CollectionSpace
Community Design Workshops
Report

Prepared by Angela T. Spinazze

July 2008

Executive Summary

CollectionSpace hosted two Community Design Workshops in the spring of 2008. The workshops focused on the functional, technical, and accessibility needs of the user community with regard to the development of a modular, potentially service oriented, solution to manage and publish collections information. The Adaptive Technology Resource Centre at the University of Toronto hosted the first event in March, and the Museum of the Moving Image hosted the second event in May. Key stakeholders from the international museum field as well as representatives from special collections libraries and archival institutions took part in these coordinated sessions.

Participants shared their experiences working with collections management systems; interpreted terms, workflows, roles and responsibilities; and described in detail their current working environments, from technical, functional, and usability perspectives. In addition, they grappled with these challenges:

- How do we design solutions for a wide range of users, collections, and institutions?
- What is a collections management system? And, is that what the community needs from CollectionSpace?
- How do we develop an application that can be used by a variety of people, within a diverse set of technical environments, and information ecologies?
- What does it mean to develop, implement, and sustain a community source project for the museum community?

Advances in technology and expectations have forced a sea change in the way cultural heritage institutions interact with their constituents. Access now drives the need for cataloging. Institutions need to repurpose collection information and make it available to many audiences in a variety of formats. As a result of these new priorities, participants told us that they want something more than a traditional, inward-focused, collections management system.

They want an application that serves the entire institution, from novice to expert; a central information repository, or meta-center, that takes into consideration a language of identification that reflects the role of museums in society and their local information ecologies. A solution that assists an organization with agile policy enforcement; a place where staff and others can contribute their knowledge about and day-to-day interactions with collections and where relationships can be established and nurtured.

The Workshops confirmed for the project team that our CollectionSpace project goals and objectives, and our community's needs, are very much in sync. As a result of these conversations, we can see the development path with greater clarity and vision. CollectionSpace is poised to develop a next generation solution that will provide answers to real-world problems, as well as re-define

how cultural workers create, administer, engage with, and publish information about the objects, artifacts, specimens, and other special collections in their care.

Introduction

CollectionSpace is a collaborative effort that brings together a mix of institutions with the common goal of developing a platform for a collections information meta-center that delivers the core functions of a traditional collections management system, enables the integration of emergent and dynamic new technologies into the information ecologies of the museum community, and is an effective and affordable alternative to one-off applications developed in-house, and second-generation vendor offerings.

With funding from The Andrew W. Mellon Foundation, CollectionSpace hosted two Community Design Workshops in the spring of 2008. The Adaptive Technology Resource Centre at the University of Toronto hosted the first event in March, and the Museum of the Moving Image hosted the second event in May. Workshop participants came from a variety of institutions and represented a diverse set of disciplines as well as job functions within the field. These included: museums, archives, libraries, special collections; natural science, fine art, history, material culture, humanities, anthropology, contemporary art, new media, archaeology, visual resources, film, oral histories, rare books and manuscripts, social sciences; directors of new media, chief information officers, collections information and access managers, registrars, conservators, curators, webmasters, archivists, librarians, technical developers, and others. In all, twenty-eight institutions from around the globe were represented.

Pre-Workshop Questionnaires

An online questionnaire was circulated before each workshop. In the first instance, we asked participants to tell us about their experience working with collections management software, their roles and responsibilities, and institutional needs. In the second instance, we asked participants to share details about their work environments such as what is on their desk, with whom they work, and with whom they share information; online habits, such as the reasons they go online, familiarity with tagging, search engines, and other presentation methods; and details about their use of their institution's collection management system, such as how frequently and why they use it and which features they like or dislike.

We learned that over half of the institutions represented worked with collections management systems developed 'in-house', that these applications have been in use since the mid-1990s, that they are housed on hardware maintained by the institution, and that there are system administrators and/or staff designated as such who maintain and support these applications.

Over seventy percent of participants have worked in the museum domain for several years, with almost sixty percent having worked at their current institution for the same period of time. Sixty percent of institutions have a desktop application for collections management (with sixty-five percent of that group having used it for more than three years) and forty percent of institutions use a web-based application (with twenty percent of that group having used it for just a few years). Over seventy percent of participants have used these applications for longer than three years. Interestingly, just over half of participants have used a collections management system other than the one they currently use. While almost ninety percent of institutions share the content from the collections management system with staff, only fifty-seven percent also share some of that content with the general public, and a mere fourteen percent share some of that content with other museums.

