Arts Management &
Technology Laboratory

Creating Online Exhibitions and Research Tools

Graciela Kahn

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TABLE OF CONTENTS

INTRODUCTION

With online technological innovation, many art museums have come to realize the potential the web holds to create unique artistic experiences and research tools. Where online tours that recreate tridimensional museum galleries were once ubiquitous, today museums have the ability to provide engagement and educational opportunities that go beyond presenting online proxies for "the real thing." This paper provides an overview of current online exhibition and research tool practices for managers of art museums that are looking to improve their online presence.

Art museums can make their collections accessible online in numerous ways, which can be divided, roughly, into two frameworks: searchable repositories and virtual exhibitions. Searchable repositories consist of online databases that house images and metadata for all or part of a museum's collection. Normally this tool aims to provide researchers with authoritative information about the museum's holdings. Virtual exhibitions, on the other hand, are exhibitions that can exist solely online or as a component of a physical show, and are usually created for educational purposes. As with any other project a museum undertakes, what type of online content should by developed and how it will be presented should be defined first by the intended audience and second by available resources.[1] A museum that already has its objects digitized and catalogued in an online database, for example, will be able to provide a broader resource than a museum that is only starting its digitizing efforts.

BACKGROUND:
EVOLUTION OF ART ON THE INTERNET

One of the first efforts to exhibit art online began in 1994 when Nicolas Pioch established the WebMuseum, a database that offers users the ability to browse through images and text about famous (mostly European) artists. Today the site functions more as a testament of what the Internet used to look like, rather than an art exhibition, as it was last updated in 2002. However outdated the site may be, the mission remains surprisingly current. "I decided to start working on this exhibit because I felt more artistic stuff was needed on the Internet," the project's founder states, harkening back to the early days of the web.[2]

In 2013, almost 20 years later, Google announced the launch of its ArtProject, an online platform for art that provides access to thousands of high-resolution images and curated content from institutions around the world. Google describes the purpose of the Cultural Institute, of which the ArtProject is a part: "Google's mission is to organize the world's information and make it universally accessible and useful. The Cultural Institute is an effort to make important cultural material available and accessible to everyone and to digitally preserve it to educate and inspire future

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[1] "A Critical Look at Online Exhibitions and Online Collections: When Creating One Resource Is More Effective Than the Other." *DESIDOC Journal of Library & Information Technology,* Vol. 28, No. 4, July 2008, pp. 63-71.

[2] http://www.ibiblio.org/wm/about/about.html

generations."[3] Although more articulate than that of the WebMuseum, bringing "artistic stuff" to the Internet remains the core idea.

Even when trying to achieve the same goal, the contrast of how these two projects look and state their missions is striking, illustrating the evolution of online application design over the last decade. The ArtProject is a collaboration between Google and numerous cultural institutions, with Google providing an enormous amount of technological resources and human expertise behind the project, The WebMuseum, on the other hand, is reminiscent of the DIY era: "No support, no funding, no manpower: the WebMuseum is a collaborative work of its visitors contributing to expand and improve the WebMuseum."[4] The crowdsourcing component exists in both projects, though the ArtProject tackles it in a much more structured, or even curated, way.

Now museums have the choice of whether to develop online exhibitions with curated content, make their collection databases available online, or do both. Institutions such as the Brooklyn Museum or Rijksmuseum are going one step further and offering Application Programming Interfaces (APIs—see table below). Whichever route a museum chooses, guidelines for approaching the development of online content are available to provide assistance.

ONLINE EXHIBITIONS: PROVIDING CURATED CONTENT FOR ONLINE AUDIENCES

If an art museum wants to develop an online exhibition but is not sure how to get from point A to point B, reviewing award evaluation criteria is a helpful first step. Regardless of whether a project is being designed to win a certain prize, award evaluation criteria provide insight on what the field considers to be good practice, and also shed insight on narrative possibilities unique to online exhibition.

