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Transitioning to a Digital World
Art History, Its Research Centers,
and Digital Scholarship

A Report to the
The Samuel H. Kress Foundation and
The Roy Rosenzweig Center for History and New Media
George Mason University

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Executive Summary

In 2011, the Samuel H. Kress Foundation, in conjunction with the Roy Rosenzweig Center for History and New Media at George Mason University, sponsored the first ever survey of the art history community to clarify its perceptions on the role of digital scholarship and its future impact on the discipline. Through a combination of interviews and research center site visits, the following topics were explored:

- The role of art history research centers in supporting digital art history
- Challenges in art history teaching, research, and scholarship in the digital realm
- Access to digital tools, services, and resources needed by the discipline
- Digital pedagogy in art history
- The role of digital publishing in the discipline
- Current and potential partnerships
- Sources of innovation in the field
- The role of funding agencies in supporting digital art history.

The findings reveal disagreements in the art history community about the value of digital research, teaching, and scholarship. Those who believe in the potential of digital art history feel it will open up new avenues of inquiry and scholarship, allow greater access to art historical information, provide broader dissemination of scholarly research, and enhance undergraduate and graduate teaching. Those who are skeptical doubt that new forms of art historical scholarship will emerge from the digital environment. They remain unconvinced that digital art history will offer new research opportunities or that it will allow them to conduct their research in new and different ways.

The community's ambivalence about digital art history also carries into its perception of art history research centers and their role in fostering digital scholarship. These research centers are highly valued, and many professionals feel they should use their respected position in the community to actively promote and support digital art history. However, no one believes these centers have the capacity or desire to transform into purely digital art history research centers, nor do they want them to do so. This raises a number of issues about who can provide the supportive environments needed to create and maintain digital art history projects and what effect will this have on promoting digital scholarship within the discipline.

Many factors account for the current marginal status of digital art history. Among the most important are perceived threats to existing research paradigms and behaviors, outmoded reward structures for professional advancement and tenure, insufficient capacity and technology infrastructure, the absence of digital art history training and funding opportunities, problems with digital publishing, and the need for multidisciplinary partnerships to develop and sustain digital art history projects. Also contributing to this marginalization is an absence of dialogue among the community's leadership – its professional organizations, funders, thought leaders, and research centers – about what art history will be in the 21st

century, and the role digital art history plays in that scenario.

These factors are examined in the context of trends, issues, and research from other sectors. The evolving relationship between digital humanities and traditional humanities centers is explored for the changes it may portend for art history and its research centers. New efforts that promote open approaches to images collections are considered for the role they might play in easing roadblocks in image research and online publication. The changing notions of publication in the online world, and the impact of new social media platforms, are considered for the opportunities they offer in expanding and transforming scholarly research online.

Finally, recommendations are made for future work that can clarify the status of digital scholarship in the discipline and its research centers, and chart a course for advancing it further in the field. More research is needed on digital humanities training for art historians, the evolving role of art libraries and art librarians, comparative studies of digital art history outside the US and UK, art historians' changing work habits, and the evaluative criteria for digital scholarship that are emerging in other communities.

I. Introduction

The increasing use of digital technologies in research, publication and teaching has spurred change in many disciplines. In the field of art history, the transition from teaching with slides to teaching with digital images is often cited as the "tipping point" that moved the field into the digital world. Using digital images for research and teaching requires an understanding of digitization, online searching, and use of presentation software for displaying and manipulating digital images. These activities opened up new opportunities for the field. As art historians Hilary Ballon and Mariët Westermann note:

> *Digital teaching ... has stimulated the development and application of tools to simulate and enhance the experience of viewing art and architecture in new ways.... These tools make it possible to unfurl scrolls, move through buildings, zoom-in on details, overlay different states of an etching, track the build-up of a painting, animate structural forces, navigate 3-D reconstruction of ruins, model an unbuilt design, and map archaeological sites. ...These tools are yielding new perspectives on the objects of study...[1]*

A question that emerges from the new opportunities afforded by digital teaching and research is the role art history research centers play in this process. Are these centers broadening research traditions to include digitally-based research agendas? Are they serving as incubators of digital projects, tools, and scholarship? If not, where are the frontiers of digital scholarship in art history?

Another factor to be considered is the perspective of art historians. What do practitioners in the discipline feel is the way forward for both the field and for its research centers? How do they think digital engagement will affect methodologies and theoretical inquiries in the field? How will it alter classroom teaching and the training of future art historians? Who will develop the tools, services and infrastructure to support art history as its efforts and byproducts increasingly become digital?

A. Background

The discipline of art history is supported by an infrastructure of universities, libraries, archives, museums, publishers, funding agencies, professional associations, and research centers. Among these entities, the art history research center plays a particularly important role. Despite differences in organizational structure, institutional affiliation, and core mission and programs, nearly all art history research centers:

- Create specialized library and manuscript collections serving art historical scholarship

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1. Ballon, Hilary and Mariët Westermann. 2006. Art History and Its Publications in the Electronic Age. Rice University Press, pp. 57-58. (Also available online at http://cnx.org/content/col10376/latest/.)

- Develop specialized visual resource collections that document the objects of art historical study
- Offer fellowships that bring scholars in various stages of their careers to the center to use its resources in the pursuit of new and innovative research in the field
- Foster an international community of scholars and a scholarly communications network that draws art historians together to share research interests through conferences, symposia, and publication programs.

This unique array of services creates an environment where scholars can pursue their research unencumbered by other professional obligations, yet supported by superb facilities, world class information resources, and well-respected colleagues. In providing this environment, art history research centers advance the field by supporting the research efforts of its practitioners.

Because of the unique role that art history research centers play in the life of the discipline, they seem likely sources of innovation in the emerging area of digital art history.[2] However, preliminary inquiries suggest that this is not the case. In the spring of 2010, the Samuel H. Kress Foundation sponsored a Web-based survey of art history research centers in the United States and Europe. The survey revealed that digital projects and activities undertaken in art history research centers are impressive in their scope and execution, but are relatively uncommon. When they do occur, they tend to be the singular interest of an art historian based at the center, not the focus of a center's mission or research agenda. Instead it appears that an increasing amount of digital innovation in art history is taking place outside art history research centers, in university academic departments, in museums, or as independent efforts led by individual scholars.

If true, this situation parallels circumstances found throughout the humanities, where digital humanities research proliferates outside of traditional humanities centers. Why is digital scholarship concentrated in nontraditional centers? Is this a desirable state of affairs? What is gained by this separation? What is lost?

B. The Present Study

Because the 2010 survey provided only a cursory review of digitization in art history research centers, the Kress Foundation expressed interest in a more in-depth exploration of this arena. In collaboration with the Roy Rosenzweig Center for History and New Media at George Mason University, the Kress Foundation commissioned a follow-up project to determine the appropriateness and readiness of art history research centers to engage in digital art history, and to ascertain whether the discipline and its allied communities believe this engagement will

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2. The phrase "digital art history" is used throughout this report to represent art historical research, scholarship and/or teaching using new media technologies.

transform these centers into digital art history research centers.[3] While art history's research centers are at the core of this study, their status mirrors perspectives on the role that digital art history plays in the discipline at large. Consequently the study crosses into the broader realm of art history as it moves toward more digitally-based pursuits, and explores the impact of this move on one of the discipline's most important institutions – its research centers.

The goals of this study are threefold:

1. To determine the role digital art history plays in the discipline of art history.
    -   What digital technologies are used in art historical research, teaching and publication?
    -   What are the social, political, and economic issues that come in to play with the use of these technologies by the discipline?
    -   Are there barriers for those who pursue digital art history?

2. To derive a clearer understanding of whether art history research centers have the potential to become a type of digital humanities center that focuses on the development and use of technologies for the advancement of art historical research (i.e., digital art history research centers).
    -   Do centers wish to move in this direction?
    -   Do they have the capacity to do so?
    -   If they have the aspiration but not the ability, what is needed to make the transition?

3. To examine the art history community's views about digital art history research centers.
    -   Does the community feel that digital art history research centers are needed?
    -   Should (or could) the community do more to encourage art history research centers to be centers of digital innovation for the discipline?
    -   Should (or could) funders take a more active role?

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3. A digital art history research center is defined here as a type of digital humanities center, i.e., an entity where new media and technologies are used for art historical research, teaching, and intellectual engagement and experimentation. (Zorich, Diane. 2008. A Survey of Digital Humanities Centers in the United States. CLIR Rept. 143. Council on Library and Information Resources, Washington, DC, p. 4. Also available online at: http://www.clir.org/pubs/reports/pub143/pub143.pdf)

II. Methodology

The information conveyed in this report is derived from interviews with key individuals in the field of art history and digital humanities, as well as funders in both these domains. To complement these interviews, a series of site visits were undertaken to various art history research centers in the United States and the United Kingdom. These visits provided a clearer understanding of how digitization plays out in the "life" of a center, particularly the role and influence of specific digital art history projects that are housed or "birthed" within a center. Further context and perspectives were brought to bear from papers and publications that examine the genesis and implementation of digital art history projects, or that address key digitization issues from other humanities arenas that are relevant to digital scholarship and teaching in art history.

A. Participants

The selection of interviewees was the result of an iterative, evolving process. The initial list drew from directors of art history research centers and digital humanities centers, and from individuals known for their work in digital scholarship and teaching in art history. This list was supplemented with individuals from affiliate communities that support art history research centers (e.g., librarians, archivists, information technologists), representatives of professional associations in art history, and individuals from funding agencies or foundations that support digital scholarship in the humanities. The exigencies of academic life (e.g., travel, sabbaticals, scheduling conflicts, etc.) resulted in some substitutions, and several people were added to the list late in the process based on strong recommendations from various interviewees.

In the end, a total of 54 interviews and eight site visits were conducted over a 10-month period (between March 2011 through January 2012). Thirty-one of these interviews were conducted in person (often during site visits); the remaining 24 interviews were conducted by phone. Interviews ranged from 20 minutes to more than two hours in duration. The interviewees were based in art history research centers (33), academic art history departments (8), foundations and funding agencies (5), digital humanities centers (5) and museums (3). Their occupations included art historians, librarians, educators, funding agency program officers, curators, conservators, information technology and new media professionals, and directors of art history research centers and digital humanities centers. Time and expenses limited the scope of the effort to centers and individuals based in the United States and the United Kingdom. (A full list of interviewees is provided in Appendix A).

