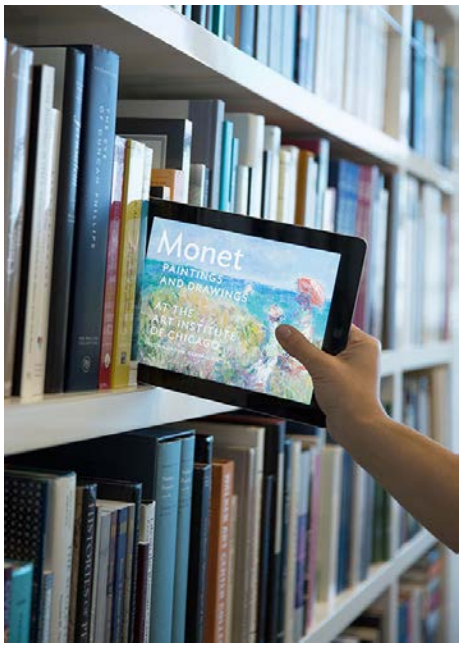
MUSEUM CATALOGUES — in the — DIGITAL AGE

A Final Report on the Getty Foundation's Online Scholarly Catalogue Initiative (OSCI)

Publishing scholarly collection catalogues is a critical part of a museum's mission. Based on meticulous research, these catalogues make available detailed information about the individual works in a museum's collection, ensuring the contents a place in art history. Yet printed volumes are costly to produce and difficult to update regularly; their potential content often exceeds allotted space. Digital publishing presents an alternative, and the Getty Foundation's Online Scholarly Catalogue Initiative (OSCI) is helping museums make the transition from printed volumes to multimedia, web-based publications freely available to anyone with a computer, tablet, or smartphone. The Foundation launched OSCI in 2009 in partnership with the J. Paul Getty Museum and eight other institutions: the Art Institute of Chicago; the Arthur M. Sackler and Freer Gallery of Art; the Los Angeles County Museum of Art; the National Gallery of Art, Washington, D.C.; the San Francisco Museum of Modern Art; the Seattle Art Museum; Tate; and the Walker Art Center.

Introduction

Deborah Marrow, Director, The Getty Foundation



The Getty Foundation's Online Scholarly Catalogue Initiative launched in 2009 with the goals of rethinking the museum scholarly collection catalogue for the digital age and helping museums work together to transition to online publishing. Scholarly collection catalogues belong to a well-established genre with a distinguished pedigree, and they have been widely admired for generations for their attention to detail and high-quality production. They are also one of the most important ways that museums share research findings about the works of art in their collections.

But what is the future of this venerated tradition? Most museums can only afford to print small numbers of catalogues, which limits readership. And catalogues become outdated as soon as a museum acquires a new artwork or makes a new discovery about an existing work in its collection. The space of the page and the size of the volume constrain the amount of information that can be presented, including the number and size of images.

The arrival of the digital age offered tantalizing alternatives. With online catalogues, museums could easily update content, adding new research without waiting years for the next print edition. Global audiences could engage with the latest scholarship unfolding thousands of miles away. Readers could zoom in on high-resolution images of artworks and study them in dialogue with conservation documentation. Video and audio clips could bring the voice of the curator, conservator, or artist into the space of the catalogue. Researchers could take notes in the margins and store them for later use or post comments for discussion with other scholars.

To meet this vision, the Getty Foundation invited eight museums to work together as they developed online scholarly catalogues for their respective institutions. The digital world was very different when the Online Scholarly Catalogue Initiative—or OSCI as it came to be known—began in 2009. In fact, tablet computers were a new development and the iPad had not yet been released. Throughout the multi-year initiative, project teams came together to collaboratively solve problems both conceptual and technological, from addressing the expectations of scholars for trustworthy information to the need for *responsive design* to make a publication look its best on multiple viewing devices. In this way, they hoped to produce strong models for the field.

Participating Museums

Art Institute of Chicago

Freer Gallery of Art and Arthur M. Sackler Gallery

Los Angeles County Museum of Art

National Gallery of Art, Washington, D.C.

San Francisco Museum of Modern Art

Seattle Art Museum

Tate

Walker Art Center

Today, these pioneering museums have realized the promising potential of digital publishing. Each has completed its own OSCI catalogue, distinctive in character and suited to the needs of its own institution. You can access them all through this report. The OSCI museums took a leap of faith together and learned

that much can be accomplished when institutions don't go it alone. They also learned that online publishing was not business as usual but required rethinking long-held assumptions about research, writing, and publishing. Their creativity has already been rewarded by a number of honors and awards in recognition of their efforts.

The first OSCI convening in 2009 at the Getty Center. The OSCI museums took a leap of faith together and learned that much can be accomplished when institutions don't go it alone.

While the impact of OSCI on art history and museum practice is just beginning to be measured, the initial results are encouraging. OSCI catalogues are helping to revive the close study of the object, which has the long-term potential to transform art historical research and scholarship. At the same time, these publications are reaching much larger and more diverse audiences than comparable print catalogues, and are being used for research and teaching. And all eight partners have committed to new online publications, with several already completed.

OSCI has also been transformational for the Getty Foundation, offering profound insights about research, museums, and digital publishing. One critical moment occurred early on in the planning stages when we realized—along with our grantees—that online collection catalogues aren't just for scholars. Digital publishing is a medium that can serve multiple audiences simultaneously, from art history novices to experts.

Completing the OSCI publications required the hard work of extensive teams from the participating museums, and we are grateful to the commitment and curiosity that all of the OSCI teams brought to the task at hand. At the Getty Foundation, thanks are due to numerous past and present staff and consultants, including Joan Weinstein, Christina Olsen, Nancy Micklewright, Anne Helmreich, Heather MacDonald, Kris Kelly, and Katie Underwood. The J. Paul Getty Museum helped us launch OSCI, and we acknowledge the input of current and former colleagues, including Scott Schaefer, Mary Morton, Anne Woollett, Peggy Fogelman, and Nik Honeysett. We are also very grateful to Getty president and CEO James Cuno for his crucial support of this initiative, and also to the staff of Getty Publications, especially Kara Kirk and Greg Albers who designed the final report as an online publication in true OSCI spirit.

With this report, we share the results of OSCI: the projects themselves, the lessons learned, the three approaches developed by the participating museums, the remaining challenges for digital publishing, and what lies ahead. Without the collaboration and dedication of numerous professionals—museum leadership, curators, technologists, designers, publishers, and registrars—online collection catalogues would have remained just an intriguing idea. Thanks to the OSCI museums, this vision is now a reality. Scholars can consult important new research with the click of a mouse, art aficionados can experience familiar objects in novel ways, and the museum field can draw on a set of viable digital publishing models to expand online access to their collections.

Projects at a Glance

Art Institute of Chicago

Freer Gallery of Art and Arthur M. Sackler Gallery

Los Angeles County Museum of Art

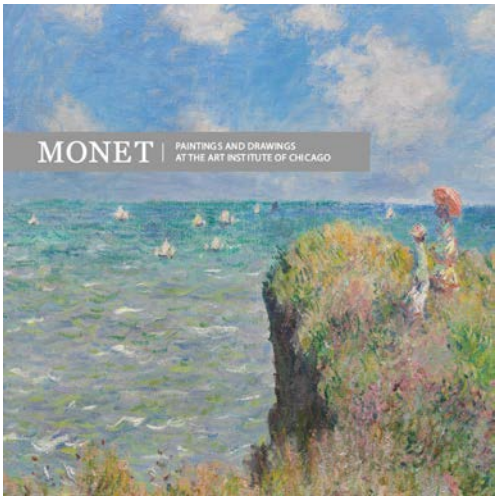
National Gallery of Art

San Francisco Museum of Modern Art

Seattle Art Museum

Tate

Walker Art Center



View the Catalogues

Art Institute of Chicago

Monet Paintings and Drawings

Renoir Paintings and Drawings

The Art Institute of Chicago's OSCI publications focus on the museum's renowned collection of Impressionist masterpieces by Claude Monet (1840–1926) and Pierre-Auguste Renoir (1841–1919). Organized as two separate catalogues, the volumes foreground conservation documentation using innovative functionality such as interactive image filters that reveal new research on how the artists changed their compositions over time. Another key feature is a customized citation tool for researchers to encourage scholarly use of the catalogues.

AAM Bronze MUSE Award, Interactive Kiosks (2014) for Renoir's True Colors, *which utilized components of the Renoir OSCI catalogue*

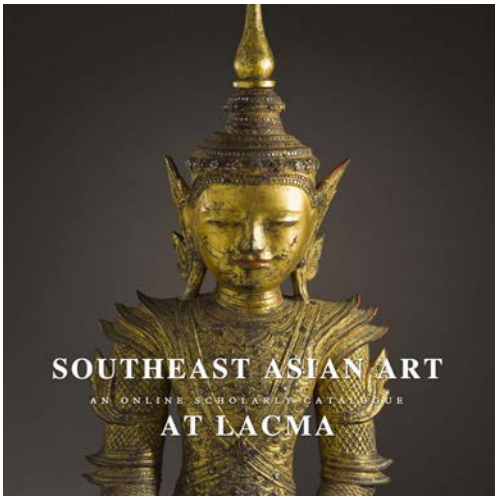
View the Catalogue

Freer Gallery of Art and Arthur M. Sackler Gallery

The World of the Japanese Illustrated Book

The Freer|Sackler catalogue centers on the Gerhard Pulverer Collection of Japanese illustrated books, one of the most important collections of these distinctive hand-made works of art. The scholarly essays focus on artist Katsushika Hokusai (1760–1849), whose unique style had a marked influence on European and American modern artists. The catalogue's special features include a "digital study room" that allows readers to save their annotations, notes, searches, and favorites in their own password protected part of the site. Users can search the catalogue contents in either Roman or Kanji script, and a clickable timeline lets readers see at a glance how many books in the collection were published in any given year.