Questions about our community's computing environment found that forty percent of participants have three or more computers at work, twenty-four percent have two, and thirty three percent have a single computer. Seventy-six percent of these computers are a Windows-based desktop, forty-nine percent are a Windows-based laptop, twenty-seven percent are a Mac-based desktop, thirty-six percent are a Mac-based laptop, and twelve percent fall into the 'other' category which includes servers, as well as workstations that use Linux and other operating systems.

Most participants have a computer, phone, work files, manuals and other books on their desk. Almost all have lots of paper around them. Of interest to many was the fact that when asked about whom they sit and/or work with, sixty-six percent of participants responded, "Alone" or, "By myself".

Some of the features that participants like about their current collection management systems include: the name, the simple web interface, its stability, the ability to handle heterogeneous materials, simplicity, ease with creating reports and personalizing layouts, its security, its support of administrative workflows, a solid feature set that supports registration, insurance, exhibitions, and shipping, it uses local thesauri, allows direct access to images, it is flexible and customizable.

Others were less enthusiastic with the system they currently use, describing the features they dislike as follows: limited, not intuitive, cannot customize reports, forms or queries, cumbersome reports, data entry constraints, proprietary software makes it difficult to integrate with other applications or databases, not available to the public, too much mouse work, search constraints, difficult to associate digital images, cost, difficult to export content for integration with online resources, limited features, messy user interface, data structure is not very open.

Of all features mentioned, participants use these the most: search, descriptive metadata cataloguing, work order generation, tracking, permissions, data entry, loans, exhibition management, timelines, biographies, histories, tagging/controlled vocabularies, storage, statistical reporting, accessions, inventory management, conservation, and media management.

Challenge #1: How do we design solutions for a wide range of users, institutions and collections?

CollectionSpace is committed to the principles of user-centered design. We intend to develop environments that match the needs of our users, and software that is accessible and usable. The Adaptive Technologies Research Centre at the University of Toronto is our lead partner in this initiative. We will take advantage of the ongoing work of the Fluid project, including the adoption of the Fluid Framework, which will provide us with the means to implement a set of interface components that have been designed to provide universal access. In addition, the work of CollectionSpace will inform future Fluid component development, which will benefit other communities already working with Fluid, thus expanding the use of these components beyond the pilot project.

In order to inform our user-centered design process and to explore personal preferences as well as work-based requirements, we asked participants to tell us about how they *need* to and how they *want* to work with collections information. Our goal was to gain a broader understanding of the breadth and depth of accessibility and usability issues facing our user community.

Participants told us that the characteristics of their personal work spaces were idiosyncratic, each with their own vocabulary, small, secure, and well defined spaces within which they work. They described trusted personal spaces as private, neat, transparent, well organized, intimate, and recognizable. These spaces have a consistency of logic that enhances the processes that take place within them, they are environmentally healthy and ergonomically fit. Other terms used to describe these trusted personal work spaces included:

findable	malleable
comfortable	balanced
personalized	consistent
familiar	proximate
idiosyncratic	porous
trusted	reliable
secure	logical
recognizable	sharable

By contrast, participants described trusted shared work spaces as defined by agreed upon shared behavior (i.e., we agree not to remove items from this space without informing others), spaces that encourage collaboration, communication,

and spontaneity. In addition, these spaces are extensions of personal space, meaning they recognize hierarchies, are transparent, and support tacit as well as explicit rules for interaction. Other terms used to describe these trusted shared work spaces included:

organized	encouraging
clean	accessible
proximate	trusted
secure	adaptable
porous	sheltered
sharable	collaborative
comfortable	

Participants shared much of their daily routine with us and as a result, we learned not only what is important to them personally with regard to how they use a software application or want to interact with it, but also how those personal needs intersect with their roles and responsibilities within the institution and the larger priorities that are set by senior management. For example, while it became clear that collections management systems are crucial in support of administrative museum functions, participants also made it clear that institutional priorities now mean that integration of those systems with others that are used to publish or otherwise produce information products is necessary. With this requirement comes the new understanding that the audiences for collections information are now greater than simply 'staff' and 'public'. And, that accessibility and interaction have different meanings depending on one's use of the information made available.