B. Interview Topics

Interviewees were asked about the following topical areas:

- Access to digital technologies, services and resources in the profession
- Challenges to engaging in art history teaching, research, scholarship and publication in the digital realm
- The role of art history research centers in advancing digital scholarship and teaching
- The extent of digital pedagogy in art history research centers and the profession at large
- Digital publishing efforts in the discipline
- Partnerships
- Sources of innovation in the field
- The role of funding agencies in advancing digital art history.

Because the project participants worked in diverse environments (e.g., research centers, foundations museums, libraries, etc.), the questions used to prompt discussions on these topics were often tailored to an interviewee's particular background. (A list of general questions by topical area can be found in Appendix B.)

C. Information Gathering

Nearly all interviews were recorded, with permission, to allow conversations to proceed without note-taking encumbrances and to assist with the interviewer's later recall. In instances where recording was not feasible (for example, during tours of facilities), notes were made by the interviewer soon after the event while the discussion was still clear and recall was likely to be good. Recorded conversations were transcribed, notated and tagged by topical area. Similarly tagged items were grouped together to analyze patterns, common elements, unique insights and frequently emerging themes. These groupings were further synthesized and they form the core of the findings outlined in this report.

The information reported in this study is qualitative in nature, which allows for a deep understanding of issues that are both complex and sensitive. To encourage open and forthright discussion, interviewees were promised confidentiality. Comments drawn from these discussions are therefore presented anonymously. All recorded conversations were deleted immediately after notes were taken.

III. Findings

The following sections summarize the comments and sentiments expressed by participants in this study. Each section is preceded by the primary question or questions that were used to elicit discussion on a particular topic.

A. Access to Digital Technologies, Services, and Resources

How are art history research centers using new technologies?

The research centers use new technologies primarily for resource discovery, the process of searching and retrieving relevant art historical information online via the open Web or through subscription to electronic resources. While several online resources are considered critical to the field (e.g., Gallica, ARTstor),[4] the range of resources accessed online is quite broad, reflecting the far-ranging research interests of art historians.

Research and presentations are most often managed using desktop tools such as word processing, spreadsheet and bibliographic software. The use of research management tools such as Mendeley[5] and Zotero[6] was not reported. Presentation tools such as Powerpoint and ARTstor's Offline Image Viewer (OIV)[7] are widely used, and many centers have adopted podcasting or videocasting for public lectures and presentations.

Centers with large research collections use image capture technology (scanners, digital video or still cameras) to create digital surrogates of these materials for use online or in a local collections management system. Some centers report that researchers who use their collections increasingly bring their own digital cameras to digitally capture a resource for personal research use.

Email is the ubiquitous communication tool, but video capabilities and Skype have appeared on the scene, particularly in centers that are affiliated with universities. Centers that have a teaching arm (either independently or through a university affiliation) will use learning management systems for course management. The use of social media tools for communication or collaboration (e.g., blogs, wikis, online forums) is rare and tends to be used in centers that have a more public aspect to their mission (e.g., museums). For most art historians, online discussions tend to take place through listservs, where the conversations are restricted to list subscribers.

Technologies that allow for in depth analysis and interpretive research (such as GIS, rendering, or text analysis tools) are not typically used by those working in art history research centers. When they are used, it is most often in conjunction with projects that have a large archaeology, architecture or classics component, or

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4. Gallica Digital Library, n.d. http://gallica.bnf.fr/ and ARTstor, n.d., http://www.artstor.org/index.shtml.

5. Mendeley, n.d. http://www.mendeley.com/#research

6. Zotero, n.d. http://www.zotero.org/

7. "Presenting Images | ARTstor", n.d. http://www.artstor.org/using-artstor/u-html/presentation-tool.shtml.

that focus on archival materials rather than art images.

The use of technologies for digital publication is also rare. Monographs, articles and other traditional formats for the presentation of research results are still wedded to the print world. However, modest changes are taking place in this arena. Several online art history journals are now available, including a journal developed through a partnership of art history research centers,[8] and new projects are underway to explore aspects of digital publishing in the profession (see III.E Digital Publishing).

Given that visual imagery is so critical to art historians, it is not surprising to find that image manipulation tools (such as light boxes, zooming capabilities, and 3-D rotation) are important and heavily used throughout the discipline. However, there is a purported dearth of image analysis tools. Art historians attribute this void to complexities inherent in image analysis that make it a difficult process to replicate via technological means.

Interviewees who keep abreast of research and development efforts in the technology sector believe this situation is quickly changing. They characterize image analysis as the "holy grail" of research and development (R&D) efforts in many industries. Google Goggles, one of the first image recognition tools to reach the mass market, already has been adapted for use with museum collections.[9] Research also is proceeding apace in the visualization field,[10] and the security and defense industries are on the forefront of explorations in area of pattern recognition. However, interviewees who are aware of these developments note that few art history research centers are tracking them, and even fewer in the discipline are participating in efforts to help create tools that can aid in image analysis.[11]

In general, the uptake of technology among art history research centers and throughout the discipline is thought to be low compared to other humanities disciplines. Interviewees are aware of this and attribute it to a lack of awareness about the latest technological developments and tools. They feel they "just don't know what is out there" and express frustration at being unable to easily determine if tools developed by other disciplines might be relevant for their own work.

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8. "RIHA Journal, n.d. (The Journal of the International Association of Research Institutes in the History of Art)", http://www.riha-journal.org/.

9. Google Googles http://www.google.com/mobile/goggles/#text http://en.wikipedia.org/wiki/Google_Goggles; Gilbert, Maria. "Connect with Art Using Google Goggles and Our New Mobile Collection Pages," The Iris: Views from the Getty. June 27, 2011; Metropolitan Museum Enhances Online Access to Its Collections with Google Goggles. (Press release) December 16, 2011. http://www.metmuseum.org/about-the-museum/press-room/news/2011/google-goggles. Also, Google recently announced it had added 30,000 images from its Google Art Projects to Google Goggle. See "Google+ - We've Just Updated Google Goggles….", Adding More Than 30,000…", April 13, 2012, https://plus.google.com/u/1/116899029375914044550/posts/LgU5tHH1ntH.

10. See Manovich, Lev. Software Studies Initiative. Mondrian vs Rothko: footprints and evolution in style space. Software Studies Initiative; http://lab.softwarestudies.com/2011/06/mondrian-vs-rothko-footprints-and.html and Software Studies Initiative. ImagePlot visualization software: explore patterns in large image collections. http://lab.softwarestudies.com/p/imageplot.html#features1

11. While writing of this report, the University of California, Riverside received funding for a project to test facial recognition technology on subjects of Renaissance portraiture. See "NEH Grant Details: FACES: Faces, Art, and Computerized Evaluation Systems", Professor Conrad Rudolph, Project Director, https://securegrants.neh.gov/publicquery/main.aspx?f=1&gn=HD-51625-12 and Miller, Bettye. "Scholars to Apply Facial Recognition Software to Unidentified Portrait Subjects." UCR Today, April 25, 2012, http://ucrtoday.ucr.edu/5453.

What new tools are needed to facilitate art research, scholarship and teaching?

Technologies that facilitate image analysis top the list of tools most desired among those in the profession. Specific mention was made of tools that:

- Facilitate search across disparate image sets
- Allow search on image metadata and on visual patterns
- Enable robust image annotation, including embedding video, text, and drawings, and allowing links (via URLs) for citation within an image and within specific areas (i.e., details) of an image;
- Display and register images for side-by-side comparisons and analyses of works of art
- Rectify maps, landscape drawings, plans, elevations and other schematic representations of location
- Allow bulk downloading of images.

Technologies that enable digital publication also are in demand. In addition to robust authoring tools,[12] interviewees want to retain many features common to print publications (e.g. citations, bibliographies, etc.), while taking advantage of the greater interactivity that is possible within the digital environment. They would value publishing toolkits that allow them to:

- Annotate digital publications
- Cite particular sections within a Web site or other digital publication
- Cite particular images and details of images within a digital publication.

For many art historians, the constant maneuvering between analog and digital environments is perceived as cumbersome and time consuming. These individuals would welcome new virtual environments that enable all stages of the research process (from discovery of materials through publication) to take place online. Similarly, robust online collaborative research environments are desired, so that colleagues located in far-flung places can work on joint projects without spending time and resources on travel. The commercial market currently offers a number of such work environments, but none were thought robust enough to suit the special needs of art history research projects.

A key concern of scholars participating in this study is the authenticity of online resources. To this end, tools that establish the trustworthiness of digital resources - and of heterogeneous resources like collections and their metadata - are seen as vitally important. So too is the development of a model for establishing persistent URLs for both Web sites and for digital images on those sites, so

that these resources can be found regardless of changes in underlying digital infrastructure.

Many interviewees are dissatisfied with the current state of Web searching and want better discoverability tools that use semantic mapping, faceted browsing, tagging and other "new school" schemas to identify resources. Those involved with digitization of art historical resources want better data capture methods, including toolkits for mass digitization of archival and image materials to bring more of these "hidden resources" online. The growing interest in non-western art history and research makes robust cross-language search and translation tools desirable. And researchers working on conservation analyses of artworks and technical art history would welcome better integration of extant diagnostic and conservation tools.

The discussion about new tools also brought forth ideas about services needed to facilitate art research and teaching. Key among these is a registry of projects in digital art history to help the field become more informed about work in this area. Support for a current effort to create a portal of art historical texts[13] was cited as an important service as well, since it will make these texts widely available and encourage collaborative rather than duplicative digitization efforts in the field. There might also be a need for an art history service bureau that would digitize important materials located in small, poorly resourced repositories.

Those most familiar with the technology arena think that many of the research tools desired by art historians already exist in some capacity and could be modified appropriately to suit their needs. Rather than search for a "generalizable tool" or propose a task-specific tool, they argue that art historians need to identify use cases that outline a particular research problem so an appropriate suite of digital tools can be identified and tailored (or if need be, created) to address that problem.