Bronze "Telly" Award (2015) for the catalogue's Ukiyo-e technique video



View the Catalogue

Los Angeles County Museum of Art

Southeast Asian Art at LACMA

Detailed object entries and new interpretive essays form the centerpiece of LACMA'S catalogue focused on highlights from its fine collection of Southeast Asian sculpture. The publication features high-resolution, zoomable images, conservation documentation, videos, maps, and photographs that visually connect the museum's objects to their place of origin. Select objects can be studied in the round with a user-controlled 360-degree image viewer. An online citation tool makes it easy to reference the catalogue for scholarly purposes, while social media plug-ins allow general sharing on a variety of platforms.

View the Catalogue

National Gallery of Art

Dutch Paintings of the Seventeenth Century

The OSCI publication of the National Gallery of Art (NGA) is an updated and expanded digital version of Arthur Wheelock Jr.'s key reference work. Among the volume's special features are a sophisticated image comparison tool, a customized reading environment, and new multimedia content, including a series of video tours of the NGA's Dutch paintings galleries led by Wheelock. The OSCI publication was the first release for NGA Online Editions, an ongoing effort that provides access to the most current in-depth information on the Gallery's collections along with smart tools for citing, comparing, sharing, exporting, viewing, printing, and storing texts and images.

ARLIS's George Wittenborn Award (2015) for excellence in art publishing

View the Catalogue

San Francisco Museum of Modern Art

The Rauschenberg Research Project

SFMOMA's OSCI publication, *The Rauschenberg Research Project*, provides access to the equivalent of 600+ print pages of new research, vibrant illustrations, and multimedia content about the celebrated American artist Robert Rauschenberg. Users can watch video clips of the artist talking about how artworks were created, view annotated images that show how Rauschenberg altered some of his most famous pieces after they were initially exhibited, and read curatorial documents that were previously difficult to access, such as detailed correspondence revealing the artist's secret "recipe" for tinting collaged fabric.

AAMC Awards for Excellence, Honorable Mention in Exhibition Catalogues category (2013)

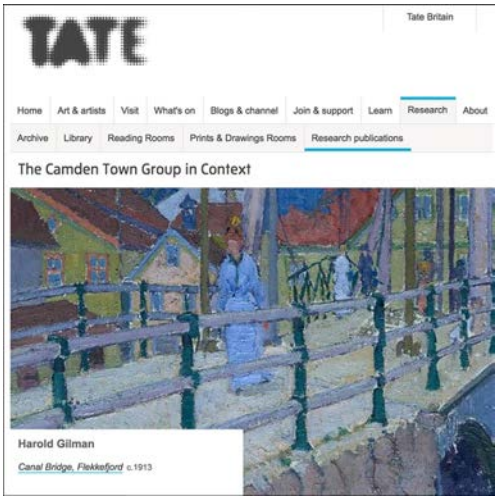
View the Catalogue

Seattle Art Museum

Chinese Painting & Calligraphy

Seattle Art Museum (SAM) houses one of the premier collections of Chinese art in North America, but prior to OSCI the material had not been studied in depth and was largely unpublished. SAM's online catalogue contains a detailed assessment of each object, new photography, in-depth comparative research, and essays from experts. The works' inscriptions and seals—both of which are of critical historic and artistic significance—were also fully translated, a feature that is rarely available in traditional print catalogues. The zoom function shows images in great detail, and users can also create their own collections of favorite works, as well as add comments in a discussion thread. Since many of these scrolls are not regularly opened and on public view, the online catalogue provides unprecedented access to these fragile works.

AAM Gold MUSE Award, Online Presence (2014)

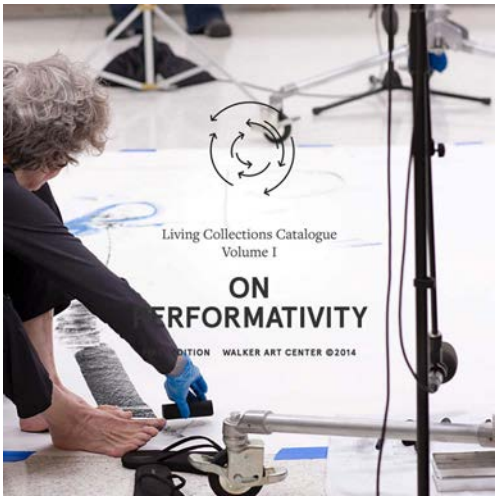


View the Catalogue

Tate

The Camden Town Group in Context

Tate's OSCI publication is on the British Post-Impressionist circle known as the Camden Town Group, which included artists Spencer Gore, Harold Gilman, and Walter Sickert. In addition to detailed entries for individual works in their collection, Tate's catalogue includes a wide-ranging selection of research material that elucidates the artists' relationship to their social and cultural context, as well their individual working methods. Highlights include correspondence, sketches, and two other features that would not be possible in print: historical film clips from the period and audio files of popular music hall songs related to depictions by the Camden Town Group artists.



View the Catalogues

Walker Art Center

Living Collections Catalogue

The Walker's *Living Collections Catalogue* is a series of thematic publications devoted to the museum's multidisciplinary collections. The two volumes supported through OSCI are *On Performativity* and *Art Expanded, 1958–1978*. Both editions feature new essays by leading scholars that integrate video, audio, still images, and archival material into a crisp, responsive-design environment that adapts to different viewing devices. Essays are versioned and citable with the assurances of a permanent address to the information referenced, while links out to entries in the collections database provide information about individual artworks that is updated dynamically.

Museums and the Web, Best of the Web Award for Research/Collections Online (2015)

Nine Lessons Learned

1. Online Publishing is Authoritative
2. Choose Technology Wisely
3. Rightsize the Project
4. Make Sure Your Content is Ready
5. Intellectual Property is Manageable
6. Find Ways to Serve Multiple Audiences
7. Design Matters
8. Get the Right People and Structure in Place
9. Think Sustainably

Lesson 1
ONLINE PUBLISHING IS AUTHORITATIVE

At the beginning of the Online Scholarly Catalogue Initiative (OSCI), the validity of publishing scholarly content online was not universally agreed upon. Would some readers only associate internet publishing with personal opinion and transient content that might quickly disappear? To address such concerns, the OSCI participants agreed that the goal of the initiative should be to produce catalogues that met all the expectations of sound museum scholarship:

Rigorous Research

Readers still expect essays and entries authored by subject specialists. The OSCI catalogues demonstrate that this scholarship becomes even more meaningful when accompanied by material unique to the museum and typically inaccessible to those outside the institution, such as conservation and archival documentation.

> *"The means of production and display may have changed, but it's a peer-reviewed scholarly catalogue with all that that implies."*
>
> Judy Metro, Editor in Chief, National Gallery of Art

Permanence

Scholars, in particular, want to know that an online resource will be there in the future, just as a book remains on the shelf. If a catalogue is updated or changed, they want this to be indicated as clearly as possible. They also want to know that the catalogue will be archived and preserved for the future. (See also Lesson 9: Think Sustainably.)

Scholarly Conventions

Museum catalogues, like other forms of scholarship, adhere to publishing practices that have been honed over time. For example, scholars expect to see provenance information, exhibition history, and bibliography. They also expect material derived from other sources to be footnoted, and content to be clearly organized and citable, as with a book. (For more on citations, see also Lesson 7: Design Matters.) They want these same conventions, or their equivalent, in the digital environment.

> *"Ironically, through the digital age we can come back to an understanding of connoisseurship."*
>
> Arthur Wheelock, Jr., Curator of Northern Baroque Paintings, National Gallery of Art

Usability studies commissioned by several of the museums demonstrated that the OSCI catalogues earned the trust of researchers precisely by using these standards and conventions.

Lesson 2
CHOOSE TECHNOLOGY WISELY

Understand your needs and ambitions

As OSCI began, some museums envisioned translating the print catalogue into a portable document format (PDF). A PDF is a familiar format to readers and can be archived, assuring that it will "last" in the online environment. Participants quickly realized, however, that while a PDF is highly stable, it doesn't take advantage of any of the features offered by online publishing. The group soon asked: if the catalogues are interactive, born-digital publications, what content and features do we want to include?

The options seemed almost unlimited, including the list that follows:

- Zoomable high-resolution images
- Image comparison tools
- Conservation documentation and analysis (such as X-rays)
- Multimedia content (such as audio and video)
- Citation tools
- Full-text search
- Dynamic filtering of objects by type, date, author, and so on
- Note-taking functions
- Customizable lightbox to let users select and save their own image collections

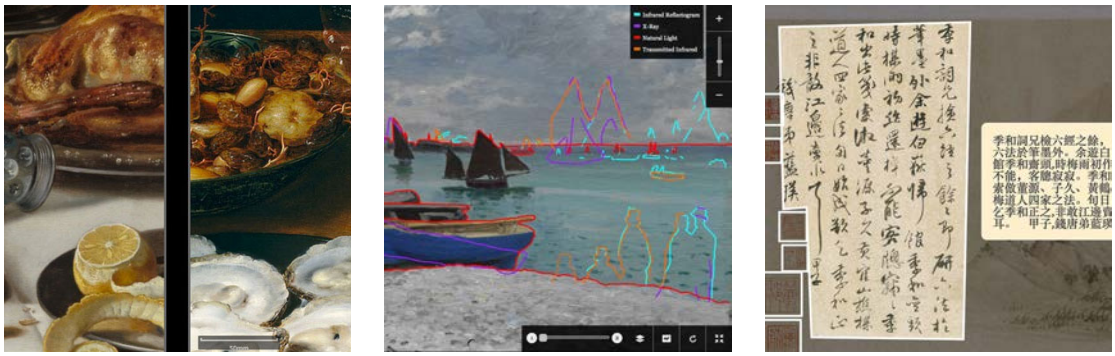
"It was exciting to think about this new creature … [a] new kind of form and interactivity that none of us ever thought would be possible."

