik
<b>Description</b>	An image of an airplane flying over a waterfront town.
<b>Creator</b>	Hunt, David E., 1925-
<b>Spatial Coverage</b>	Canada, Northwest Territories, Inuvik
<b>Is Part Of</b>	Dr. Hunt Photos Collection

*Figure 2. Metadata for an image resource in the ISR digital library*

## **Community Work 2016**

The DLN team is continuing to add what metadata it can to the seed collections in preparation for work in the community this coming spring (May 2016). When on-site in Inuvik the team will be carrying out detailed user evaluation of the first prototype digital library and will be working with community members and partners to create, modify, and enhance metadata.

The user evaluation will involve as broad a range of community members as possible in interacting with the digital library prototype. To start, individuals will be invited to explore the digital library and asked to talk aloud as they do so, with a team member observing and taking notes. They may also be prompted to search or browse for a particular item, or to interact with specific functions, such as faceting or navigating to related items.

In addition to providing feedback on various aspects of the interface (e.g., layout, colour scheme, logos), content (e.g., types of resources, quality of resources), and functionality (e.g., ease of use,

search, browsing methods), users will be asked to comment on metadata related aspects of the digital library. Specific questions will include:

- how would you like to find a resource in the digital library? would you like to browse through resources by their type (e.g., image or text)? or would you want to find resources by searching for a word like you would in Google?
- do the descriptions for the resources help you understand what the item is and what it is about?
- are the labels for the parts of the description clear?
- are there parts of the resource descriptions that you thought were not useful?
- are there other things you wanted to know about the resources but couldn't find in the descriptions?
- would you like to have a browsing option for a list of places and names of people?
- would you like to have the descriptions in multiple languages and/or dialects?
- would you like to be able to add your own information to the descriptions? for example, the name of a person in a photograph, or a story about an event recorded in a video?

Users will be asked to reflect in general on the usability of the digital library prototype. This information will be gathered and analyzed by the DLN team to inform the next version of the digital library prototype.

Concurrent with user evaluation of the prototype digital library will be further work with ICRC staff and community members on metadata creation and enhancement. In particular, we will be working to identify appropriate vocabularies and terminology lists for people, places and topics for use in the metadata descriptions. In addition, we will be working to understand and apply protocols around access to the cultural resources and articulation in the metadata of proper uses of and attribution for the resources. We will also be drawing on the rich knowledge and language skills of community members to enhance the metadata with detailed context and accurate language and dialect information. Lastly, given the importance of sustainability in this project, we will begin conversations around the methods for community members to add metadata as descriptions, keywords, stories, etc.

## **Conclusion**

The ISR digital library is a collaborative effort being driven by the needs of the community around discovery, access and use of the cultural resources that capture the rich heritage and history of the region. It is very much a work in progress; a platform, collection and service that is being developed iteratively by DLN team members and the community in partnership. By summer of 2016 we will have received feedback on the first version prototype and will be deep in development of the second version based on that feedback. We will also be working with local community members on metadata creation and enhancement, and planning for additional metadata elements including rights and access and community contributions. The project is working towards a sustainable digital library platform that will serve the community for years to come, and forging strong personal and professional relationships between the DLN team and community members.

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