In the course of conversations with various study participants, several scenarios were discussed that might form the foundation for such use cases. The examples listed below, while not comprehensive, give a sense of the type of research art historians might undertake with the aid of digital technologies:

- Visualizing a work of art in its place over time, e.g., viewing a painting, sculpture, or building in relationship to the environment around it and the changes to that environment over time.
- Tracking and visually displaying changes in the nature of an object over time, such as a sculpture that was originally polychrome but over the ages lost its color, became damaged, was repaired, etc.
- Visually mapping/tracking works of art as they moved across space and time, from the workshop where they were created to the locations where they were bought, sold, exhibited, stolen, repatriated, etc.
- Using art history's iconic databases as large-scale datasets (rather than just searchable resources) to reveal patterns, trends and insights that put forth new research questions.
- Mining collections of oral history audio and/or transcripts as datasets to explore patterns and address specific research questions about artists, genres, schools, etc.

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13. "Getty Research PortalTM (Getty Research Institute)", n.d. http://www.getty.edu/research/exhibitions_events/events/portal/index.html and now http://portal.getty.edu.

B. Art History Research Centers and Digital Scholarship and Teaching

a. Digitization of Resources

To what extent do art history research centers currently produce and offer access to digital resources comparable to their traditional research libraries, photographic archives etc.?

Collections are vitally important to the discipline, with one scholar describing them as the "engine of research" in art history. They are also the bedrock on which digital scholarship and teaching is built. Because art history research centers are principal repositories of research collections, the burden falls on them to make these holdings digitally available. To what extent are they doing so, and what are some of the problems they encounter along the way?

Centers with rich holdings of library, photographic, and archival materials do feel obliged to digitize these resources and make them more widely available, but they face significant hurdles in doing so. One such hurdle is tied to an established tradition in the field whereby reputational value is associated with serendipitous discovery and first rights of publication. It is not unusual for a scholar looking through the holdings of a center to find a piece of long-lost correspondence, a previously unknown work by a renowned artist, or equivalent items that are revelatory to the discipline. Such a discovery confers reputational value to the scholar who first brings it to light, and the item is embargoed until the scholar can publish his or her discovery. When entire collections are placed online, this type of serendipitous discovery, and the value associated with it in the profession, might be lost.

Many interviewees feel that centers ambivalent about digitizing their resources because of this tradition are doing a disservice to the profession. They argue that the value of making materials available online far outweigh the loss of this tradition, which they view as antiquated and limiting. In their defense, art history research centers note they are responding to common expectations in the discipline. It is the scholars, who "value the value" associated with such discoveries, not the centers. And it is the scholars who insist on embargoing their discoveries until they have published them.

Another hurdle is the cost of digitizing the large quantity and variety of materials that exist in many centers. It is not unusual for these collections to number in the millions, and to consist of mixed materials (books, photographs, fragile archival items like papers and manuscripts, etc.) that make "rapid capture" digitization efforts difficult if not impossible. Adding to the cost is the need to create rich metadata on these materials, which is critical for enabling access but is extremely resource-intensive. Since 2008, budgetary cuts imposed by parent institutions have made the process even more difficult, as everyone struggles to maintain financial stability in a recessionary economy and "do more with less."

Given these circumstances, there are questions about the best strategy for digitization at any particular center. Some collections, such as duplicate materials, low use items, or materials digitally available elsewhere, are usually ruled out as candidates for digitization. But for those collections that do need to be digitized,

what strategy yields the greatest output with the least investment of resources? Are targeted digitization efforts (based on most requested, most timely, or easiest to digitize) better than a comprehensive approach that systematically digitizes an entire collection? How does one balance the center's goal of building extensive, sustainable resources against the demands of individual scholars, who often want the center to digitize materials specific to their own short-term, one-off projects? Decisions about what and how to digitize research center collections are rarely straightforward.

b. Provision of Digital Services and Infrastructure

Do art history research centers provide services and support for use of their digital resources? More broadly, can they provide the discipline with the infrastructure to enable digital scholarship?

Few centers offer value-added services in support of their digital resources. Most can do no more than make the resources available and sustain the technological infrastructure (servers, broadband network access) that enables access either on-site or via the open Web. Tutorials for particular digital resources have dwindled due to finances, but also in response to lessened demand for such training.

There is near unanimous agreement among those interviewed that art history research centers currently cannot develop or offer the digital tools, services or infrastructure needed for art historians to pursue digital scholarship. Some centers, emphasizing their research mission, believe it is not their role to be digital service providers of any sort. Others feel the "piece" they can best contribute to a digital infrastructure for art historical research is to provide their information resources online. But even those who might wish to provide more services to support digital art history note it is now more cost-effective to integrate with existing infrastructure and services (for example, using the HathiTrust[14] for repository services, or working with a digital humanities program to leverage digital tools and skills) rather than create these structures on their own.

c. Fostering Digital Scholarship and Teaching

Is there a role for art history research centers in fostering digital scholarship and teaching in the profession? What is that role?

Interviewees believe that art history research centers have an obligation to support scholars who are more digitally engaged in their research and teaching, but they disagree on how the centers should do so. Opinions fall into two camps: those who believe the art history research center can accommodate digital scholarship within its current role and mission, and those who feel these centers must take a more pro-active stance to advance digital scholarship in the discipline.

Proponents of the former position believe that the foremost role of art history research centers is to bring scholars into their facilities to produce scholarship. They agree that the health of the field depends on digital competencies, but they do not

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14. "HathiTrust", n.d. http://www.hathitrust.org/about.

believe it is the role of centers to provide those competencies, nor require them of scholars who conduct research at a center. So while they welcome scholars who pursue digital scholarship, they feel their primary role is to foster a supportive research environment without promulgating any specific research methodology or agenda.

The alternative view is rooted in a belief that the world is becoming ever more digital and centers cannot remain passive in the face of this fact. Supporters of this more pro-active stance note that the demise of slides forced the discipline into the digital world nearly a decade ago, but little progress has been made since. The discipline's engagement with the digital world remains limited to the use of digital images and to searching the Web as "if it were one big research library." Few art historians are asking how their research might benefit from deeper levels of digital engagement or are considering how digital scholarship might open up new areas of inquiry. Art history research centers are needed as "change agents" who can promote digital scholarship and teaching, mentor those who wish to move into areas of digital scholarship, and provide the digital resources that make such work possible.

Those who espouse this more pro-active view are aware that wishing will not make it so. They cite three major barriers that limit a center's ability to take a leadership role in this area: lack of funding, inadequate technical infrastructures, and an absence of staff with the necessary skills to develop and support digital projects. In the absence of these resources, art historians who wish to develop digital art history projects are more likely to be attracted to other places, such as digital humanities centers, to pursue their interests.

To date, no art history research center has made the full-scale commitment to supporting digital scholarship in a manner akin to a digital humanities center, although several art history research centers are developing in-house digitally-based projects. However, the individuals working on these projects note a tentativeness or hesitancy in moving forward too fast. They speak of their efforts as experimental, trying to prove the scholarship value of these projects to those in leadership positions in their own institutions and to the discipline at large.

C. Challenges for Art History in the Digital Realm

a. Behavioral Barriers

Interviewees were most vociferous about the many "behavioral barriers" that permeate the field at large. The discipline, its practitioners, and its research centers were criticized in language that ranged from diplomatic to disparaging for numerous traditions, sentiments and modes of behavior that are believed to stymie digital scholarship and account for the low level of digital engagement in the field.

i. Entrenched Behaviors

Art history is a solitary endeavor

Art historians tend to work alone. Collaborative research, teaching, and publication are rare. In part, this is due to the training and reward systems of the

discipline: beginning in graduate school and extending throughout one's career, there is little exposure to working in teams and no rewards for doing so. However, there is more at play than a lack of collaborative opportunities and rewards. As one interviewee bluntly noted, art historians do not want to work in groups. They are drawn to the solitary, contemplative nature of their research and do not feel the same need as other disciplines to crossover into other disciplinary frameworks.[15]

This disciplinary introversion poses a huge barrier if art history research centers are to support digital scholarship in the field. Digital art history is by nature a collaborative endeavor that can require teams of people from other disciplines and professions. Convincing art historians that such an effort can benefit their research, and teaching them how to work in a collaborative environment, are challenges that need to be addressed broadly throughout the discipline.

Art history is a conservative discipline

Art historical practice follows a predictable scholarly model (individual research and teaching, presentation of research results at conferences/symposia, print publication) that has changed little over the last century. The discipline is perceived as highly risk-averse, which makes attempts to alter the status quo exceedingly rare. In this context, the emergence of digital art history is perceived as threatening to art history's operational paradigm because it requires new types of training, new methods of research, and new modes for communicating and distributing research results.

The discipline's conservative stance is attributed to fears that underlie various beliefs and actions. A fear of being "scooped" on one's research leads to a sense of territoriality that pervades the discipline. A fear that the public will misuse art historical content leads to a sense of guardianship that translates into a proprietary attitude about releasing images, research, and other work into a digital environment. A general fear of technology by some art historians leads to disparagement of others who wish to use technology to conduct, interpret, and publish their work. There is a pervasive sense that the discipline is too cautious, moves too slowly, and has to "catch up" in the digital arena.

Biases

Several biases contribute to the discipline's resistance to digital scholarship. The most intransigent one is a steadfast belief that print is the only valid form of publication. Some leeway is given for online journals or monographs as long as there is a print equivalent.

Other biases emerge in the realm of research: in particular, the nature of the research, how it is conducted, and where it takes place. For example, research undertaken in nonacademic venues (such as museums and galleries) is perceived as

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15. Another interviewee noted the irony in this behavior, given that the great art historians of the past (such as Warburg, Panofsky, etc.) were all humanists in the grand tradition, being educated in - and seeking insights from - anthropology, classical studies, linguistics, philosophy, and other disciplines outside art history.

"lightweight." Similarly, art historians who conduct digital research are not serious scholars because digital scholarship is not seen as "top-notch" scholarship. And there remains a lingering sentiment that true research requires "slogging through materials." Anything that makes that process easier is "cheating, laziness and not pure scholarship."