Challenge #2: What is a collections management system? And, is that what the community needs/wants from CollectionSpace?

One of the goals of the CollectionSpace project is to develop a platform for a collections information system. Within that platform, we intend to deliver a set of modular solutions and services that match functional requirements for managing museum collections and publishing them for various use-cases. Rather than develop a traditional collections management system, however, we are interested in pursuing a service oriented solution so as to take advantage of new open source technologies that to date, have not been used within the museum community. By creating services tailored to specific tasks that museum's engage in daily, such as acquisitions, loans, inventory, audit, we will be better able to develop flexible, customizable, and extensible solutions to fit a wide range of staff needs, collection types, and institutional sizes.

To help us better understand the role of a collections management system in the museum information ecology, we asked participants to define it for us. What functions must it provide? Who performs these functions, and with what goals in

mind? Participants told us that from a practical point of view, a collections management system is a core resource. It is a repository of collections information that is used to help enforce policy, author legal documents, provide multiple perspectives about the collections and the people, places, events, and artifacts/objects/specimens that are contained therein.

Participants described the role of a collections management system as the means through which an institution supports the business of managing the items in its collection, akin to they way a finance system is used to manage a museum's finances. It is a transactional system. It uses a language of identification that is familiar to its core users (i.e., museum staff), and it reflects the way they interact with collections each day. This includes registrarial activities, conservation, display, dispatch, and all of the actions and associated units of information contained in SPECTRUM, the standard for museum documentation developed by the Collections Trust in the UK.

The drivers for the development of collections management systems over the past twenty to thirty years were grounded in the internal needs of an institution to account for their collections in terms of a variety of factors:

- Physical location
  - Where are the artifacts?
- Physical condition
  - Are the specimens protected, secure, and in good physical condition?
- Legal standing
  - What are the storage, display, and access rights to our ownership of the items in our collection?
- Accountability
  - Can we describe the items in our collection in a way that we can identify them if there were stolen?
- Research
  - What research has been conducted about these artifacts and by whom?
  - How many publications has this item been reproduced in?

Our conversations with participants made clear, however, that the majority of present-day in-house and vendor offerings are, at best, electronic interpretations of paper-based systems developed at the dawn of the museum age back in the nineteenth century. When asked to think about the future of collections management and how it might be different from what has been developed to date, participants provided keen insight into how the informational needs of museums have changed and how these systems might behave differently as a result of modern priorities. For example, participants spoke of a need for a place that supports collaboration (a tool for collecting other's insights and knowledge in order to build a collective intelligence, to make it easier to share what we know and where gaps in our knowledge exist, etc.), captures relationships (among and

between collections in disparate locations, to reunite collections that have been dispersed, etc.), helps the museum serve its local community as the global community, and supports the development of trust (curatorial, educational, public, administrative).

In addition, they described a basic need to share information, use a tool that is effective, easy to use, efficient, and that represents the work of those who use it. Participants are looking for a solution that can de-couple information from process and function, and that acknowledges or otherwise deals with the tension that exists between the need to collect information for administrative purposes vs. the need to collect information for publication purposes. These needs are in conflict, and participants tell us that the collections management systems they use provide a solution for one or the other but, frequently not both, of these core uses of collections information.

Challenge #3: How do we develop an application that can be used by a variety of people, within a diverse set of technical environments, and information ecologies?

Museums and related cultural organizations are adept at describing how they are unique and different from one another. The silo approach. Within CollectionSpace, we are interested in defining what we have in common across the continuum of disciplines and institutions that comprise our community. We look to find common processes, workflows, tasks, information elements, structures, methods, ecologies, and needs. When we start with what we share as the common denominator, we are better able to develop solutions to problems that exist for the largest number of community participants. In other words, we are able to create solutions to shared and recognizable problems. It also means, for example, that we can re-conceive of certain lenses that are common within our community, such as the role of institutional size and scope, and begin to use them as filters through which we view information within a particular context, rather than as defining attributes of distinct environments for which we must provide multiple unique solutions.