Gloria Groom, Chair of European Painting and Sculpture, Art Institute of Chicago

In addition, the museums realized that publishing online would allow them to do the following:

- Add or update content over time
- Include much more content than with print
- Design for content to be accessible from multiple devices (mobile, tablet, or desktop computer)

But how many options were too many? In the end, each museum carefully selected those features that best suited its respective catalogues after an intense period of planning and consultation.



From left to right: The National Gallery of Art's image comparison tool; the Art Institute of Chicago's interactive image viewer; and Seattle Museum of Art's scroll inscription and seal annotations.

Take stock of existing systems

Before choosing a new publishing system, each museum found that it was critical to understand where information about works of art already resided, as well as the technology systems that were already in place. Information about individual artworks may exist in both paper and computer files in various museum departments, including curatorial, conservation, and collections. But how could this information be brought together in the digital environment? To complicate matters, existing museum software systems—including those that manage collections data, store images, and create Web pages—are not always integrated (they don't "talk" to one another easily) and were not designed to become publishing platforms.

The OSCI museums set out to develop solutions that would export information from these different systems and then import it to an online publication, whether it was tombstone information harvested from the *collection management system (CMS)* or digital images extracted from a *digital asset management system (DAMS)*. The OSCI partners also insisted that any solution should make it easy to integrate catalogue entries and essays, which are typically written and stored outside of museum databases.

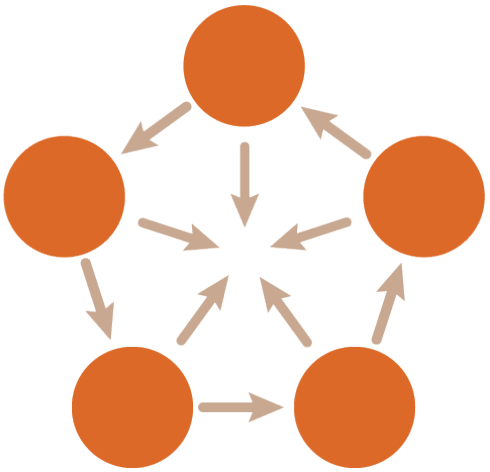
The first step was to recognize that the scholarly catalogue would be much more than an aggregation of an institution's existing databases. What the OSCI partners needed was the best *information architecture* for their institution and for the needs of their respective catalogues.

Embrace a team approach

The content and technology teams needed to work closely together at all points throughout the project. Unlike a print catalogue, where the curator writes the text and then hands it off to the publication department, the new online environment required close collaboration at the outset. Curators, editors, and publishers understand the nature of art historical research and collections-based publishing; software developers, designers, and systems analysts understand the capacity of the current information architecture and are also able to envision what might be possible through technological innovation. In the most successful projects, the team was an equal partnership in which all sides sat around the table to brainstorm together. Conversations oscillated between "We need a catalogue to do this" and "Here is what our website can do," with frequent interjections of "Wouldn't it be cool if. . . ."

> *"Technology and content development need to work hand-in-hand, and museums need to think about this from the beginning."*
>
> Kyle Jaebker, Former Director, IMA Lab, Indianapolis Museum of Art

DIGITAL TEAM



Where print book workflows tend to be linear—from content creation to editing, design, production, and distribution—digital publishing requires more cross-collaboration throughout the entire project.

Create a Functional Requirements Document

To move from brainstorming to project development, many OSCI museums created *functional requirements documents*, which brought together the needs of both technologists and authors. To create functional requirements, museum staff needed to understand how content is currently created, stored, retrieved, and disseminated, and have a good understanding of what currently works and what does not, as well as what might need to be done differently to create an online publishing platform. Staff needed to be honest about identifying current "pain points" in their workflow and systems.

Functional Requirements (PDF)

Creating a list of functional requirements allows the institution not only to scope the project but also to identify priorities. These documents provide clarity about software and hardware requirements, aid in decisions about how to proceed, and provide a budget roadmap for the project. For those museums seeking technology assistance outside their institution, functional requirements documents are also helpful when seeking bids from consultants.

Select a suitable approach

The OSCI cohort was creating a new genre: a scholarly collection catalogue did not yet exist online, so there was no one approach to follow. Each museum had the freedom, and the obligation, to decide on the desired look of its online catalogue; for example, should it have a more "book-like" experience and function as a discrete, well-defined sub-unit within the institution's website? Or should the catalogue be integrated more porously with the online collection pages, enabling users to "jump" in and out of the catalogue? And which approach meshes with the museum's broader online publishing goals and technology capabilities?

In the end, the OSCI museums developed three approaches. Each met the technology capacities of the respective institutions and conveyed the desired content and features.

Lesson 3
RIGHTSIZE THE PROJECT

"Initially our OSCI project encompassed all of the Pulverer Collection of premodern Japanese illustrated books but with over 60,000 images to manage, we quickly realized the scope was too large. Sharpening our focus to a set of key works by Hokusai allowed us to use the publication as a pilot project and work out the technical challenges with a smaller data set."

Nancy Micklewright, Head, Public and Scholarly Engagement,
Freer and Sackler Galleries

Scale the project appropriately

All the OSCI museums began with ambitious publishing projects, but most quickly realized that they needed to scale back the size in order to develop effective prototypes and test them. Small-scale trial runs are possible—and a common practice—in the online environment and were a particularly appropriate method for OSCI, given that no examples existed yet for online scholarly catalogues. Prototypes are also great vehicles to complete *usability studies* before spending the time and effort to build a complete product.

For the most part, OSCI participants were developing their technology at the same time they were creating content for their catalogues. Several museums were also transitioning to a new *CMS* or *DAMS*, or even creating a new institutional website. These were complicating factors, although in many cases they resulted in improvements to the catalogues. Indeed, the museums that linked their catalogue to the redesign of their website discovered that they could achieve new tools and features because the needs of the scholarly catalogue were considered alongside those of the overall institution. These tools and features could then be used for other projects in the future.

Limits: When to set them and when to break them

Readers see this "as a new form … this isn't just an online version of a scholarly catalogue."

Sarah Roberts, Andrew W. Mellon Associate Curator of Painting and Sculpture, SFMOMA

Online publication offers the opportunity for virtually unlimited content, such as expanded curatorial and conservation materials, multiple images, and extensive primary source documentation. But how much is too much? The OSCI participants realized that they needed to set limits if they were to complete the project within a reasonable time frame, manage the project effectively, and, above all, ensure a coherent and cohesive reading experience for the user.

This didn't mean, however, that they accepted the traditional limits associated with printed catalogues. The Monet Catalogue of the Art Institute of Chicago, for example, contains 2,300 images and 400,000 words; it would be 1,100 pages in print. A print version of SFMOMA's Rauschenberg catalogue would be 600 pages, which would be the largest publication ever produced by the museum.

Lesson 4

MAKE SURE YOUR CONTENT IS READY

Start with clean data

At the core of each scholarly catalogue is original research and authoritative content; however, clean data is also a *sine qua non* for any online catalogue. Clean data is error free with consistent formatting across all items in the data set. It isn't sexy and it takes time and manpower, but without clean data, readers will have trouble finding published content when searching the Web.

An important aspect of cleaning your data can be engaging with metadata and *controlled vocabularies*. Not only do controlled vocabularies address common errors, such as spelling mistakes, they can also introduce consistency across different languages for improved search results. The Getty Research Institute has produced three such vocabularies: the *Art & Architecture Thesaurus*® (AAT), the *Getty Thesaurus of Geographic Names*® (TGN), and the *Union List of Artist Names*® (ULAN). These vocabularies have grown over time with contributions from the community, including the OSCI cohort.

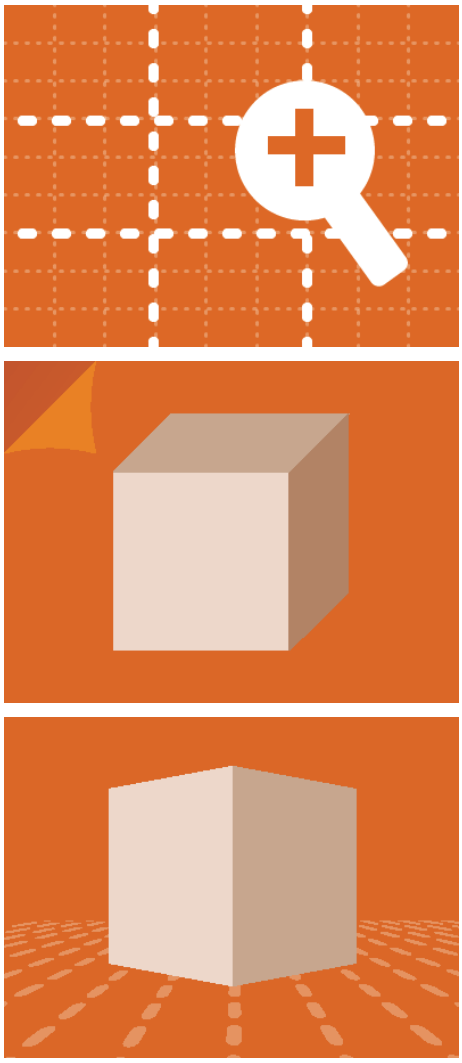
Identify where further digital assets are required

"Our catalogue integrated online media, comparative images, maps, and video. This led to a different way of interaction for Curatorial, Publications, and the Web and Digital Media groups, and also created the need for new digital assets."

Nancy Thomas, Deputy Director, Art Administration and Collections, LACMA

Online publishing often created new possibilities for the OSCI museums; for example, the National Gallery of Art (NGA) was able to take advantage of the online environment to incorporate a powerful image viewing tool, allowing the comparison of paintings with accompanying conservation photography. This required careful preparation of the digital files during the research phase, which NGA completed using a set of image registration tools developed in collaboration with George Washington University.

The OSCI catalogues often required artworks to be rephotographed, particularly when current image files were not of sufficient resolution to support zooming and panning functions. For the Seattle Art Museum (SAM), the project became even more ambitious as they invested in high-resolution photographs of the Chinese scrolls that are the focus of their catalogue, and then stitched together these image files to replicate the experience of looking across a scroll.