Although interviewees are quick to point out that these biases are not held by everyone, they remain deeply entrenched throughout the discipline. Even those who believe they are outdated often hesitate to push beyond them, especially in the publication arena, because of the negative impact it might have on their careers.

Outmoded reward and evaluation systems

Digitally-based research or publications require a great deal of work but receive no recognition in the rewards structure of the discipline. Art historians conducting work in this area are cautioned first to "publish in print" in order to prove their merit by traditional means. This sentiment is widely seen as creating a stranglehold on digital scholarship across the discipline. The expectation that scholars must straddle two worlds leads to unsustainable workloads and ultimately discourages art historians from pursuing digital projects altogether. As more research and publication occurs in the digital realm, the discipline needs to revamp its reward system to incorporate digital work in degree granting, academic tenure, and promotion.

Unfortunately, there are no systematic efforts underway to do this. The discipline's professional organizations were faulted for being too slow to respond to this need. One art historian, emphasizing the urgency of the situation, spoke of dissertations in development that include theses with 3-D renderings, mapping, and analyses of built works. These dissertations will only be viewable online and no one is quite certain how these dissertations will be reviewed and vetted. The need for evaluative criteria for digital work requires swifter action than the field currently is providing.

The perfect is the enemy of the good

Art historians are described as perfectionists. Their work products (e.g., presentations, publications, exhibitions, Web projects) are not released until they have attained a very high level of quality. This perfectionism is a valued attribute in the discipline and participants feel it is tied to the sense of stewardship felt by art historians toward works of art. However, it quickly becomes a liability in the digital realm where nimbleness – being able to work quickly, iterate, and release research in preliminary stages – takes on greater significance. The "beta" concept endemic in the digital world has no equivalent or value in traditional art history and thus is hard for art historians to recognize and practice.

Skepticism about digital art history and new media

Many art historians view digital art history as a novelty that infringes on the contemplation and reflection necessary to their discipline. For these individuals,

using new media in the research process is thought to "de-nature the life of a scholar" and consequently they view all digital scholarship efforts with a wary eye. They remain skeptical because they have yet to receive satisfactory answers to the following questions:

- What will digital art history allow me to do that I cannot already do?
- How does it allow traditional research to be done in a significantly new way?
- Does the technology really serve the scholarship?

Even those who believe there is potential in digital art history often are ambivalent about exploring it themselves. They know that digital scholarship is resource-intensive, and they are not sure the effort will bear fruit for their particular research interests. Without such assurances, they are hesitant to invest time and energy in this area.

Part of the skepticism toward digital art history stems from uncertainty about what scholarly production looks like in a digital world. Digital art history projects are still uncommon and none are well-known throughout the discipline. In the absence of both examples and exemplars, art historians feel ill equipped to judge the value, quality, and intellectual substance of digital scholarship.

ii. Shortcomings and Misunderstandings

Lack of introspection and vision

The discipline was taken to task for its lack of vision and for a modus operandi that has remained virtually unchanged over the last 150 years. There is little introspection about what art history should be today, whether new digital tools are needed, and what the role of digital scholarship should be in the discipline. The inability of the field to come together to identify its needs in this area is perceived as a huge constraint. Funders are said to be baffled by the absence of dialogue in the discipline and see it as a key reason why they have so few art historians applying for digital humanities funding.

Others are worried that a lack of vision and introspection keeps the discipline operating solely in the "bubble of academia" where it risks having its value diminished by society. Noting that the objects of art historical study are of huge interest to the public – and that the public increasingly engages with these materials online – they worry that art historians are poor spokespersons for what they do and for their own value to society. In a culture where visual literacy is increasingly important, the most visually literate discipline in the world is absent from the realm of public discourse.

Lack of leadership

The absence of a vision for what art history should be in the 21st century is blamed on a lack of leadership in the field. The discipline's professional organizations are said to be slow to acknowledge digital art history and its emerging role in the discipline. Research centers, while quick to acknowledge the

move toward digital scholarship, are not leading efforts to demonstrate its value to the discipline at large, argue for its place in graduate curricula, or promote its possibilities for expanding the job market for art historians. The latter, in particular, was called out as a huge omission. Because the field graduates more Ph.Ds than it can employ in academia, participants feel the discipline has an obligation to help expand career opportunities for its new colleagues. More importantly, they feel that it is in the discipline's interest to do so if only to avoid becoming a "quaint academic backwater" relevant only to a select few.

Lack of understanding about the digital world and its potential

Art historians were characterized as "lacking imagination" about the potential of the digital world for research. They fail to see that the very act of digital engagement engenders new ways of thinking and poses new research questions. In addition, their narrow use of digital resources does not expose them to the scholarly production that already exists online nor the research tools used in other sectors that might prove fruitful for art historical research.

For art history research centers, there is the additional problem of being unaware (or unconcerned?) about the negative consequences of being digitally disengaged. Few centers, for example, consider the importance of online brand management. Web sites are often poorly managed, with dead links, URLs that are not standardized, links that do not reference back to the center, outdated content, etc. Their Wikipedia entries often contain errors or have an embarrassingly sparse amount of information. Indicators such as these reflect poorly on a center and do little to inspire confidence among audiences whose initial encounter with a center might occur online. Potential students, researchers, grant agencies and governments are said to have taken notice.

Lack of technological savvy

The fast paced world of technology clashes with the slower, methodical nature of art historical research, which many feel accounts for the lack of technological know-how among art historians. The technology learning curve is described as too onerous, too time-consuming, and too uncertain. Consequently, the technology skill sets of art historians tend to be basic. One individual speculated, only partly in jest, whether the discipline actively attracts the technically inept because they know the field will not demand proficiency from them in this arena. However, others suggest that the discipline's lack of understanding about technology is less about aptitude than it is about need. Until recently, art historians did not need to rely on technology in order to thrive, so proficiency in this area was unnecessary.

Whatever the cause, the lack of technology know-how was a frequently cited problem. Still more disconcerting to some is the sense that many art historians portray their lack of technical expertise "as a badge of honor" signifying their commitment to more cerebral pursuits. The unspoken assumption behind such a sentiment is that those who engage in digital art history projects are less serious and less scholarly.

Individuals working on the more technical end of digital art history projects feel that art historians misunderstand both the capabilities and the limitations of technology. They cite oft-spoken comments that reflect a mix of naivety, contradiction, and misperception:

"You can just write a program to do that...";
"No program can ever do what I want...";
"We'll bring in the IT folks after we get the grant."

Comments such as these reflect pat and uninformed notions about technology and its role in the research process, treating it as an "add-on" rather than integral to the process itself.

Misunderstanding the resource needs of digital projects

There is a failure to recognize that digital projects involve more resources, more work, and a different type of work than traditional art history projects. There is also a failure to understand the amount of intellectual thinking and inquiry that takes place in these projects. And the collaborative, interdisciplinary nature of digital projects is foreign to art historians, who have little or no experience working with large teams of people who possess vastly different knowledge and skills.

Once digital projects get underway, few consider the extensive efforts that are required to keep them viable for the long term. The digital environment is fragile and the content that lives in it must be carefully managed in perpetuity if scholarship and scholarly products (databases, publications, etc.) are not to be lost. Also fragile is the management and organization of digital projects, which require resources and an institutional home to bring a measure of stability and gravitas to the endeavor.

Finally, art historians underestimate the significant resources needed to champion digital projects. Project leaders often speak of the ongoing need to showcase digital art history projects among colleagues and to demonstrate their appeal and value to art historical research and scholarship. However, current publicity efforts seem ineffective. Digital art historians remain disappointed in the paucity of colleagues using or contributing to their projects, and art historians continue to express frustration about how little they know of these projects.

b. Political and Structural Barriers

Political and administrative issues in art history research centers

Centers operate at the slow, considered pace that characterizes the profession. They also uphold the discipline's perfectionist tendencies. These predilections create bureaucratic roadblocks that impede the progress of digital research projects. Centers might, for example, require elaborate review processes for what in other contexts would be considered routine aspects of digital projects, such as creating a project Web site, using a center's domain name, planning a meeting, or using IT resources. Obtaining layers of approval for such basic and prosaic activities makes

it difficult for digital art historians to address aspects of their work in the timely fashion required by their collaborative partners and by the nature of their projects.

Obstacles facing digital art historians

Scholars who undertake digital art history projects report significant hurdles in pursuing their research interests. Most describe themselves as working in departmental isolation, with no peers in their department with whom they can discuss their work. Moreover, they report a schism in the field between those who "speak the language of digital art history and those who do not," which reinforces this sense of isolation across the discipline.

They also are uncertain about how to solicit understanding and respect for their work because established pathways of scholarly promotion and presentation are often closed off to them. For example, conference proposals on digital art history themes or research are often rejected by program committees. When they are accepted, they are usually given a peripheral slot in the conference program or placed in timeslots that are concurrent with highly popular sessions or high profile speakers.

Another problem is finding institutional affiliations for what might be called "standalone" digital art history projects – i.e., projects that arise somewhat organically as a result of an individual or group effort, or which spin off from a sponsored activity of a foundation or other organization. As these standalone projects mature, they need a permanent home base or mooring within an institution so they can gain a measure of stability, qualify for grant support, and be accorded greater validity among the community of art historians.[16] Brokering such affiliations can be difficult. It also comes with some measure of risk. During periods of economic cutbacks, an institution serving as "home" to an international project might have to withdraw its support because it cannot be seen to favor an international effort at the expense of local needs.

Individuals pursuing digital art history also worry about their career paths, since art history departments are not embracing them as serious scholars. Among the anecdotes offered to substantiate this claim, two stand out as examples of how the biases come into play when applying for academic positions. One participant described a brilliant young art historian who, when applying for faculty positions in art history departments, repeatedly was directed to library positions once his interest in digital art history became apparent. Another spoke of how her experience working on various digital humanities projects made her an outsider in traditional art history departments. Instead of viewing this experience as a valuable addition to her conventional academic bona fides, she is perceived as a "jack of all trades and master of none."

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16. Smarthistory, a digital art history teaching resource developed by two art historians, recently announced an unusual (for art history) alliance with Khan Academy to help sustain, develop and integrate the resource into the larger online educational community. Its founders note that this affiliation allows them to work full time on the resource to develop more art history content and will give them access to tools currently developed by Khan Academy for its science and technology content. See "Smarthistory, a Multimedia Web-book About Art: Discussing About Smarthistory", n.d. http://smarthistory.khanacademy.org/about-smarthistory.html.