To define the scope of the exhibition, consider what distinguishes an online exhibition from a research tool. The Best of the Web Awards, presented annually at the Museums and the Web Conference, describes the category of online exhibitions as "sites or apps [that] excel in presenting and interpreting museum collections and themes, providing a rich and meaningful digital experience." It goes on to clarify that online exhibitions "may be a section of a larger museum website or be a collaborative project among institutions and/or individuals and communities associated with museums. Entirely virtual museums are eligible (…) as are exhibitions of Web art and other 'born digital' collections."[5]

The ALA/ACRL Rare Books and Manuscripts Section (RBMS) of the Association of College and Research Libraries (a division of the American Library Association) hosts The American Book Prices Current Exhibition

[3] http://www.google.com/culturalinstitute/about/
[4] http://www.ibiblio.org/wm/about/about.html

[5]
http://www.museumsandtheweb.com/mw2012/best/categories.html#research

Collection Wall at the Cleveland Museum Art's Gallery One, winner of the Best of the Web award in 2014 for the Digital Exhibition Category. Source: [Museums and the Web](#).

Catalogue Awards. They also have a category dedicated to online exhibitions, defined as "[content] produced for distribution on the World Wide Web or on other digital media. [Online exhibition] serve as gateways to library or archival materials. An electronic exhibition need not be based on a physical exhibition but it must describe the materials from a distinct point of view."[6]

These definitions begin to illustrate the diversity of factors and approaches that make for strong online exhibitions. Well executed online exhibitions not only present artistic content, but also offer an interpretation of that content. They

can be the product of a variety of sources, from entirely digital material to digitized content. They can live within a museum's website or in an entirely new platform, and can be created exclusively for the web or as a part of a physical show.

An online exhibition project can be analyzed across two broad categories: content and design. The first, content, is primarily related to the arts organization's mission and asks: Why is this project important? Who do we want to serve? The second, design, is related more to the desired outcomes: How will these be accomplished in the long-term? What does success (literally) look like? Based on the award criteria for online exhibitions from the

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http://www.rbms.info/committees/exhibition_awards/submissions/evaluation_criteria.shtml#electronic

[Museums and The Web](#), the [American Library Association](#) and from award criteria for cultural institution's websites from the [Webby Awards](#), main components of each category emerge:

CONTENT

The content of an online exhibition is defined by not only its images and text, but also by any kind of video, audio, or animation that is presented. Information generated by third parties through crowdsourcing or social media feeds and integrated into the site are also considered content. All elements should be relevant to the exhibition and contribute to the understanding of the topic. In other words, everything in an online exhibition should be included for a reason; that it is technically possible is not sufficient. Consideration should also be given to the expertise level of the intended audience.

Because online exhibitions often live much longer than traditional exhibitions, a plan to regularly update the content should be included in the exhibition's design. In sum, content should be engaging, relevant, current, and audience appropriate.

DESIGN

The design of an online exhibition follows the same principles of any other web project. However, it also presents a unique opportunity for arts organizations to integrate navigation with a broader narrative related to the exhibition content. The overall structure should be appropriate to the topic and the intended

audience, but above all, should be consistent, intuitive, and transparent.[7]

The technology and design elements used to build the exhibitions should also consider accessibility in terms of ease of access across a wide range of devices and connection speeds, as well as the specific needs of people with disabilities. The Webby Awards explains, "Good functionality makes the experience center stage and the technology invisible."[8] Yet it is also important to make provisions for updating the site to remain usable as technology continues to evolve, as nothing is less engaging than a website with broken links and outdated plug-in requests.