To assist with this discussion of common characteristics, we provided a set of four technical use cases designed to promote and provoke discussion. Each scenario describes a different technical ecology with a range from small to extra-large. [The complete set of scenarios can be found here.] We then asked participants to select the one that best describes their institutional environment. If the sample use cases did not match or weren't complete enough, we asked participants to either modify an existing definition to match their organizational situation, or to provide their own definition. Our goal was to learn more about how we might approach scale and capacity with regard to software development, as well as to understand how museums want to engage with a solution like CollectionSpace (i.e., What are the characteristics of the technology ecologies

that CollectionSpace will join? How must the components be developed in order to seamlessly fit into these environments?)

What we learned was that from a technology perspective, almost all institutions represented at the workshops, identified heavily with one, or a close combination of two, of the use cases provided. In addition, many participants spoke of the challenges of finding adequate support for their system of choice regardless of whether it was developed in-house or by a vendor. As a result, it appears that information technology support, rather than infrastructure, is a key driver in uptake of new technologies.

The community source model that lives at the heart of the CollectionSpace endeavor speaks directly to this often over-looked yet critical situation. In addition, the services that will be developed will help ensure that the overall approach is modular, well documented, and serves the common core of functional needs. Our desire is to take the burden of technical expertise off of museum staff and place it within the technological solution.

We also asked participants to tell us about the other types of applications, systems, and software components currently in use in their institutions that might be used in conjunction with a CollectionSpace solution. A clear set of information ecologies emerged from this discussion. Most institutions have heterogeneous collections that need to be managed, as well as digital representations of them, and administrative actions that happen to them (i.e., they are loaned, exhibited, conserved). Institutions collaborate with each other regularly in order to design exhibits, lend artifacts, and provide access for research. The majority of institutions represented at the workshops have either a library or an archive, in addition to their collections. Some have both. However, none of the systems discussed, was able to dynamically, relate information from those other systems to the information contained within it.

Participants told us that collections information needs to be preserved and presented. In many cases, preservation activities involve a simple back-up of data sent to a secure location and an update of software on a regular schedule. Few institutions take advantage of intellectual or technologically driven solutions that take advantage of currently available open source software that provide mechanisms for determining how well formed a digital asset is or, collects technical metadata used to determine what types of security measures are needed to ensure long term access.

As for presentation of content, participants spoke of presenting parts of their collections online in the form of exhibitions, collections displays, and educational offerings. For presentation purposes, metadata is sometimes taken directly out of the collections management system and placed in a content management system. More often, new content is developed solely for the production

environment in a separate production database. Only a small portion of systems currently in use are able to serve up information to audiences online.

Some institutions are already experimenting with tagging and other methods to include the public, and other professionals, into the process of identification of materials. However, there is no consistent method or practice currently in use that supports the unification of that information into a core record/resource that contains a life-cycle of descriptive metadata about the artifact, object, or work of art. This means that new information that is collected remains disconnected and that there is no single, accurate institutional knowledge repository when it comes to collections information.

All of these scenarios are examples of the persistent problem of the development and maintenance of information silos wherein each silo is developed for a single purpose. Typically, a silo has no relationship to the original information source, nor does it 'know' of the existence of any other sources with like information. The silo phenomena is alive and well with regard to information and knowledge created to support exhibitions, conservation, print and online publications, rights management, library and archive holdings, digital asset management, kiosks, audio guides, loans, didactic materials, educational offerings, research tools, and many other core museum activities.

It is important that we begin to address the silo problem. By doing so, we will also begin to better support collaboration, and to advance our understanding of what we know, and what we don't know about our collections. Currently, there aren't any resources available to museums that help them define, reveal, and develop relationships across information repositories. This doesn't mean we want or need to bring all of the data into a single repository, it indicates that there is a need for a tool to aggregate information based on use, and other factors, that until now have been ignored by in-house and vendor-based solutions. This need supports our view that a solution that is more than a collections management system is what the community needs.

Challenge #4: What does it mean to develop, implement, and sustain an open source or community source solution?

Through the Program in Research in Information Technology (RIT), The Andrew W. Mellon Foundation is able to help its non-profit constituents develop and use technology. For many years, this program has focused on the needs of scholarly communities (higher education, research, publication, teaching) and has seen the development of several enterprise-wide, collaborative, open source projects in support of this specialized content. Examples include JSTOR, ARTStor, Portico and Aluka. With CollectionSpace, RIT is committed to understanding if the same principles of user-centered design, collaboration, and open source technologies can be applied to the museum environment and its content.