Resource and funding issues

Art history research centers do not have the technology infrastructure to steward digital projects over the long term, nor can they afford to build this infrastructure. Even centers embedded within a larger parent organization (such as a museum or university) report insufficient technology infrastructure, although in these instances the problem is one of competition for IT resources with other units in the parent organization.

Centers also lack the human resources – the project managers, librarians, programmers, etc. – to undertake digital art history projects. Those fortunate enough to have some qualified staff report that these individuals frequently leave after a short period of time because higher salaries and greater opportunities can be found elsewhere. Budget cutbacks further confound the human resource situation by forcing centers to "do more with less." This affects the efforts of current staff, whose increased workloads limit their ability to develop digital collections and resources or to pursue new project ideas.

The external funding scenario adds another aspect to the resource predicament. Compared to other areas of the humanities, art history is a poorly-funded discipline. Moreover, some of the funding that is available to the discipline is not available to certain art history research centers and digital projects. For example, research centers that are part of a US federal agency are prohibited from applying for federal endowment funds because of their government status. Digital art history projects that do not have an institutional affiliation frequently are prohibited from applying for federal and foundation grants.

Barriers in collections use

Images and other collections

Because images are difficult to analyze computationally, they are thought by many to present an intrinsic barrier to digital scholarship. However, several interviewees view this claim as a red herring. They note that a great deal of art historical information is already available for digital analysis: oral histories, transcripts, manuscripts, print publications, and databases can all be mined to identify patterns and expose new (or answer existing) research questions, yet few art historians choose to pursue these avenues of digital research.

Critics also note an irony in art historians' desire for image analysis tools, and their disinterest in working with organizations developing these tools. While they acknowledge that software developers are generally interested in commercial, government, or defense applications, they also note that tools developed for these sectors eventually "trickle down" to popular markets and audiences (the "NASA effect"). Unless art historians contribute their visual analysis skills and input to these endeavors in the software development phase, the products and tools that move into the mass market will not include features and functionality that serve their interests.

Limitations to linking collections virtually

The different standards and approaches used for digitized art history resources make it difficult to share information across these resources. In addition, many of art history's data standards and vocabularies are not open source, which limits the ability of centers (who often incorporate these standards and vocabularies into their metadata) from easily contributing their resources to aggregation projects as "linked open data."[17]

Another limitation is more conceptual in nature. The discipline's unquestioning attachment to structured cataloging of art history materials is seen by some as engendering a type of rigid thinking that prevents those in the field from considering the new ways people are approaching information. These individuals argue that user, aggregation, and access needs have become more sophisticated and might require expanded approaches that depart from conventional cataloging strategies.

c. Overcoming Barriers

Many individuals believe that the deleterious behaviors that negatively affect digital art history will "die a natural death" as art historians entrenched in traditional ways retire and are replaced by younger colleagues who, as one scholar noted, are more inclined to "think through technology." Also, as tools and data resources become more abundant, quantitative research is likely to follow as part of a natural progression that occurs in disciplines when confronted with increasing amounts of data. Nevertheless, interviewees felt many steps could be taken now to encourage and promote digital scholarship among art historians and at art history research centers.

Engage senior scholars in the enterprise

Junior scholars who pursue digital art history projects are widely thought to be jeopardizing their academic careers by doing so. However, the same is not true for senior scholars, whose tenured status, professorial ranking, and respect among their peers uniquely positions them to take risks without fear of career consequences. As one interviewee noted:

> *Older scholars –if they decide to leap into this – have the possibility of offering more because they are less under the gun in terms of tenure and promotion and publications. Older scholars like me should be out there on the limb doing the e-books, etc. We should set the model. We can take the risk.*

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17. "Linked Data - Connect Distributed Data Across the Web", n.d. http://linkeddata.org/home. For a short animation on how the concept applies to cultural materials such as works of art see: Europeana. Linked Open Data. Vimeo, 2012. http://vimeo.com/36752317.

This idea of recruiting several highly respected senior scholars to take a leadership role in a digital art history project, or to champion broader efforts within the discipline to support digital scholarship, was suggested by many interviewees. Senior scholars are seen as having a critical role to play in persuading reticent art historians to lend credence to this emerging area of scholarship. Aligning them with a digital project imparts a unique imprimatur whose value cannot be overstated.

Interviewees insist that any senior scholars recruited for such an effort must come from the ranks of the reticent themselves. They also feel recruitment efforts will be more successful if the scholars are assured that they do not need any extensive technical expertise beyond seeing the potential and value of digital research, teaching, and scholarship to the art historical endeavor. If recruited scholars can bring some of their students into the effort (via pre/postdoctoral work) so much the better: such a scenario would bring two generations to an understanding of digital scholarship at one time.

Two recruitment strategies were proposed in the course of conversations. One strategy involves "mentoring up",[18] i.e., letting those who supported the hiring of junior scholars engaged in digital scholarship help their senior colleagues understand the "innovative modes in which the junior scholar is working."[19] A second strategy calls for pairing a traditionally-oriented senior scholar with a technologist to discuss how technology might be used in the context of the scholar's own research interests.

Conduct digital art history and traditional art history in tandem

It is important to demonstrate to those in the field that digital analysis is one type of art historical analysis that can be fruitfully combined with art history's more qualitative approaches to yield new insights and information. To drive this point home, efforts are needed that incorporate digital research and scholarship in tandem with traditional modes of art historical research and scholarship. Some scholars currently engaged in digital art history projects are trying to do this, albeit retrospectively. One individual spoke of plans to ask senior scholars to contribute traditional long-form essays on specific works of art that are part of his digital research project. These essays would be integrated into the project (as digital publications) and become part of the growing body of scholarship that is coalescing around this particular digital research effort.

New people, new roles

A number of interviewees spoke of "seeding" academic art history departments or research centers with skilled individuals who can jumpstart digital initiatives in these places. The most common suggestion is to create postdoctoral fellowships in digital art history research for this purpose. Another idea is to enlist technology-savvy professionals who work with art historians (museum educators,

18. Fitzpatrick, Kathleen. "Do 'the Risky Thing' in Digital Humanities." The Chronicle of Higher Education, September 25, 2011, sec. Commentary. http://chronicle.com/article/Do-the-Risky-Thing-in/129132/.

19. Ibid.

librarians and archivists were specifically mentioned) to serve as intermediaries who can help bridge the divide between technology and art history. A more radical suggestion is to bring in "instigators" or individuals from outside the research center who possess a unique set of technology, humanities, and people skills. Their role would be to push against institutional barriers without being intimidating to others nor easily thwarted themselves.

Thought leaders and coalitions

Because the discipline has never brought its thought leaders together to discuss digital teaching, research, and scholarship, no discipline-wide perspectives or consensus have coalesced around the role of these topics in art history. As one scholar noted, the profession needs to ask:

> *How do we integrate the good about digital technologies and apply rigorous intellectual criteria to their use? Instead of turning our back on digital, how can we co-opt it and embrace it and make it a vital part of what we do?*

Coalitions of art historians, representatives of research centers and professional organizations, funders, and other relevant stakeholders are needed to start a dialogue and get these topics on the agenda. While other humanities disciplines are further along in addressing digital scholarship issues and can offer useful insights, the art history profession ultimately must come to its own consensus and devise solutions that meet its particular needs.

D. Digital Pedagogy

To what degree are art history research centers involved in digital pedagogy? Do they offer digital art history or humanities training? If not, where is this training offered?

Formal training in digital art history currently is not offered by art history research centers, although informal, incidental, or opportunistic training does occur. Interns, for example, might be trained in basic skills (e.g., scanning, online cataloging) for a particular project assignment, or postdoctoral fellows might be offered tutorials in the use of a digital tool (e.g., course management software) or a digital resource (e.g., ARTstor). Centers that have libraries and archives might host university classes or graduate programs, offering lectures, tours of facilities and demonstrations of particular digital projects to students. There is also "under the radar" training whereby a digitally savvy employee trains a scholar on the use of a digital tool or other aspect of digital research.

Still fewer digital art history training opportunities are available in academic art history departments. With the exception of a frequently-cited program at

Duke University,[20] interviewees were fairly unanimous in their assessment that digital pedagogy does not occur in most undergraduate or graduate art history programs.[21] So where do art historians turn to develop the skills needed to pursue digital research? Those working on digital art history projects report that they sought training from a variety of external sources, such as university libraries and educational technology centers, field schools, and topical institutes and workshops offered by digital humanities centers or by funding agencies. When they could not find formal training opportunities, they often identified what they needed to know and taught themselves.

Given the disjointed nature of digital pedagogy in the discipline, should art history research centers and/or art history departments be offering more formal teaching in this area? Interviewees are split on this question. Those in favor believe that formal instruction points are needed, at least to provide overviews of what can be achieved with technology and digital scholarship. They think academic art history departments are best suited to provide the structured teaching environment for this training because they can do so with the proper art history focus. However, they also note that the learning process for digital research and scholarship is never-ending, so postgraduate training opportunities in digital art history might be more important to the long arc of one's career than undergraduate and graduate training. Art history research centers have long served as a postgraduate training ground, and could participate in the pedagogical process by offering postgraduate training in digital research methodologies.

Those who disagree with the idea that digital pedagogy should be the purview of art history departments/research centers believe such training is more appropriately aligned with fieldwork training and thus best offered in that context. There also is a contingent who feel students are naturally inclined toward learning "all things digital" and can pick up skills on an as-needed basis for any digitally-based research they might wish to pursue.

As art history research centers and academic departments consider the issue of digital pedagogy in the profession, those outside the discipline note that digital pedagogy is establishing a foothold more broadly across the academy. Training in digital scholarship is getting greater attention in universities and among those who fund the education sector. Discussions about what constitutes a 21st century liberal arts education increasingly refer to digital research and scholarship as important aspects of the undergraduate experience. As these discussions gain traction, we are likely to see digital learning and research opportunities appear

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20. See "Duke University Department of Art, Art History & Visual Studies", n.d. http://aahvs.duke.edu/ and "Wired! | Visualizing the Past", http://www.dukewired.org/.