Online catalogues offer a variety of new media formats to consider, including (from top to bottom) high-resolution images to allow for zooming, layered images showing various states of an artwork, and rotatable 3D scans.

It was also necessary for the OSCI museums to anticipate the inclusion of multimedia assets. Tate searched archival holdings for music and films relating to the Camden Town artists in their catalogue, SFMOMA excavated footage of Robert Rauschenberg commenting on works in their collection from their own video holdings, and several institutions commissioned new videos. Multimedia assets required additional attention to technology and rights issues, as well as viewer

attention spans, so the OSCI museums were deliberate in choosing when and how to deploy this material.

Lesson 5

INTELLECTUAL PROPERTY IS MANAGEABLE

"When we first met at the Getty, we were spending a lot of time on issues of rights and reproductions and the costs involved. Through OSCI and other efforts there has been a transformative understanding that collections images should be shared [freely] among institutions worldwide."

Arthur Wheelock, Jr., Curator of Northern Baroque Paintings,
National Gallery of Art

OSCI participants recognized from the start that copyright law and permissions would impact their scholarly catalogues, although no one was quite sure what that impact would be. In an ideal world, the museums wanted high-resolution images that could be magnified, downloaded, stored, and linked. Many rights holders, however, worry that such functionality could lead to unauthorized image use.

Sample License (PDF)

The OSCI cohort was also concerned about the limited term for online rights offered by most rights holders. If online rights had to be renegotiated every five to ten years, the costs and the work would be ongoing. To simplify the permissions process, the General Counsel's Office of the J. Paul Getty Trust drafted a sample online scholarly catalogue license and made it available to the OSCI museums.

While challenges still remain to rights clearance for online publications, especially for contemporary art, all the OSCI participants found workable solutions. Museums that published catalogues on works of art that are out of copyright had fewer issues, aided by the development of museums' open access programs in recent years. The J. Paul Getty Museum, the Freer and Sackler Galleries, LACMA, and NGA, among others, have adopted a policy of making freely available, without restriction, any images of works of art in their

collection presumed to be in the public domain. Such open content programs have significantly reduced the potential cost of obtaining electronic image files and permissions to publish.

The staff at SFMOMA forged a strong partnership with the Robert Rauschenberg Foundation, which has since emerged as a leader in easing image use restrictions. The foundation granted SFMOMA rights to all the images used for the Rauschenberg catalogue and then subsequently overhauled its rights policies to facilitate image use for scholarship and teaching, and to be more in step with contemporary image-sharing culture. Walker Art Center staff take a liberal approach to obtaining rights. They do not, as a matter of practice, obtain permission to use images of works in their own collection on their website and continued this practice with their OSCI catalogue.

SAM needed to secure rights from museums in Asia for its catalogue and discovered that many of these institutions have no clear policies about the use of their images in electronic media. As a result, SAM uses thumbnail images on its site for a number of comparative images, in compliance with the Association of Art Museum Directors (AAMD) policy of 2011 that regards such applications as fair use.

Although approvals for online use of images frequently come with a time limit, none of the OSCI museums are tracking these limits, assuming that the rights-granting organization will do so. Most OSCI participants believe that within a few years, museums and rights-granting organizations will have eased their policies on the use of images in electronic media. A more comprehensive change, however, in the general approach of museums, artists, and artists' estates to the online use of their images is needed for the issue to fade completely.

Lesson 6

FIND WAYS TO SERVE MULTIPLE AUDIENCES

"Museums need to experiment with online publishing in order to disseminate information about their collections to the audiences of the future. Our audiences are changing and becoming more tech savvy. You're either with them or you're not."

Mimi Gardner Gates, Director Emerita, SAM

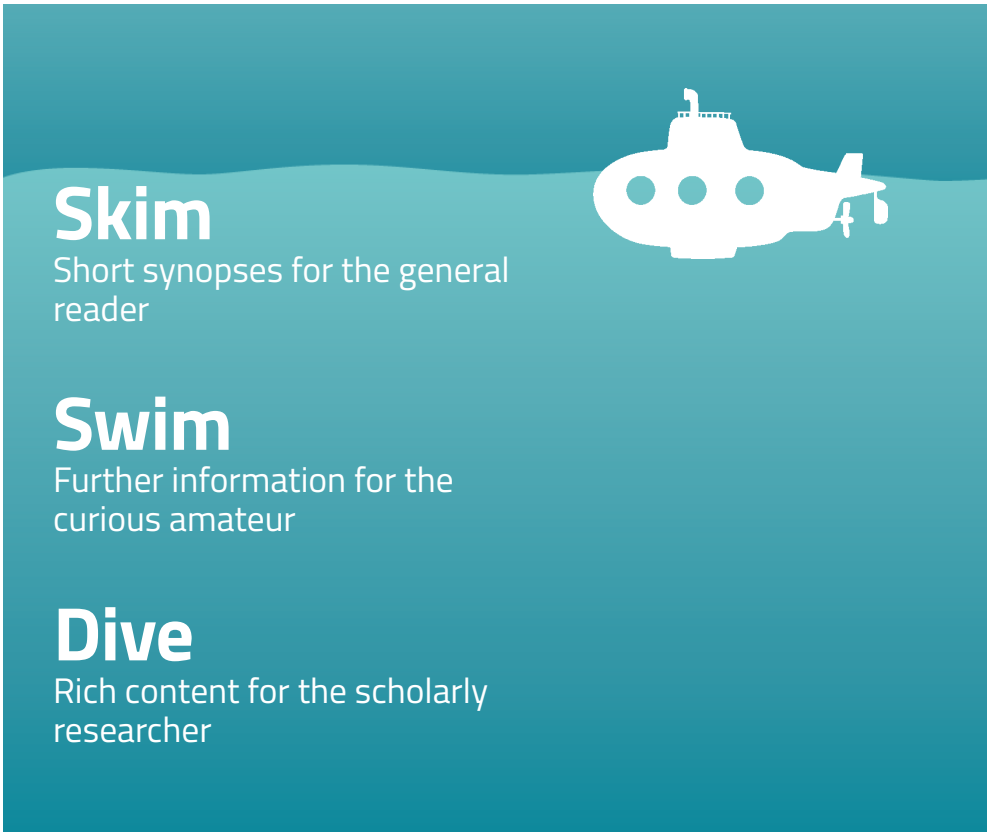
Producing content and designing an online catalogue are inseparable from considering one's audience—or audiences. When the initiative began, the OSCI cohort thought of scholars as their primary—and sometimes the only—audience. Scholars were, historically, among the most frequent users of collection catalogues.

The OSCI museums found ways to engage scholarly audiences in the online environment. SAM and the Freer and Sackler Galleries created special features for registered users, including the ability to assemble personal collections of artworks found in their catalogues. SAM also invites scholars of Chinese painting and calligraphy to join their community and even propose essays for contribution. Readers of their catalogue are also encouraged to post comments and "Questions for Thought," to stimulate a dialogue with readers.

However, through *usability studies*, informal user groups, and feedback from beta sites, the OSCI museums found that more general audiences were keenly interested in online resources about their collections. Furthermore, they learned that the online catalogues could be used in teaching at all levels. This awareness led several participating museums to refine the content they provided as well as its presentation.

NGA followed, for example, what they called the "skim, swim, dive" approach, referring to a way of structuring each catalogue entry so that the reader can

choose to read a short synopsis, explore additional information, or dig deeply into scholarly content and comparative material.



The National Gallery of Art followed a "skim, swim, dive" approach in developing their content.

In order to broaden their potential audience, the Walker Art Center decided to make their catalogue more closely resemble a magazine. As Robin Dowden, former director of new media initiatives at the Walker explained, "Our aim was to take some of the best story-telling innovations from our favorite long-form journalism sites and smartly bring them into the scholarly realm: seductive imagery, rich media, snippets of content that draw you in. Our catalogue is a blend of book and magazine. It meets the expectations of scholarly readers but also reaches out to broader audiences."

Online catalogues can reach more readers than their printed counterparts. From June to September 2014, the Art Institute of Chicago reached readers in seventy-

one countries, while the Walker reported a similarly wide reach, extending to seventy-five countries in its first year after launch. Now several years after launching, the Art Institute OSCI catalogues have been seen by readers in at least 158 countries.

Lesson 7
DESIGN MATTERS

The design parameters for an online catalogue can be much more elastic than those for print. While audiences are accustomed to the experience of reading a book—leafing through its contents and turning pages—the experience of reading online can be more dynamic. The trick is to take advantage of this opportunity without confusing the reader. Most OSCI participants found that it was important to have a designer involved early in the process.

Think about user navigation

The OSCI museums wanted catalogue designs that would facilitate exploration. Users needed to be able to follow their own path but still be able to return to main sections of the catalogue with ease; for example, whenever readers are "inside" a particular catalogue entry, navigation elements and other signposts should guide them to additional content. Such wayfinding devices are also important given that search engines like Google often direct readers to the interior sections of a catalogue, entirely bypassing the home page, where one would expect to find the digital equivalent of a table of contents.

The Freer and Sackler Galleries' OSCI catalogue includes the option to sort objects by subject, artist, title, or year.

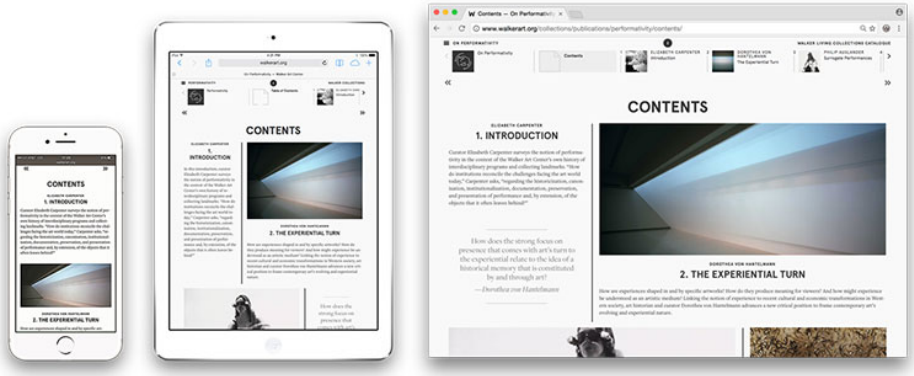
Keep the image front and center

The OSCI institutions thought long and hard about how to overcome one of the limitations of the printed catalogue—the constant flipping back and forth to find the image that relates to the text. They created solutions so that the key image in a catalogue entry is always easy to locate and view. The Art Institute of Chicago ensured that throughout each catalogue entry, the work of art is constantly displayed. LACMA created a lightbox feature for each catalogue entry that displays all the images discussed in that essay. The NGA created a tool by which the reader can choose how to view the catalogue; turn on the "reader mode" button and the image will appear beside the relevant text.