To help us better understand the degree to which the museum community is prepared to engage in an open source/community source project, we asked participants to share their collaborative work experiences, and to articulate what worked and what didn't work within those contexts. In addition, we asked them to reflect on the type of community they would like to participate in, and how they would describe their ability to participate with CollectionSpace.

As expected, participants have a lot of consortial experience. Collaboration happens on many levels within institutions, among institutions with like collections, across institutions with common goals. Many participants had worked in consortia focused on discipline-specific goals/objectives. Project examples included: publishing digital images online, exhibition organization, development of a 'library' of collections contributed by institutions located in a common geographic location, and presentation of teacher resources using collections from partner institutions.

The list of lessons learned was concise and precise, with many recurrent themes that naturally fed into a set of attributes of a healthy and successful collaboration. These attributes fall into three distinct categories and are described below. As we move forward to further define the type of long-term approach we will pursue in order to sustain the project beyond the pilot phase, these attributes will be used as the foundation for building our CollectionSpace community.

Ethos/Values

- True openness and transparency.
- True idea of objectives
    - Why are we participating? Toward what end?
- A clear understanding of the rules of participation.
- Morality.
    - What does it mean to be a good community citizen?
- Ability to attain a measurable quality of participation.
- A clearly defined risk/return model
    - What will we get for our participation and at what cost?
    - What will be shared? Owned? Distributed? etc.
- Acknowledgement of contribution and success
    - In a form that institutions can bring back to leadership that helps them leverage local needs with project and community goals/objectives.
- Encourage innovation.

Community

- A designated project manager.
- A strong core design and development team.
- Clearly defined:

    - structures for participation,
    - roles and responsibilities,
    - expectations and deliverables,
    - timetables for discussion, development, documentation, testing, implementation, evaluation.
- Team members with a variety of required skill sets.
- Effective community liaisons.
- Representation from the totality of the eventual community, throughout the entire process.
- A strong communication plan.

Design and Development

- Iterative design and development workflow.
- Source code available to everyone.
- As little or as much support as necessary.
- Adequate funding for meetings, documentation, working groups, …
    - ability to meet in-person on a regular basis.
- Clearly defined structures, priorities, rules
    - discussion, development, documentation, testing, implementation, evaluation, IP.

While consortial experience is not new to the museum community, open source and community source projects are relatively new. Participants told us, however, that they are ready and willing to work with us in a variety of ways: to communicate, develop, advocate, discuss, review, document, liaise, plan, budget, provide domain knowledge, and design components, tools, documentation, environments, interfaces, interactions, experiences, etc. in support of new ways of collecting, managing, preserving, and publishing collections information at their institutions. In addition, they volunteered for working groups, and expressed support for CollectionSpace to take the leadership position to ensure that the ideas and outcomes of our four days working together would result in tangible solutions for common needs.

Next Steps

After exploring the technical, functional, and accessibility challenges that we must address within the CollectionSpace project, we can see the development path with greater clarity and vision. Our colleagues have told us that they want to participate in a community source project that begins with the CollectionSpace pilot. They support our efforts to develop a framework and set of modular components that work together with existing software as well as new options not yet explored, for the management, presentation, and access of collections information.

Our commitment to a user-centered design and development approach means that we will continue to engage workshop participants and other community

members in the process, and we will prioritize our development plan to take into consideration both the administrative and production needs of the museum community. We will help re-define relationships and the filters through which we support the day-to-day work that museum professionals do. We will continue to emphasize the key goal of building bridges among existing applications, systems, and processes, while we simultaneously challenge the traditional barriers to collaboration that persist within the community. Towards that end, we will challenge the notion that solutions must be discipline specific and seek an end to the discipline-base silos that define and separate us, in favor of an approach that emphasizes our commonalities.

Our focus will continue to be on in the practice of museums, and the reality that what drives the need for the creation of collections information, and what constitutes the lifecycle of that information, have changed dramatically since the first collections management systems were first developed. Our work will emphasize finding solutions to the real-world problems of creating, administering, and publishing information about collections by the people who work and interact with them. By working through the lens of commonality, while taking advantage of technologies currently used in other communities that promote collaboration, trust, integrity, and interoperability, we look to develop a new paradigm for collections information management for museums.