21. Early explorations in this area are documented in Kelly Donahue-Wallace, Laetitia La Follette, and Andrea Pappas. Teaching Art History with New Technologies: Reflections and Case Studies. Cambridge Scholars Publishing, 2008. It is unknown if the interviewees in the present study are aware of any of the efforts documented in this publication. They were not mentioned in any of the interviews.

across the undergraduate curriculum.[22] Every discipline will feel pressure to take part in this effort by offering digital research opportunities in the context of their undergraduate courses and in their faculty research projects.

E. Digital Publishing and Related Policy Issues

Are centers engaging with new modes of art history publishing and related policy issues?

a. New Modes of Publishing

There is growing acceptance among art historians that the transition from print to digital publication is inevitable. Print publications are still preferred, and many hope that print and digital will co-exist for the foreseeable future, but everyone recognizes that print publication models are unsustainable in today's scholarly world.

One of art history's earliest forays into online publishing was Ballon and Westermann's seminal report, published by Rice University's online publishing initiative, which explores the challenges of digital publishing in the discipline and offers a roadmap for change.[23] Several art history journals also were quick to explore the online world, with new journals emerging in "born digital" form, and established print journals creating online versions.[24] While most of these early efforts offer access to articles and journal content via pdfs, a few (e.g., RIHA Journal,[25] Nineteenth-Century Art Worldwide[26]) incorporate functionality native to the Web environment that enables richer presentations of articles, reviews, and news items. Perhaps the most ambitious effort (and a frequently cited exemplar within the discipline) is one undertaken by the Society for Architectural Historians, which has developed an online platform for its subscription-based journal[27] that allows readers to experience aspects of architectural works (via multimedia, virtual modeling, digital mapping and other tools) in the context of its scholarly articles.

Of late, several new initiatives are underway that explore new media tools, content, and platforms in online publishing. The Getty Foundation's Online Scholarly Catalogue Initiative is a consortium of museums that are experimenting

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22. One such opportunity is at the University of California, San Diego, which recently was awarded a grant from the Mellon Foundation to develop techniques for visualizing large image and video collections. Over 200 undergraduate and graduate students are expected to participate in this project, using the tools on select data sets as part of assignments and study in various undergraduate visual arts courses. See Manovich, Lev. "Software Studies Initiative Awarded $477,000 Grant from Mellon Foundation." Software Studies Initiative, April 20, 2012. http://lab.softwarestudies.com/2012/04/software-studies-initiative-awarded.html?utm_source=twitterfeed&utm_medium=twitter.

23. Ballon and Westermann, 2006.

24. See "Online Journals and Periodical Searches" in "Art History Resources On The Web: Research Resources", n.d. http://arthistoryresources.net/ARTHLinks4.html#online for a list of online art history journals.

25. "RIHA Journal (The Journal of the International Association of Research Institutes in the History of Art)", n.d. http://www.riha-journal.org/.

26. "Nineteenth Century Art Worldwide", n.d. http://www.19thc-artworldwide.org/.

27. "Journal of the Society of Architectural Historians (JSAH)", n.d. http://www.sah.org/index.php?submenu=Publications&src=gendocs&ref=JSAH&category=Publications.

with prototypes for online scholarly catalogues.[28] Joining it to explore the potential of online publication is the Archives of American Art's recently announced Graduate Research Essay Prize,[29] which encourages innovative use the Archives' online resources in conjunction with new media (e.g., digital images, audio, video, digital humanities tools, mapping, social media platforms, etc.) to "enhance the online presentation of the essay." Also on the horizon is a recently announced initiative, Nineteenth-Century Art Worldwide & Digital Humanities,[30] a Mellon-sponsored effort to aid scholars in developing projects that use digital humanities tools in the research and/or publication of scholarly work.

b. Policy Issues

Online publishing offers greater distribution and new ways to interact with scholarly information, but it comes with significant tradeoffs for the profession. Greater infrastructure and capacity are needed to support digital publications, and established practices and workflows in the publication process have to be adapted to the digital environment. While these challenges are daunting, they can at least be addressed with resources and planning. More problematic are the obstacles that plague art historians in the world of print publication, such as copyright and access. In the digital realm, these issues become labyrinthine in complexity, and might well make the transition to digital publishing more onerous for art history than for other disciplines.

Copyright

Copyright has long been a fact of life for those in the discipline. Art historians are prepared early in their careers for the rigors of procuring images of works of art for their teaching, research, and publication. Their efforts are made more onerous by the conservative, risk-averse nature of the discipline, which shies away from invoking fair use even in instances where it is clearly applicable. As a result, scholars spend huge amounts of time and large sums of (often their own) money licensing images for their publications.[31]

This scenario will only worsen with the transition to online publication because the default rights environment is international in scope. In such an environment the number of rights procurement issues skyrocket, resulting in a "chilling effect" that limits rather than encourages art historical scholarship in the online arena. Scholars might be forced to reduce the number of images in their publications because the costs and procurement efforts will be so burdensome. The

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28. "Online Scholarly Catalogue (Getty Foundation)", n.d. http://www.getty.edu/foundation/funding/access/current/online_cataloging.html.

29. "Archives of American Art Graduate Research Essay Prize | Archives of American Art, Smithsonian Institution", n.d. http://www.aaa.si.edu/essay.

30. CFP: Nineteenth-Century Art Worldwide & Digital Humanities. In: H-ArtHist, Mar 3, 2012, http://arthist.net/archive/2831.

31. Several entities offer subventions to offset the costs of rights procurement for publication, but interviewees spoke of numerous instances in which their colleagues assume these costs themselves. For a fuller picture of the permissions process, see: Bielstein, Susan M. Permissions, A Survival Guide: Blunt Talk About Art as Intellectual Property. University of Chicago Press, 2006.

discipline's image-rich dissertations might remain offline because the costs to clear online image rights will be prohibitive.[32] (The alternative - to strip dissertations of their images before they go online – would diminish their usefulness to such an extent that it not seen as a viable option). Contemporary artists might receive little scholarly attention because the rights issues surrounding their works are so complex and require clearance with multiple entities (e.g., artists and/or estates, rights agencies, repositories).

Current licensing practices for online image use add a further complication. These practices restrict online image usage to specific time periods, after which the image must be relicensed for another finite period of time or removed from the digital publication. The long-term implications of this practice are ominous. If a digital publication is to maintain its integrity in the long term (by not having all its images removed when such licenses expire), one must commit to a continual and perpetual relicensing regime, which is clearly untenable for the discipline. [33]

Access

Repositories that collect art historical resources have a reputation for being strongly proprietary in the management of their holdings. This proprietary attitude is thought to derive from a repository's responsibility to steward and guard the works in its care, although many feel there are underlying economic motives as well. Repositories are often the only source of high quality images of works in their collection, so scholars have little choice but to license these images, for a fee, and under a license that imposes strict usage restrictions. With the move to online publication, repositories have become even more stringent in how they license their works, putting limits on the length of time an image can remain online, restricting its online publication to a specific size or resolution, or preventing certain image manipulation capabilities. These levels of access and control present a significant roadblock for art historical research.[34]

The access issue grows more complicated as repositories increasingly offer digital images of works in their collections. Many are claiming copyright in the digital reproduction, even when the underlying work is clearly in the public domain. Although the legality of such a claim is under debate,[35] art historians

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32. The ARL Code of Best Practice in Fair Use for Academic and Research Libraries addresses this issue in the context of institutional repositories and argues that dissertations may be placed in such repositories in their entirety, even when the repository is open access. See "Association of Research Libraries (ARL): Code of Best Practices in Fair Use for Academic and Research Libraries", January 2002, http://www.arl.org/pp/ppcopyright/codefairuse/index.shtml, pp. 23-24.

33. For a case study of the problems caused by image licensing restrictions in an online publication, see Whalen, Maureen. "What's Wrong With This Picture? An Examination of Art Historians' Attitudes About Electronic Publishing Opportunities and the Consequences of Their Continuing Love Affair with Print."Art Documentation: Bulletin of the Art Libraries Society of North America 28, no. 2 (Fall 2009): 13–22.

34. This access scenario, often conflated with copyright, it is actually a property rights situation. Frequently the images requested are of works in the public domain, so there is no copyright to be asserted.

35. For a discussion of the dubious legal nature of copyright claims in digital images, see Brown, Melissa and Kenneth Crews. "Control of Museum Art Images: The Reach and Limits of Copyright and Licensing." In Proceedings of the Annual Congress of the International Association for the Advancement of Teaching and Research in Intellectual Property, 20. Vilnius, Lithuania, 2010, pp. 6 -11 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1542070.

usually have no option but to pay the alleged copyright and reproduction fees if they want to use these digital images for their research and publication.

Signs of hope are seen in the small but growing movement among art museums to relinquish this level of control and provide open access to all the images of their works that are in the public domain.[36] Several of the mid-level staff at art history research centers expressed hope that their own institutions would follow suit, but thought it unlikely as their desires are at odds with those of senior management, who remain hesitant to surrender control.

Privacy

The move towards digital publishing presents new problems in the realm of privacy rights. Artists' papers, transcripts and audio recordings of oral histories that are commonly used in art historical research will need further vetting before they can go online. Audio-recorded interviews are particularly problematic in this regard. Their transcripts often have been "cleaned up" (e.g., controversial comments have been excised, interviewees have insisted on various changes, etc.) and thus cannot be relied upon when making a decision about what audio can be placed online. Also, additional layers of permission might need to be acquired from those interviewed, those discussed in interviews, and families and other individuals who might be concerned about the privacy rights implications inherent in these materials.

Policies for conducting work online

New questions have arisen about what constitutes proper etiquette, professional courtesy, and scholarly expectations when working on a digital publication or project in a virtual environment. How does one track and attribute a contribution made by a particular individual in a resource where many individuals are making, editing, or removing their own contributions at frequent intervals? When is it is appropriate for a contributor to edit, comment, or remove information contributed by another? What are the circumstances in which one contributor can use material contributed by another? How should contributors acknowledge the publication effort and the work of fellow contributors in offline situations such as conferences, symposia, or the classroom? If art historians are to feel comfortable working on digital publications in virtual environments, clear guidelines are needed for these and other behaviors that are unique to this arena.