RESEARCH TOOLS: FOSTERING THE MISSION THROUGH OPEN COLLECTIONS

Among other pursuits, most the mission of most art museums includes preserving and making collections available to the public. However, because of physical constraints, museums are usually only able to display a small fraction of their collections in their physical facilities at any given time. At the Museum of Fine Arts Boston, around 4% of the total collection is on display.[9] At the Los Angeles County Museum of Art (LACMA), the figure is 2.3%,[10] and at the

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[7] http://www.webbyawards.com/entries/criteria.php#websites
[8] Ibid.
[9] http://www.nytimes.com/2009/03/19/arts/artsspecial/19TROVE.html?pagewanted=all
[10] http://articles.latimes.com/2013/jul/20/entertainment/la-et-cm-lacma-broad-museum-storage-20130721

Smithsonian Institution, less than 2% of the total collection is on display.[11]

To increase the number of objects available to the public, organizations can implement or expand a travelling exhibitions program. Another possibility is to embrace the "open storage" trend. But making collections accessible online is perhaps the only way art museums can truly increase accessibility for research purposes on a global scale. While the digital experience may never replace experiencing an artwork in person, online research tools do not attempt to do so. Rather, they offer the opportunity to access thousands of records, something that would otherwise be impossible because of conservation standards, facilities limitations, and geographical location. An example is the Metropolitan Museum of Art, which, with its encyclopedic collection relevant to cultures around the world, recently made nearly 400,000 high resolution images available for free under Open Access for Scholarly Content license.[12]

The American Alliance of Museums (AAM) outlines "Characteristics of Excellence" for U.S. Museums in seven categories, one of which is "Collections Stewardship." Contained within the Collections Stewardship category are five distinct standards that pertain to collections stewardship in general. However, when read through the lens of creating an online

searchable repository, guidelines for planning such an endeavor can also be found.

By definition, archives are collections of historical documents or records providing information about a place, institution, or group of people. Making these archives available online requires not only the collection of information, but also the digitizing of the objects themselves. Not all museums have the capacity of doing so, but there are a few exceptional examples such as The Museum of Modern Art and the Rijksmuseum that provide online access to the entirety of their collections.[13]

So, after creating a strategic plan, how does a small museum implement an online research tool? Award evaluation criteria can again shed light on what is considered good practice. The Museum and the Web Conference also presents an award for "Research / Collections Online," defined as: "Sites that support or present research about or using museum collections and/or that provide excellent resources for researchers in any discipline. They may be online databases, search engines or APIs that provide detailed museum information for individuals and/or groups."[14]

The New Institute, a merger of the Netherlands Architecture Institute, Premsela, and Virtual Platform gives out the Best Practice rosette for outstanding digital art or culture projects. In 2013, the prize was awarded to the

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[11] http://newsdesk.si.edu/factsheets/fact-sheet-smithsonian-collections
[12] http://metmuseum.org/about-the-museum/press-room/news/2014/oasc-access
[13] http://www.telegraph.co.uk/culture/8296365/The-best-online-culture-archives.html
[14] http://mw2013.museumsandtheweb.com/best-of-the-web-criteria/

AAM Characteristics of Excellence	Online Collections Guidelines
The museum owns, exhibits, or uses collections that are appropriate to its mission.	Same principle applies
The museum legally, ethically, and effectively manages, documents, cares for, and uses the collections.	Abides by applicable copyright and intellectual property laws and digitizes collections following industry best practices
The museum's collections-related research is conducted according to appropriate scholarly standards.	All data available for public use in online collections should follow the same scholarly standards
The museum strategically plans for the use and development of its collections.	Prioritize the publication of certain objects or collections according to a strategic plan.
Guided by its mission, the museum provides public access to its collections while ensuring their preservation."	Online collections should provide access to the greatest amount of information possible, but this does not necessarily mean making potentially sensitive information (such as appraisals and condition reports) public.

Rijksmuseum in the Netherlands for their API (Application Programming Interface) for its innovative use of current resources, allowing app developers to access and reuse their collection information for other applications.

These types of efforts require higher technical expertise (and a costlier investment) than a regular online exhibition, but contribute to a museum's mission by empowering researchers to use information developed by the institution to generate content that goes beyond what is possible within the institutional capacity. Online research tools can exist on their own and be used for traditional research purposes, or have an API that allows developers to access the information and reuse it, potentially aggregating

data from many sources to create cross-collections access.[15]

SEARCHABLE REPOSITORIES

Even before thinking about technology, consider the end user and their needs. Chances are that if an institution cannot afford the most robust tools, it can still build a useful platform. At the least, an online research tool should be accessible both to professionals and casual users, and provide content that is current, consistent, accurate, and as comprehensive as possible.