Devices will change

One of the only certainties of digital technology is change—this is equally true for software and hardware. When the OSCI initiative began, Apple's iPhone had just launched and the tablet computer was not widely available. By the midpoint of the initiative, tablets were emerging as a highly popular means of information delivery. Recognizing these changes, the OSCI museums adapted quickly. One of

the key challenges they faced was formatting the catalogue for the differing sizes of browser windows, from cell phone screens to large desktop monitors. *Responsive design* provided the solution. The OSCI Toolkit publishing platform used by the Art Institute, the Freer and Sackler Galleries, and LACMA, for example, allows columns of text and accompanying images to reflow depending on the browser window. The Walker's catalogue also uses responsive design to achieve highly flexible layouts.



The display of the Walker's OSCI catalogue changes to adapt to one's viewing device. Images courtesy Walker Art Center

Make citation easy

This flexibility, however, produced another problem. If the content of any given "page" might change depending on screen size, how does one generate scholarly citations, which are typically dependent on fixed page numbers? Museums solved this problem by offering readers access to preformatted citations. Individual solutions ranged from a clearly visible "citation" button that provides a link to a full catalogue section to more specialized citation tools that would generate a link to a highlighted section of content, such as a particular paragraph within an essay. In all cases, users are given a *permanent URL* so they have reassurance about easily locating the desired content.

Lesson 8

GET THE RIGHT PEOPLE AND STRUCTURE IN PLACE

Involve senior staff from the start

Projects that span departments and reach both horizontally and vertically through an institution need institutional leadership. The inclusion of senior staff, either as project team members or advisors, was critical to the success of the OSCI projects, especially in the planning phase when ongoing commitments for budget and staff were required. They also found that the quickest route to acceptance by senior-level museum staff was to ensure that key individuals were kept up to date on the project and its progress.

Collaboration and communication are essential

> *"We had to bring a number of skillsets together in a new way."*
>
> Chad Coerver, Chief Content Officer, SFMOMA

OSCI participants found that online publishing is more collaborative and less compartmentalized than the creation of a print catalogue. Team members needed a basic understanding of the work being done by others, and on some level everyone needed to grasp the methodology of scholarly research *and* the possibilities of the technology. This had the effect of closely integrating technology staff members, who can be marginalized within museums, into a programmatic initiative. In the most successful projects, curators, technologists, designers, and others worked together from the start. (For more on collaboration, see "Embrace a team approach" in Lesson 2.)

Projects need managers and leaders

"Complicated projects need project management. Digital publishing provided the catalyst to integrate these skills more fully into all of the museum's work, and this change in mindset has been a real gamechanger."

Nancy Micklewright, Head, Public and Scholarly Engagement, Freer and Sackler Galleries

The process for creating an electronic catalogue may be more collaborative than that of a print catalogue; nonetheless, someone has to be in charge. Online publishing projects have a number of moving parts, and the OSCI museums recognized the need for strong project managers and leaders.

The project manager is responsible for achieving the goals and the objectives of the project, and for establishing strong collaboration and communication in the project team. Several of the OSCI museums appointed dedicated project managers for their catalogues. At other museums, those responsibilities fell on existing staff as part of their regular position descriptions.

As the institutional advocate, the project leader needs to ensure that resources are adequate, that the organization remains committed to the vision inherent in the project, and that communication up and down is unimpeded. At smaller institutions, the project leader was also the project manager.

Identify where new positions, skills, and outsourcing are needed

Online catalogues often require new skills; for example, an editor accustomed to print may not be familiar with editing text in *HTML*. Most OSCI museums revised at least some existing position descriptions and developed new skills in their existing staff. Some museums needed to add positions, mostly in technology or project management. In some cases, technology was outsourced; SAM, for example, worked closely with the technology vendor Gallery Systems to create their online catalogue. (See Three Approaches section.)

SFMOMA and the Freer and Sackler Galleries have made the skills required for project management a priority for their staff. For example, eighty percent of the Freer and Sackler Galleries' staff has attended project management training, as have much of SFMOMA's staff, where project management specialists are now a part of many departments.

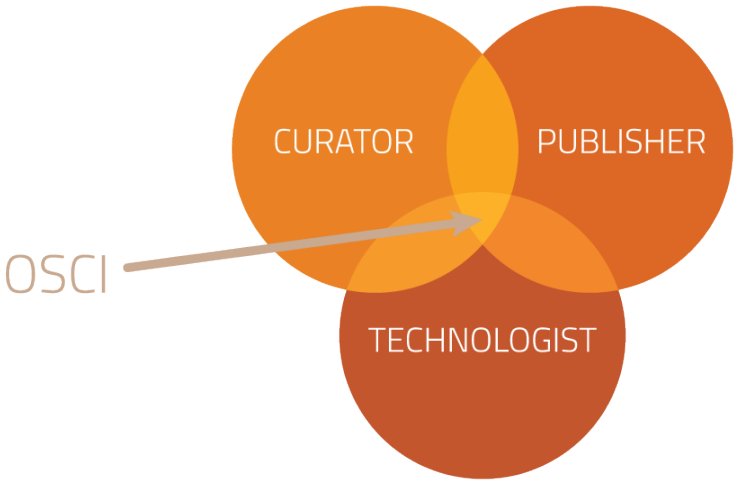
Anticipate turnover

Turnover, whether caused by resignation, layoff, or promotion, became a critical issue for the OSCI museums. Almost every team lost a key staff member, either on the content side or on the technical side. Positions on the technical side proved particularly difficult to fill, given that the skills of programmers and developers are in high demand in the for-profit sector.

The cost of replacing staff can be high and staff departures can cause significant project delays. The OSCI partners found, however, that up-to-date project documentation can help shorten the start-up time for new employees. They also found that new staff brought with them fresh perspectives and insights.

Be prepared to rethink workflow

Online catalogues require new ways in which to sequence work. The typical workflow for a print publication is linear: the book progresses from curatorial research to manuscript, after which it is handed off to editorial and design, advancing to production, and finally on to marketing and sales, with review and input from participants at each stage.



Online publications require an iterative process, which is more circular and repetitive, coming closer to the desired result with each step. Additionally, there are frequently simultaneous workflows across the museum in separate areas, which overlap at various points in the process. Design, for example, is no longer considered only at the point at which the manuscript is complete; rather, it is integrally tied to the way in which the content is conceived and then subsequently organized and published. Also, the types and required resolution of online images must be anticipated at the outset in order to avoid re-photographing works of art to meet new project demands.

Organizational structures may change

Many OSCI institutions reorganized to better facilitate cross-departmental work. For example, print publication departments typically don't interact with the Web group; however, with online publishing, the two departments must work closely together. This caused some OSCI museums to make small changes to their existing structures, while others shattered departmental barriers and created new organizational structures.

> *"This was a transformational initiative for us. It was not about superimposing something on the institution. It was about changing the way we work."*
>
> Robin Dowden, former Director of Technology and New Media Initiatives, Walker Art Center

At the Art Institute, the Publications Department became the Publishing Department, carrying with it the responsibility for both print and electronic publications, as well as for imaging. At SFMOMA, community engagement, publications, interpretive media, the Web team, and the design studio were all brought together in the Department of Content Strategy and Digital Engagement, headed by the museum's chief content officer, and reporting to the museum's deputy director for curatorial affairs.

Lesson 9
THINK SUSTAINABLY

Online catalogues require a different type of long-term planning than a print catalogue. When the printed book is completed, it can be placed on the library shelf and staff can turn to the next project. An online publication must be maintained, which requires both staff time and resources. Curators need to create new catalogue entries to reflect recent acquisitions and existing records must be updated. In addition, museums must review and upgrade technology periodically. This ongoing commitment brings promising possibilities as well as real challenges.

Not everything needs to be done at once

Online publishing allows museums to adjust a catalogue's content, design, and information architecture over time. Modules and additional information can be added; revisions can be undertaken. SAM, for example, has added essays to its Chinese scrolls catalogue since its initial publication, and the Freer and Sackler Galleries already have plans for additional material to expand its catalogue. SFMOMA acquired a new work by Rauschenberg since the release of their catalogue and smoothly integrated this new acquisition into the existing publication.

Be deliberate about version control

The opportunity to add new content must be balanced with scholars' desire for permanent, citable sources. When scholars refer to catalogues as evidence in their arguments, they want assurance that the cited sources can still be found and remain the same as when the citation was made.

The OSCI museums developed different solutions to this problem. Tate and SFMOMA, on the one hand, date each individual scholarly essay. When new material is added, it will be distinguished from the older material by date. NGA,

on the other hand, plans to systematically update their catalogues on a five-year rotation and reissue the updated versions as new editions. Based on the experience of publishing multiple catalogues, the Art Institute has decided to update its content more frequently than originally anticipated while maintaining the URLs and paragraph numbers so scholars can find what they cited. Regardless of which approach is chosen, the museums realized it was important to be clear about their policy.

Consider access and long-term preservation

All the OSCI participants produced born-digital, interactive publications, but many also realized that readers may want to download materials and read them offline. They made this possible by offering various downloadable PDF options, whereby readers can print a hard copy of the catalogue. While these versions of the catalogue may lack some of the original features – videos, for example, cannot be played—they can be easily stored and preserved for future use. Meeting the needs of long-term preservation remains, however, an ongoing challenge. (See Remaining Challenges section.)