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36. Among the more prominent institutions to offer open access to images of public domain works are Yale University ("YaleNews | Digital Images of Yale's Vast Cultural Collections Now Available for Free", http://news.yale.edu/2011/05/10/digital-images-yale-s-vast-cultural-collections-now-available-free); The Los Angeles County Museum of Art ("Image Library | LACMA", http://www.lacma.org/image-library); and the National Gallery of Art, Washington ("National Gallery of Art | Open Access Policy for Images of Works of Art Presumed in the Public Domain" https://images.nga.gov/en/page/openaccess.html).

F. Affiliations and Partnerships

What affiliations do art history research centers have with other organizations? Are these affiliations beneficial, particularly in supporting digital capabilities at these centers?

Art history research centers operate within a larger sphere of organizations and partnerships that contribute substantially to their activities and operations. They might have relationships with parent or affiliate organizations, external partners who provide specific digitization or educational technology services, or traditional partners who help extend a center's digital reach.

a. Parent Affiliations

Many art history research centers are part of a larger parent organization such as a museum or a university. Being a unit within a larger entity brings distinct advantages, such as financial support and access to the parent institution's resources (e.g., infrastructure, legal counsel, fund-raising staff, etc.), as well as access to key individuals (e.g., donors, collectors, funders) and to special programs (e.g., university colloquia or other events). Synergies often develop between a center and its parent, resulting in new educational or academic programs that neither partner could develop on its own. Centers also report that both they and their parent organizations are able to leverage their respective brands to great effect in attracting funding, resources, and scholars. Scholars confirm this claim, acknowledging how valuable it is for them to have seamless access to resources at both the center and at the parent organization.

But being part of a parent organization can also have its downsides. Centers have to compete for resources with other units, departments or divisions of the parent organization. They most often vie for IT resources and support, access to funds, first access to donors and other key individuals, and first rights to announce newsworthy items. In the US, centers that are part of larger federal institutions also must adhere to myriad federal regulations that are not applicable elsewhere in the private or nonprofit sector.

When a parent organization is especially large and complex, additional issues also arise. Relationships between the center and the parent can become "distant." Senior administrators become too far removed from research and thus are unaware of the needs of scholars engaged in digital research. Information technology groups become "gatekeepers" rather than "enablers," resulting in a disjuncture between IT and academic research. Important policies become misaligned and inconsistently applied across the institution. In some instances, the internal barriers created by the parent institution become so cumbersome that centers claim is it more appealing to collaborate with partners outside the institution than with units or programs within.

Centers also are exposed to certain risks when they are part of a larger organization, particularly when the relationship includes financial support. In periods of economic instability, center funding might be cut and discretionary funds (which often are used to support digitization efforts) might disappear. A

research center might be subject to reorganization and mergers that threaten the independence and scholarly value attached to a center.[37]

b. Other Partners

Traditional partners

Art history research centers traditionally partner with individuals and groups allied with their research and educational mission. Universities are frequent partners, working with centers on internships, and holding undergraduate and graduate classes and tours using center staff and facilities. There also are educational and curatorial partnerships with museums to develop exhibitions and catalogues, or to conserve collections.

A few of these partnerships use technology to facilitate collaborative activities. For example, efforts are underway in several centers to virtually "rejoin" collections that are physically located in separate cultural repositories. And some centers are using network and digital technologies to conduct conservation studies of works of art that are located in various museums around the world.[38]

Nontraditional partnerships

A few art history research centers have initiated partnerships with commercial and nonprofit entities to help expand their capabilities in areas such as mass digitization of their research holdings. One center has partnered with an educational services group[39] to facilitate an online seminar for the scholarly community on the use of an online scholarly cataloging project. Staff in several centers are exploring partnerships with digital repository services (such as ResearchSpace[40] and the HathiTrust[41]) to address the long-term sustainability of digital assets generated from their collections or their digital art history projects. Several centers with large collections also expressed interest in crowdsourcing, and one center initiated a crowdsourcing effort within a scholarly community of curators.[42]

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37. See Gayford, Martin. "Warburg Institute, Saved From Nazis, Faces Bureaucratic Threat." Bloomberg, July 20, 2010. http://www.bloomberg.com/news/2010-07-20/warburg-institute-saved-from-nazis-battles-bureaucrats-martin-gayford. html and Hamburger, Jeffrey and Anthony Grafton. "Save the Warburg Library!" The New York Review of Books, September 30, 2010. http://www.nybooks.com/articles/archives/2010/sep/30/save-warburg-library/.

38. See Nevin, Austin, Aviva Burnstock, et. al. "The Development of an Online Methodology for Interdisciplinary Collaborative Research: Investigations of Dispersed Paintings by the Master of the Fogg Pietà – Maestro Di Figline." Preprints of the ICOM-CC 16th Triennial Conference, Lisbon (2011): 8 and The National Gallery, London. "Raphael Project", n.d. http://cima.ng-london.org.uk/documentation/.

39. "Learning Times: Online Conference, Webcasts and Badge-Empowered and Online Learning." n.d. http://www.learningtimes.com/.

40. "ResearchSpace", n.d. http://www.researchspace.org/.

41. "HathiTrust", n.d. http://www.hathitrust.org/about.

42. Freer and Sackler Galleries. "Ceramics in Mainland Southeast Asia", n.d. http://seasianceramics.asia.si.edu/.

c. Digital Humanities Centers (DHCs) as Potential Partners

None of the art history research centers surveyed in this study are collaborating with DHCs on long-term projects, although several have held discussions and meetings with DHC staff to explore digital art history projects and processes. A few art historians are working on their research projects in DHCs (often under DHC fellowship programs) but they are a rarity. Compared to other humanities disciplines, art history is poorly represented in such centers.

The art historians interviewed for this study have mixed feelings about collaborating with DHCs. A minority hold contrarian views that question the very notion of collaboration or the assumption that art historians might need digital humanities tools for their research. Those who espouse these positions often acknowledge that DHCs do interesting work but they feel this work is irrelevant to the discipline of art history. Others express doubt that any real scholarship comes out of these centers, and they do not consider them a viable career alternative for serious academicians.

A slightly larger group is more favorable to the possibility of collaborating with DHCs, but they view such collaborations through the lens of a client/contractor arrangement. For these individuals, DHCs are portrayed as "the builders," the technology service that develops what the art historian requests. This view of DHCs as a "bespoke technology service" directly contrasts with how DHCs' envision themselves. One interviewee summed up the disparity as follows:

> *If a (scholar) ... thinks they are... going to give us a job specification and the technology people are going to go off and build what has been on that specification and give them results – these kinds of projects have not been very successful, particularly with regard to advancing scholarship. They tend to be limited in scope and not very well thought through... (You need) a collaboration of people who sit down to tackle the problem, to intellectually travel with the problem, not just ... think of what current technology is.*

A third group has a broader sense of how DHCs operate and are eager to explore the possibilities. However, they feel there are some stumbling blocks that make collaboration difficult, the biggest being a mismatch of sensibilities and culture. The work ethos of DHCs, with teams developing projects "in perpetual beta," is not the "art history way." Many feel DHCs are not open and inclusive, and do little to tailor their outreach to the culture of the discipline. They would like them to be more accepting of art historical methodologies and to value their expertise in visual imagery, especially the role art historians might play in visually-based digital scholarship.

None of these roadblocks are thought to be insurmountable. Many individuals believe that faculty, staff and student exchanges would help bridge the gaps and promote understanding, collaborative ideas, and skills transfer. The latter is particularly important for both parties. Art historians spoke of how DHC staff would benefit from understanding the process of art historical inquiry and from knowing how art can be used as primary documentation of an era. DHCs would like to convey how intellectual problems can be examined via a collaborative,

multidisciplinary process, and demonstrate how various technologies might facilitate an art historian's efforts in scholarly inquiry.

Art historians who are enthusiastic about collaborating with DHCs note that doing so will yield important benefits for the discipline. DHCs might provide a home base or affiliation for current digital art history projects, helping these projects grow and achieve sustainability. Their superior outreach capabilities would raise the profile of these projects, imparting a greater level of credibility for them within the discipline and further afield. DHCs also can serve as a resource for helping scholars plan and implement digital art history projects, and provide opportunities for art historians to explore technologies for historical mapping, visualization, text mining, database development and image processing and analysis. In sum, DHCs can address many of the digital resource and training gaps that exist in art history.

G. Fostering Innovation

To what extent do centers foster innovation? Where is digital innovation in art history coming from if not from the discipline's research centers?

Art history research centers foster innovation by supporting basic research in the discipline, but this sense of innovation does not extend into areas of digital research and scholarship. Staff at research centers note that the scholars who use their facilities drive their agendas, and these scholars are not pushing in more digitally innovative directions. An exception of sorts exists in the UK, where funding agencies increasingly require a digital component for the scholarly projects they support. However, this mandate is not thought to be fueling greater innovation in digital scholarship as much as it is resulting in the creation of project-specific digital products and resources such as databases or Web sites.

The majority of innovation in digital art history is said to be occurring in the supporting structures of the profession, such as libraries, museums, university presses, foundations, and specialized professional organizations (like SAH). In addition, certain subject areas within the discipline are thought to be more digitally innovative because they can take advantage of technologies developed by other disciplines. For example, scholars who study art markets, medieval architecture, sculpture, and ancient art have been able to use 3D modeling, geolocation tools, and network analysis to conduct interpretative research in their areas.

The push for greater digital innovation in the discipline is thought to be coming from younger scholars who are more adept with the digital realm and more renegade by nature. These scholars, characterized by one interviewee as "individual adventurers," are motivated by a desire to explore their research area in a new way, or by a wish to offer their students a more engaging learning experience. Some of them, frustrated by the barriers they have faced in the discipline, have stepped out

of academic art history and into alternate academic careers where they have more freedom to experiment with digital technologies.[43]

H. Foundation Sector Roles

What can the funding sector do to advance the role of digital scholarship in art history?