When developing the interface design, the same principles of creating an online exhibition should

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[15] http://www.archimuse.com/mw2009/papers/ellis/ellis.html

> **What is metadata?**
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> Metadata is a record of characteristics about an object. What they are, what they are called, where they are, what they are made of, how big they are, whether they are whole works themselves or parts of another larger work, what they are about, who made them, their histories, who owns them, who knows about them, etc. When we know these answers clearly and consistently, we can best manage them, find them, and use them.
>
> Source: Best Practices for Descriptive Metadata, Yale University

be applied, but special consideration should be given to the searching and navigation capabilities, which will also depend on the available metadata. Users should be able to search and sort by author, date, object type, medium, size, and style/period.[16] More advanced searches could include a topic, color scheme, location within the museum, or provenance.

In addition to searching features, online databases can also provide "curated" content that allows users to navigate the site through a hierarchy determined by curators or by the archival classification method itself, providing a structure that allows the casual user to navigate the site without specific queries in mind.

APPLICATION PROGRAMMING INTERFACES (APIs)

In a sense, open APIs can be considered the "gold standard" of museum online collections tools. Institutional websites can only support (and conceptualize) so many uses of their databases, and are inherently limited by the scope of their own collections. By making their information available for use by third parties through an API, museums exponentially increase the possibilities of tools that will find innovative ways of presenting and interpreting its holdings, and provide an opportunity for the creation of more comprehensive research tools.

However, developing an API is also the endeavor that poses the most challenges due to the technical expertise required and because the target audience is harder to define. The importance of identifying an audience has been emphasized throughout this paper, and it becomes even trickier with APIs. Developers, who will create the tools that use the API, are the first users, but the tools they develop will reach an audience that is almost impossible to identify beforehand.

In this sense, the best an institution can do is offer an API that is flexible and easy to use. The technical details of how to do so are likely beyond the expertise of staff members; hiring a consultant or independent contractor will be necessary to ensure a tool that is of good quality and that will be easy to adapt to future technical requirements.

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[16] http://pages.uoregon.edu/ehteague/aai-metadata.html

> **What is an API?**
>
> An API is a software intermediary that makes it possible for application programs to "talk to each other" and share data.
>
> For museums, having an open API mostly means offering structured code that developers can use to retrieve data from their collections and use in new applications.
>
> Source: ProgrammableWeb.com

Along with these challenges come rewards. Metrics of success are hard to define because the number of end users—the most common measure—will be hard to quantify. However, success can be assessed both by the number of applications developed and the quality or originality of their use of the database.

CONCLUSIONS

According to the American Alliance of Museums, adults registered 524 million online visits annually by 2006. That number is presumably higher today and serves to illustrate the potential reach of online exhibitions and research tools. Art museums that provide engaging content online can build audiences before those constituents visit the physical premises of the museum—if they ever do. It is in the best interest of an art museum seeking to improve its online presence to approach any project with as much information as it can. While evaluation criteria created by authoritative sources do not constitute project plans by themselves, they do provide a reference point that can guide and focus the complex process of designing an online exhibition or an online research tool.

The mission of a museum should define its digitizing priorities. Independently of the scope of the project and the resources available, any online resource will be more likely to succeed if a serious effort to define the target market or end user is undertaken, even if at the end of the process more than one user type is identified. The design and layout of the online content—exhibition or research tool—is also important, not only for aesthetics but because it provides the framework within which a user will interact with and discover the presented materials.

The paper presented here is meant to provide an overview for arts managers who are considering these online endeavors and to show that the capacity of organizations to accomplish any of them depends more on their planning approach than on their technical expertise or funding mechanism. Further research on archiving best practices is recommended; the Library of Congress Digital Preservation website offers a good starting point.

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