LACMA's catalogue includes the option to download the entire catalogue or individual entries as PDF files.

Think pipeline rather than one-off

"Sustainability is key to online publishing. Once the initial investment is made, it makes sense to use the same technology for all new projects. This can only be done, of course, if the museum develops templates that are generic rather than bespoke."

Jennifer Mundy, Head of Collections Research, Tate

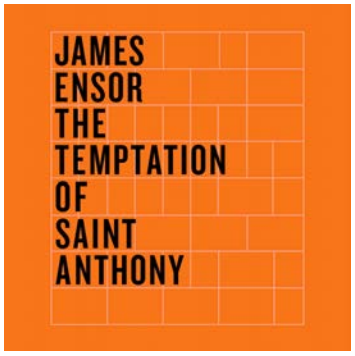
The OSCI catalogues are part of a fundamental reorientation toward the digital realm in museums, which increasingly impacts almost every aspect of an organization's work. Technology changes constantly, so museums cannot wait for some "ultimate solution" for digital publishing. Instead, they must develop a digital strategy for their institution with the understanding that it will evolve over time. Online publishing, then, becomes part of a larger framework for how museums integrate technology across the institution and align it with overall mission and goals.

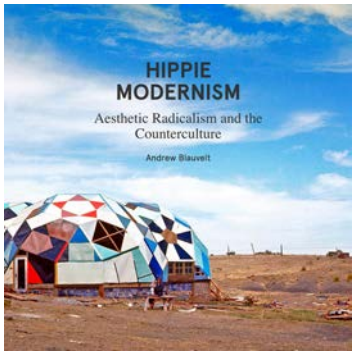
Part of this shift is recognizing that online publications are not one-off boutique projects, but part of building a long-term, sustainable publishing platform. To achieve this goal requires prioritizing online production, committing institutional resources, and devoting sufficient time to planning. Most of the OSCI museums anticipated that future catalogues would be easier and less expensive with an established platform. Although only time will tell, this has already been the case for the OSCI museums that have produced additional catalogues. The Art Institute, for example, has released several online catalogues since the inaugural volumes and reports considerable cost reductions. (See What's Next, and What Does it Cost?).

Repurpose content and tools

The OSCI participants discovered that content of their catalogues could be repurposed within the museum and pushed out to other platforms and media. The Art Institute and SAM, for example, have used material from their OSCI projects for in-gallery interpretations that accompany exhibitions.

The technological solutions for online publishing can likewise be repurposed. Tate is using the system developed for their OSCI catalogue for its *In Focus* series of shorter online publications dedicated to one or a small group of objects. The Walker Art Center has adapted the text-image tool developed for its catalogue—whereby an author can easily adjust the text and image layout—for general use on its website.





A number of the OSCI museums have already published more online catalogues and have found additional uses for the publishing tools they developed, such as (from left to right), the Art Institute of Chicago's James Ensor exhibition publication, the Walker Art Center's Hippie Modernism online article, and the Tate Gallery's *In Focus* series, this one on Edward Onslow Ford's *The Singer*.

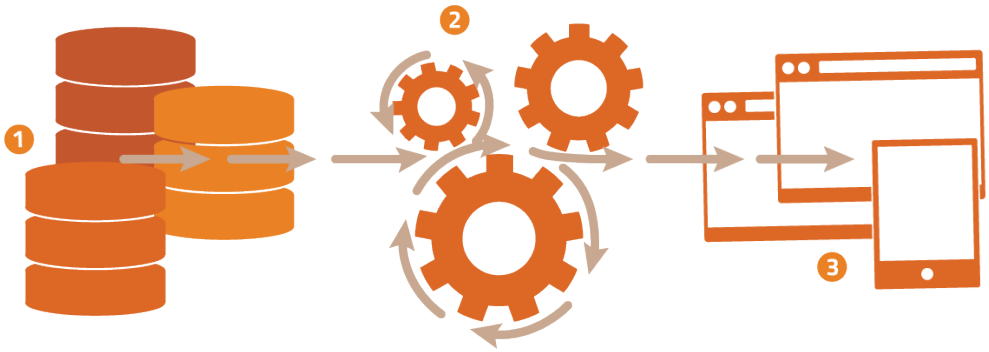
Three Approaches to Online Catalogues

Three basic approaches emerged from the initiative:

1. The OSCI Toolkit
2. Web Content Management
3. Museum System/eMuseum

While there are now other solutions in development, these three approaches best characterize the choices made by the OSCI partners. All three share a tripartite process: start with raw collections data; transform that data into authored, publishable material; and then design a public presentation of that data as a Web interface. It is critically important that core data remains separate from its transformation and presentation, as it allows the institution to change how that data might be publicly presented in the future without having to re-enter it. That same data can also be repurposed for other uses, such as in-gallery interpretations or museum tours using handheld devices.

The first layer of these tripartite structures is composed of the databases, systems, and documents containing information about the collection and its artworks. The middle layer—the OSCI Toolkit, eMuseum, or Web content management system—transforms this data, arranging it into the desired relationships. This content is then published to the website, which forms the presentation layer, in predesigned formats and layouts.



All the OSCI catalogues share a tripartite process: start with raw collections data in **databases** 1; transform that data into authored, publishable material with a **content management system** 2; and then design a public presentation of that data as a **Web interface** 3.

THE OSCI TOOLKIT

"We chose this model so we could have adaptable and user-friendly layouts that allow us to accommodate the specific content needs of individual catalogues. For the design of the platform we decided to produce a more book-like appearance with citability that would give stability and authority to our publications within the ever-changing digital environment."

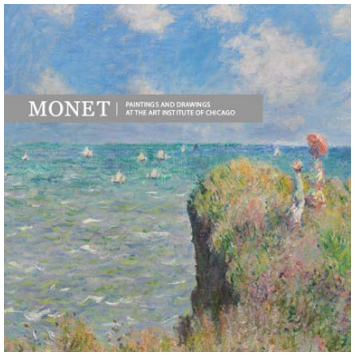
Sarah Guernsey, Executive Director of Publishing, Art Institute of Chicago

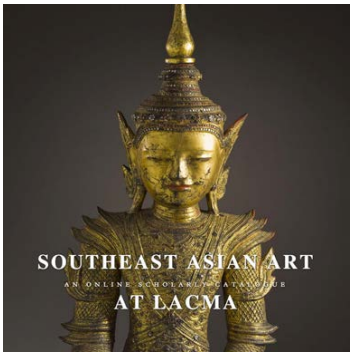
The OSCI Toolkit originated with the Art Institute of Chicago's online catalogue. The Art Institute conceived and managed the development of what they called the ChicagoCodeX (CCX), which served as the basis of the Toolkit. The coding and technical implementation was researched and executed by the IMA Lab (a web design and development consultancy located at the Indianapolis Museum of Art), and the software is open source.

The OSCI Toolkit enables museums to build a *microsite* with a more "book-like" experience that is still flexible and customizable. The goal of this digital

publishing solution is "write once, deploy everywhere." The Toolkit uses a series of *application programming interfaces (APIs)* to access the data held in various repositories and to communicate between the content management system and the Web presentation. These APIs support navigation, content, notes, search, figures, footnotes, and citations in both MLA and Chicago publication styles. The types of illustrations that are supported are not restricted; they can be embedded videos, sound, or zoomable images. Additionally, to better support the existing publication workflows of institutions, the Toolkit has support for pasting documents from Microsoft Word.

With funding from the Getty Foundation, the IMA Lab has completed enhancements to the OSCI Toolkit that make the software easier to install and more user-friendly, including a set of five standardized "themes," or presentation templates, that can be customized for a museum's needs. Technology used in the current version of the OSCI Toolkit was appropriate to implementation when it was first developed in 2012. However, recognizing the quick pace at which technology changes, and based on feedback from users at workshops and presentations, IMA Lab is considering whether a more significant overhaul of the OSCI Toolkit is warranted. Updates and innovations will be posted to the OSCI Toolkit website, www.oscitoolkit.org.





The Art Institue of Chicago, the **Freer|Sackler**, and **LACMA** used the OSCI Toolkit in producing their catalogues.

OSCI Toolkit Advantages

- The OSCI Toolkit is extremely flexible: the appearance of the catalogue is highly customizable.
- Information can be updated on a regular basis if desired.
- The Toolkit is available for free on the Web.
- The Toolkit works with different information delivery systems and devices.
- The OSCI Toolkit can be a good choice for museums that have less robust websites, as the entire package can be built outside the museum and then exported to the website.

OSCI Toolkit Disadvantages

- It is not as simple as using the TMS/eMuseum systems that are already in use in many museums.
- A seasoned Web developer or the money to hire one is vital.
- While TMS and eMuseum usage is common among museums, the developer base for the Toolkit (which runs on Drupal) is now not as large as other content management systems.

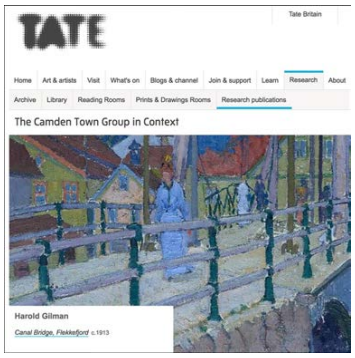
WEB CONTENT MANAGEMENT

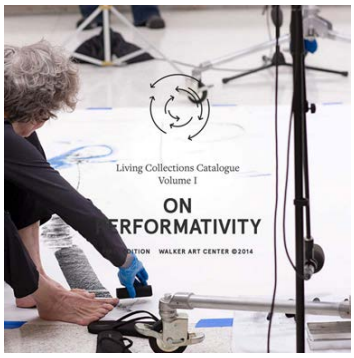
"SFMOMA chose to integrate the Rauschenberg Research Project *into the Collections area of the museum's website in order to maximize its accessibility and findability for both the target scholarly audience and the general website visitor. The integration maximizes search engine optimization (SEO) and increases visibility of the museum's function as a research institution. This model also ensures that this publication will be maintained along with all core collection information in future website redesigns."*

Sarah Roberts, Andrew W. Mellon Associate Curator of Painting and Sculpture, SFMOMA

SFMOMA, NGA, Tate, and the Walker Art Center created their catalogues using a content management system (CMS) that integrated the catalogue into each museum's existing website. This approach uses and enhances the systems that museums have already developed to present their collections online. Generally, one group of technical staff can provide maintenance for both the website and the catalogue. Depending on the configuration, these systems can publish just to a desktop or, with responsive design, can be published out to other devices as well. They are Web publications and typically support a scrolling (rather than page-turning) experience. And like other websites, they can contain zoomable images, audio and video clips, and PDFs that can be downloaded and printed.

SFMOMA, the **National Gallery of Art**, **Tate**, and **Walker Art Center** all used their existing web content management systems to create and present their online catalogues.





Web Content Management Advantages

- The catalogue is assembled into Web pages and is commingled with the website, with one technology maintenance group.
- The format is familiar to users who are already accustomed to accessing collection pages on the website.

- These catalogues are easier to discover through online searching.
- These catalogues closely integrate the catalogue with the museum's existing Web content, which may be an advantage for creating a shared "look and feel" for the museum's site.

Web Content Management Disadvantages

- Users, particularly academic users, don't always understand when they are "inside" the catalogue and when they are not; search results may not always make this clear, and the navigation for the catalogue and other online collection pages can be the same.
- The workload of the Web group or technicians, who will need to maintain the catalogue in addition to other Web content, may increase significantly; additional staff may be required.

MUSEUM SYSTEM/eMUSEUM

"We wanted to pull the information from the TMS database, and this model allowed us to do that. We didn't want the staff to have to learn a new system; we wanted to use tools that we already had. Our solution also helps other museums that use TMS in the future, especially midsized museums with lean technology staff."

Mimi Gardner Gates, Director Emerita, SAM

The Museum System (TMS) is a commonly used collections management system, and eMuseum is the affiliated software that publishes information from TMS to the Web. Both are products of software vendor Gallery Systems. Through the OSCI initiative, eMuseum has been enhanced to allow the addition of in-depth scholarly content to individual object records. The model developed by SAM in conjunction with Gallery Systems uses templates created by TMS and eMuseum for the institution; Gallery Systems can create other templates as well. eMuseum, the publishing program, pulls information directly from TMS and

migrates the data into existing templates. eMuseum has the capacity to translate information from TMS to any Web content management system.

SAM has chosen to have its online catalogue information updated directly and regularly, creating an open-ended and constantly evolving online catalogue, which represents a significant departure from the standard printed version. It is flexible and will continue to change as the museum's collection of Chinese painting and calligraphy expands.

For museums interested in exploring the use of TMS and eMuseum, software vendor Gallery Systems (www.gallerysystems.com) has had significant experience with the requirements for publishing museum catalogues online since OSCI began. A range of eMuseum sites are accessible through their website.

Unique among all OSCI participants, the **Seattle Art Museum** built their online catalogue in the same ecosystem as their existing collections database, the popular The Museum System (TMS).

Museum System/eMuseum Advantages

- It is a one-vendor system, already used successfully by many museums.
- There are no new systems for staff to learn, which makes it simpler than the other models and, therefore, may be a good solution for museums without robust technology or Web departments.
- There is a basic core of functionality that can be customized; SAM reports that updates are easy.

- Data feeds directly from TMS to the catalogue and content can be continuously updated, although this is not an advantage for museums that wish to present online catalogues as a specifically dated publication.

Museum System/eMuseum Disadvantages

- It is a one-vendor system, which could also be seen as a disadvantage.
- The online presentation is not as flexible as the other two OSCI approaches.
- The developer base is not as wide as other content management systems.

What Does it Cost?

One of the most frequently asked questions about an online scholarly catalogue is "What does it cost?". It is a difficult question to answer. The OSCI projects were diverse by design, and the costs to produce them varied widely depending on the size and content of the collection, the ambition of the project, and the systems already in place. Some of the participating partners needed additional staffing, others had sufficient in-house capacity. Some OSCI projects required large technology investments, others did not. To complicate matters further, each museum calculates their costs differently. In short, there is no clear-cut answer.

Grants Awarded (PDF)

Getty Foundation grants for the planning phase of the OSCI projects ranged from $140,700 to $240,000. Some of these grants included support for curator research and conservation documentation, which are common to both print and online publication. Subsequent implementation grants ranged from $197,000 to $495,000. Grants never covered the entire costs of the project, and participating museums reported that their contributions ranged from $123,000 to over $590,000.

Costs for printed museum collection catalogues can range from $100,000 to $250,000 (typically without scholarly research and writing factored in), for average print runs of 500 to 3,000 copies. Sales income can offset some of the

costs of development and production, though most publishers note that there is a shrinking market for these catalogues due to reduced library sales and other factors.

At this point, it is difficult to predict with certainty whether a museum's initial investment in online publishing will pay off. However, early results from the OSCI partners who have published or will soon release additional catalogues suggest that costs can be significant reduced for subsequent volumes, by as much as 50% or more.

Remaining Challenges

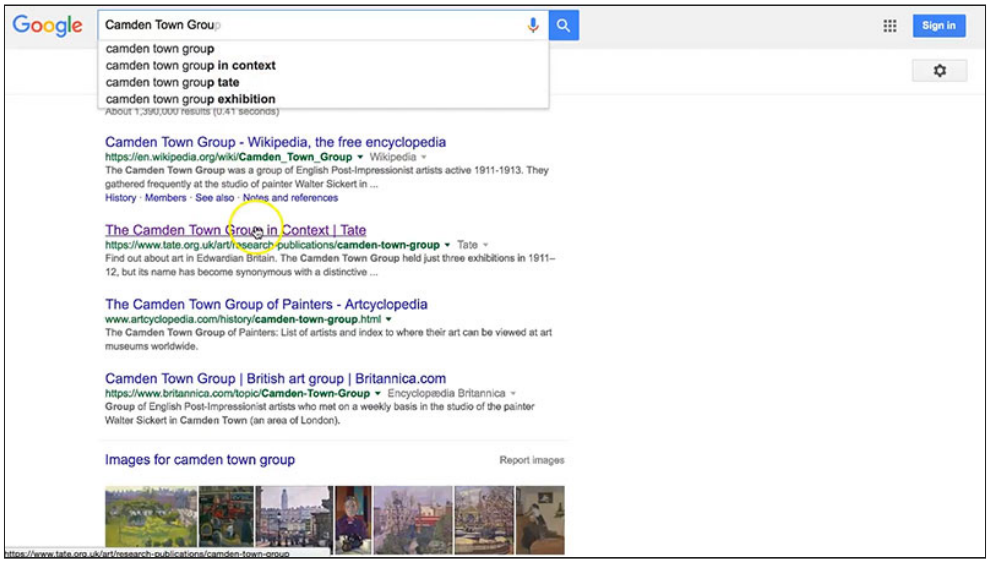
The OSCI partners overcame numerous challenges to publish the first generation of digital museum collection catalogues, but nevertheless some obstacles to widespread adoption of online catalogues persist. Some of these hindrances may subside as producers and consumers of digital publications gain more experience with what is still a relatively new medium. Yet others, such as long-term preservation, will need to be addressed by the field at large.

Finding the catalogue

Museums have established processes for distributing and marketing their print catalogues. Online publishing, though, completely disrupts these processes. How will potential audiences know that the online catalogues even exist?

If a catalogue is placed "deep" within a museum's website, nested within subcategories of content, it might escape the attention of a reader who is browsing the website casually and scanning for research material. However, most readers in the digital age find content through search engines, such as Google. It is critically important, then, that museums take the right steps so that their catalogues appear near the top of the list in searches. This process is referred to as *search engine optimization (SEO)* and can be an important part of launching the publication. In the case of SFMOMA, an evaluation of the

publication revealed that at least 48% of readers found it through a search engine; for the Walker, this figure was 41%.



Many readers find OSCI publications through Web search engines like Google.

To prepare the catalogue for optimal *discoverability*, the OSCI cohort adopted specific strategies, such as carefully selecting keywords and *metatags*, so that the catalogue is more likely to appear as a result of a search. Institutions need to decide how in-depth this description should be—at the publication level or drilling down deeper to describe each object or page. In addition, they must anticipate the range of search terms that might be used. Museums must also determine which department is responsible for this work, for example, publications or the web group.

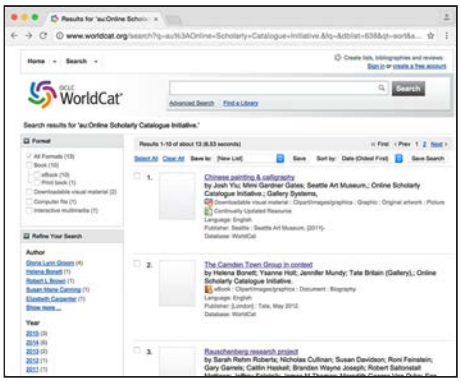
The OSCI participants are still exploring ways to build new marketing pipelines suited for the digital age. Social media and email, for example, have proven successful. In the case of SFMOMA's catalogue, 30% of the participants in a user survey said they learned about the publication from an email campaign. And more than one in five had heard about it from a colleague. The statistics are similar for the Walker's OSCI volumes; their usability study showed that nearly a quarter of the survey participants knew about the publication through an email

campaign, while roughly one in six heard about it from peers via word-of-mouth.

Seattle Art Museum borrowed a strategy familiar to print catalogues: put the publication in the gallery. During its recent *Calligraphic Abstraction* exhibition, the museum made its OSCI catalogue available to visitors on tablet computers placed in the galleries. Not surprisingly, Web analytics showed a corresponding increase in site traffic.

The OSCI catalogues are still not all easily "findable" if a reader comes to the museum's homepage. On their websites, many of the catalogues are found under the Research or Collections tabs, but there is no standard placement. These tabs are not always intuitive for potential readers. The Art Institute is planning to make their online collection catalogues more prominent as part of the general redesign of their website in 2018. Organizations are also enhancing the visibility of OSCI content on existing collections pages by adding links to catalogue entries and interpretive resources when they are available.

Over time, the OSCI institutions also recognized the value of entering their catalogues into library databases and assigning ISBN (International Standard Book Number) numbers to the catalogue, although this is still a work in progress. All of the OSCI catalogues are now listed in WorldCat, but additional outreach is still needed. For its part, the Art Institute now notifies outside librarians and ARLIS, the Art Libraries Society of North America, when preparing to release a new digital volume.



Entering online publications in **WorldCat** is one way to facilitate discovery, and all of the OSCI catalogues are now listed there.

Reader confusion about catalogue boundaries

Online catalogues that are deliberately designed to blend in with a museum's collection pages can confuse readers, as SFMOMA learned in user studies. Readers reported that they sometimes had difficulty recognizing when they were "inside" the catalogue as opposed to other collection pages. They value the academic rigor of the catalogue and want to be sure they are working directly with its carefully vetted content. This experience also points to the need for a *dedicated search function* that would allow users to stay within the perimeters of the catalogue if desired. The National Gallery of Art, for example, designed a search box that is restricted to the catalogue contents so users could be sure that they did not leave the catalogue for other portions of the institution's website when searching.

Preserving online catalogues for the public

The printed catalogue has a natural preservation plan: storage in libraries. The field has not yet arrived at a commonly agreed upon solution for preserving online publications. The PDF, the portable document format, is a highly stable format, but the interactive and dynamic features of the catalogue, such as video or audio, are not preserved. Long-term digital repositories are now available, such as the Internet Archive or the California Digital Library, but museums are not always familiar with these institutions and their protocols.

Timing is also an issue. When should the online catalogue be preserved? The answer may be obvious for catalogues produced as editions issued on a specific date, but what about those catalogues that are constantly updated? Do they require a regular schedule for capturing the changing versions? And again, who is responsible for undertaking this work?

Sustaining digital publishing

While the OSCI museums recognized early on the need to develop a long-term maintenance plan for their online catalogues, and have already begun to develop solutions, challenges still remain. For example, how will OSCI catalogues be integrated into technical infrastructure updates?

SFMOMA completed a complete redesign of its website in anticipation of a public reopening of the museum in May 2016. The project necessitated the migration of all of the catalogue data, as well as updating over 650 web pages to align the existing content with a new design schema. Staff found that some of the biggest challenges in this process—such as skills retention in the face of staff turnover—are not inherent to digital projects; they are persistent problems across the field. The Walker faces a similar challenge as the museum prepares for a comprehensive website redesign that includes new information architecture.

SFMOMA's OSCI catalogue is tightly coupled with the museum's overall website. When the website was redesigned in 2016 (seen on the left), the original catalogue (on the right) had to be carefully migrated over as well.

Institutions still anticipate growing pains as they shift from regarding online publications as one-off projects to ongoing publishing platforms. Museums with established programs for the publication of the permanent collection catalogues may have an easier transition. With a commitment to online publication, these museums can transfer funds from budgets for print publications to cover the costs of new online catalogues. It will be more difficult in museums where the publications departments do not have a tradition of collection catalogues, or where publications are solely dependent on external funds. If museums can change their approach from "project to program," though, and integrate online catalogues into the work of the museum, these catalogues will be produced more easily, quickly, and economically.

Evaluation

In the past, museums could gauge the scholarly value of collection catalogues through reviews, citations, and awards. For online publications, these metrics are still a work in progress. Most scholarly periodicals still do not routinely review online publications, and the humanities have not yet developed easy ways to track online citations.

With printed scholarly collection catalogues, publishers knew how many catalogues were sold, but there were few methods to determine how they were being used or by whom. Electronic publication offers the opportunity to better understand the audiences for scholarly art historical publications online. Analysis of Web statistics, such as number of visitors, number of pages viewed, length of time spent on the site, entry points, and the geographic distribution of the users, helps museum staff to understand the impact of their work.

USER STUDIES OF THE SFMOMA AND WALKER OSCI CATALOGUES SHOWED THAT:

55%

OF CATALOGUE READERS WERE FROM OUTSIDE THE U.S.

15%

VISITED THE CATALOGUES MORE THAN 9 TIMES

75%

DID NOT ENTER THROUGH THE HOMEPAGE

Tate tracked over 28,000 visits to the Camden Town Group OSCI catalogue in its first year after launch. The team also received specific feedback from academic users, who have integrated the catalogue into their own research and teaching. Visit data for SFMOMA's OSCI catalogue collected over an eleven-month period revealed that the top two pages of artwork on its entire site are both contained in the Rauschenberg Research Project. The same data also confirmed that less than five percent of their catalogue's users visited the publication's home page.

The Art Institute of Chicago decided to track usage of its OSCI catalogues by user type. By segmenting out their users into three categories, using the domain of their Web browser—general, academic, and in-house—they were able to see that the average session visit nearly tripled when narrowing their audience from general down to identified academic users visiting from an *.edu* Web domain. Analytics also allow the Art Institute to track usage of its citation tool for all digital catalogues (current data shows the tool has been used more than 700 times), but they do not have a record of where these citations appeared.

Additionally, three of the OSCI museums (LACMA, SFMOMA, and the Walker) have completed user evaluations, and the Art Institute plans to evaluate its catalogues in fall 2017. LACMA commissioned a usability/user experience study from the firm Creative Pursuits for its Southeast Asian art catalogue. Usability studies are particularly important for digital projects given how easy it is for visitors to leave a website if they encounter any difficulties. All it takes is a slow data load or confusing navigation, and a user will move on to look for a different resource to meet their needs. The study helped LACMA identify and prioritize updates to the catalogue's navigation, information architecture, design, and performance.

SFMOMA and the Walker Art Center commissioned evaluations from the firm Frankly, Green + Webb. Both surveys underscored that the OSCI museums were

SFMOMA & Walker User Studies (PDF 1.7MB)

truly diving into unchartered waters with digital publishing and that their online catalogues represented a new form of scholarship that brings both rewards and challenges. First, the good news: the OSCI catalogues of both institutions are reaching large, diverse audiences. For example, more than 55% of the Walker's Web traffic for its inaugural OSCI publication is from outside of the United States. The core intended audience of scholars also rated the content of the catalogues very highly and indicated that they were "trusted" resources that could be cited. In fact, surveys suggest that the prestige of the authors mattered more to these users than peer review in terms of intellectual credibility.

Both evaluations also pointed to the ongoing challenges of digital publishing. Unlike the traditional catalogue experience that starts with opening the cover, 75% of the users of SFMOMA and Walker's catalogues do not enter these publications through the homepage. This makes clear navigational elements and digital wayfinding especially critical. The surveys also confirmed what the OSCI museums reported anecdotally: discoverability—finding the catalogues through search engines—is a challenge. Museums needs to consider an ongoing program of communication to build traffic and awareness of these resources.

What's Next

"This is not an end. It is the beginning. We realize that we can keep doing this."

Judy Metro, Editor in Chief, National Gallery of Art

All of the OSCI partners are already working on new catalogues, some of which provide new challenges in presentation of information and the creation of templates.

- The Art Institute of Chicago has already released online collection catalogues on Caillebotte, Gauguin, Pissarro, and Roman Art, as well as three exhibition catalogues and in-gallery interpretive kiosks that use the OSCI Toolkit technology. An additional seven catalogues are in production.
- Subsequent to the OSCI initiative, Tate published *Henry Moore: Sculptural Process and Public Identity* (2015), *The Art of the Sublime* (2013), and part of its J. M. W. Turner collection of sketchbooks, drawings, and watercolors, and is continuing to add to its Turner catalogue.
- After completing the OSCI publication, the Freer and Sackler Galleries released two more online catalogues on ancient Chinese jades and Korean ceramics.

- LACMA is in production on an online publication for the Carter Collection of Dutch Paintings.
- The National Gallery of Art has released two more online catalogues, *Italian Paintings of the Thirteenth and Fourteenth Centuries* and *American Paintings, 1900–1945*, and is currently in production on two other catalogues: *Nineteenth-Century French Painting (Van Gogh and Gauguin)* and *Sixteenth-Century Italian Painting (Titian, Tintoretto, Veronese)*. Several others are slated for production in the years ahead.
- SFMOMA received a grant from the Andrew W. Mellon Foundation to investigate and publish five areas of the collection, working in conjunction with the artists themselves: photography in the 1970s, Bay Area high-tech design, and the work of artists Ellsworth Kelly, Vija Celmins, and Julia Scher. These investigations will be published using the tools developed during the OSCI project.
- SAM plans to produce an online catalogue for its collection of Japanese paintings.
- The Walker Art Center is developing content on interdisciplinary artists to add to its Living Collections Catalogue, and also plans to add new volumes for upcoming collections-based exhibitions.

Museums have continued publishing online catalogues using their OSCI systems and workflows, inlcuding these from (from left to right) the Art Institue of Chicago, Tate, and the National Gallery of Art.

While it remains to be seen how many other museums will take up one of the OSCI approaches, momentum is building for the publication of permanent collection catalogues online. In addition to the museums participating in OSCI, the Indianapolis Museum of Art and the Dallas Museum of Art have used the OSCI Toolkit to publish scholarly presentations of their collections to the Web. Other approaches have also emerged; they range from the free, open source Wordpress platform to the customized publishing tool being developed by Getty Publications (more information available at www.getty.edu/publications/digital).

As the museum field carries digital publishing forward, there will no doubt be new tools, new approaches, and new challenges. Technology is ever-changing, and museums must continue to adapt to keep up and maintain relevance in this connected, digital world. What will not change is the contribution of the pioneering OSCI museums in developing important first steps and demonstrating that online catalogues were possible.