The funding sector holds great sway over the discipline. Art historians and those in the discipline's supporting professions strongly believe that the sector has the power to shape and alter research agendas in the profession. Their ideas for how funders can support digital scholarship range from broad strategies to specific projects, and suggest that a wide array of investment is needed over many different areas.

a. Broad Funding Strategies

Three discrete investment strategies emerged from conversations with study participants. The first makes a case for more directed funding for digital art history projects in the belief that this area is poorly resourced within the discipline. However, those looking at the bigger picture argue against what they call "one-off project funding" of this type. Instead, they suggest a strategy that targets discipline-wide problems and needs (e.g., use cases) in research, teaching, or publication that might be solved with a digital approach.

In between these two extremes is a position that calls for "rightsizing" both grants amounts and types. Proponents of this position suggest a spectrum of support that addresses the "very large" to the "very small." They agree that the "big picture" needs are critical and must be addressed, but not at the expense of smaller, independent projects were innovation most often occurs. They also emphasize that much can be accomplished with very little upfront funding, and cite efforts such as Smarthistory[44] (which received seed funding from the Samuel H. Kress Foundation) and the digital humanities startup projects (funded by the National Endowment for the Humanities Office of Digital Humanities)[45] as evidence of this fact.

Individuals who are developing digital art history projects independently of a university department or research center would like the funding sector to reconsider its assumptions about what qualifies for funding. They are particularly concerned that funders who require an institutional affiliation as a condition of funding inadvertently penalize independent projects. Moreover, they fear that by insisting on this requirement, funders are overlooking an entire area of independent innovation in the field.

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43. Although younger scholars are perceived as driving digital innovation in the discipline, many of the participants in this study who are actively developing digital art history projects are in the middle of their careers. This may reflect a bias in the selection of interviewees, or it may suggest that the question of who (age-wise) is driving digital scholarship in the field is based on perception rather than reality?

44. "Smarthistory, a Multimedia Web-book About Art: Discussing About Smarthistory", n.d. http://smarthistory.khanacademy.org/about-smarthistory.html.

45. See National Endowment for the Humanities, Office of Digital Humanities. "Digital Humanities Start-Up Grants", n.d. http://www.neh.gov/grants/guidelines/digitalhumanitiesstartup.html. The maximum award for these grants is $50,000.

b. Specific Funding Initiatives

Targeted events

Because so little community-wide discussion has taken place on the issue of digital scholarship, targeted events (symposia, conferences, discussion forums, etc.) among leaders in the profession are needed to put the topic more "front and center." These events should be structured to initiate discipline-wide dialogues that can build toward a consensus on the role of art history in the 21st century and where digital art history fits into that scenario. Formal discussions should elicit ideas on how the field might best transition to the digital world, and initiate efforts to collectively address the issue of evaluating digital projects for grant reviews, dissertation reviews, tenure and promotion. In addition, leaders in art history research centers and digital humanities centers need their own opportunities to meet and build a foundation for greater understanding that can lead to possible collaborations and partnerships.

Fellowship and other training opportunities

The discipline has an established training and research model in the form of fellowships. New fellowships devoted to digital scholarship and research would be one practical way of extending this model to support and train those who wish to work in the area of digital art history. These digital research fellows could be "embedded" in a digital humanities center to work on an art historical research project,[46] or they could partner with librarians and technologists at an art history research center to develop projects within these institutions. The former has the benefit of initiating a "two-way exchange" by introducing digital humanities staff to the work process of art historians, and art historians to the processes of digital humanities research. The latter has the benefit of promoting digital art history within art history research centers.

Additional training opportunities exist in the form of workshops and other focused, short-term seminars or "boot camps" (such as THATcamps[47]) designed to address gaps in specific areas of digital research, teaching, and publication. These types of training programs should focus on digital humanities topics but must be tailored to art historians and held at art history conferences and related venues in order to gain purchase. Support is needed to develop these training opportunities and to cover the travel and fees associated with attending them.

Promoting efforts that encourage digital scholarship

Initiatives that receive the imprimatur of a funding organization gain an enhanced level of credibility in the discipline. The funding sector needs to extend its "stamp of approval" to efforts that encourage and create an environment

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46. The American Council of Learned Societies Digital Innovation Fellowships may serve as a model for this particular type of fellowship. See: http://www.acls.org/programs/digital/.

47. "THATCamp: The Humanities and Technology Camp", http://thatcamp.org/.

supportive of digital scholarship and teaching. Encouraging such efforts as open access initiatives in the community, or best practices in digitizing, managing, and sustaining art historical assets, can raise the visibility of these efforts throughout the community.

The funding sector can also lend its support by helping to showcase digital projects that demonstrate art historical scholarship and encourage art history research centers and departments to support the digital art history projects being developed within their institutions. Finally, as the field moves forward and digital art history gains greater credibility, funders can support efforts to get digital scholarship into the mission of art history research centers, to ensure that "buy-in" occurs at the very top level of these institutions.

Studies

Additional studies are needed to clarify some of the more intractable issues affecting the discipline as it moves toward digital scholarship. Specific areas identified as worthy of more intense study are:

- Sustainability pathways for digital projects;
- Assessments to help art history research centers determine their readiness for digital projects;
- Studies that address the feasibility of developing digital art history curricula;
- Strategies for encouraging greater participation and acceptance of digital publishing;
- Strategies for encouraging deeper collaboration within the discipline and across disciplines.

Digital art history projects

Support is needed for experimental digital projects that "push the envelope" in their use of new technologies, methodologies, or areas of inquiry. Support also is needed for "proof of concept" projects or pilot programs that demonstrate the potential of digital art history and that might serve as a focal point for community discussion around the topic.

Online directories, portals, clearinghouses

There is an overwhelming need for online resources that make it easier to locate digital art history projects and scholarly digital resources for art history. Portals, clearinghouses or directories that catalogue or otherwise list these resources in a comprehensive manner would offer art historians unified access to digital products and projects in the discipline, making the discovery process less ad hoc than is currently the case.

Tool development

Two specific tools were identified as worthy of support by the nonprofit funding sector because their functionality is tightly bound to needs of the discipline. The first is the creation of ontologies for art history that will enable semantic searching in digital resources. The second is the creation of robust, virtual work environments tailored to the research needs of art historians.

c. Funder Mandates

If the funding sector wishes to advance digital scholarship in the discipline, it needs to demand more of its funding recipients. As one individual put it, "dancing to someone else's tune forces issues" and would halt the "never-ending discussions and force art history to do something."

There are several areas where more stringent requirements might serve digital scholarship in the long run. Funders could help establish the culture of openness and sharing that is critical to digital scholarship by requiring grant recipients to make their work open access, interoperable, and standards compliant when applicable. Funders also could require greater engagement with the public via social media, and greater investment in education by incorporating viable undergraduate and graduate research opportunities into their grant funded projects. To help the discipline face the long-term sustainability needs of its digital projects, grant recipients could be asked to develop sustainability plans for any project that produces a digital product or service. To ensure that project information is broadly disseminated, recipients should be required to identify the forums where they will promote the project and report on its progress. Finally, recipients should be required to establish performance measures for their projects, and be able to show evidence of meeting these measures in their reporting requirements.

While stricter specifications could help advance digital scholarship, participants cautioned that if mandates of this nature are implemented, grant recipients need help and guidance in meeting them. Those involved in digital art history projects recognize, for example, that sustainability planning is critically important, but few know where or how to begin building sustainability into their projects. Funders could provide an invaluable service to the community by commissioning studies that explore this issue and provide insights into sustainability options.

Hand in hand with this type of practical guidance, the sector also needs to provide funding for any mandates it does impose. But grant agency and foundation program officers point out that funding mandates can be problematic. As one individual explained:

> *It needs to be seen as a fair transaction that the funder is asking for. If a funder attaches strings, (such as) "We want to help you do this, but we want this to be available publicly and we want you to build in preservation" … it must put up the money. It must think very carefully about the money it puts in so that the institution can actually do what the funder requires in these mandates. But this is hard to do. Take preservation – if this is one of the*

strings attach(ed), we really don't have a ton of information on just how much
preservation costs. So how can (funders) provide appropriate funding for it?

Art history scholars and research centers look askance at unfunded mandates
and address them at the most basic level possible. These minimal efforts at
compliance undermine a mandate's purpose and its potential as a tool for change,
leaving some to believe that mandates are a good idea in theory, but can be very
difficult to implement in practice.

IV. Issues, Assessments, and Trends

New research, changing attitudes, and recent trends in art history and technology
add a contextual layer to many of the issues identified by participants in this study.
The following section explores these issues in light of these emerging activities and
perspectives.

A. The Art History Research Center and Digital Art History

The general consensus among the participants in this study is that art history
research centers should take a greater role in supporting digital art history but
should not transform themselves into full-fledged digital art history centers akin to
the digital humanities centers that exist in other disciplines. Art history's research
centers lack the infrastructure (money, staff and technology) to do so, but more
importantly, art historians value the current traditions of research in these centers
and do not want them permanently altered in a direction that does not yet have a
firm foothold in the discipline.

Instead, most participants think it more feasible to advance digital
scholarship in the discipline through relationships and collaborations with entities
such as museums, university departments, digital humanities centers or other
advanced programs that have infrastructure and experience in this area. Digital
humanities centers in particular are thought to be important potential partners,
and opportunities to establish a dialogue with these centers are highly sought.
Such dialogues will be critical for laying a foundation for collaboration, for the
two entities harbor misperceptions about the other in terms of roles, research
methodologies, and professional cultures.

But if digital art history is to take place outside of the discipline's research
centers, what is to be gained by this separation, and what might be lost? The "gain"
might be that digital art history moves ahead at a more rapid pace and in a more
cross-disciplinary context that enriches the effort. The few art historians in this
study who are engaged in research projects in DHCs certainly suggest this is the
case. They describe their work in DHCs as transformative, altering the way they
view their research, presenting them with new lines of inquiry, and reconfiguring
their "solitary enterprise as a scholar into a collective engagement."

But there is also a potential "loss" because a crucible of art historical
scholarship – the art history research center – will have less of an influence
and role in the evolution of digital art history than it does in other areas of the

discipline. The effect of this on the discipline is hard to predict. However, recent events taking place between digital humanities centers and traditional humanities research centers might shed some light on the separation and its resolution over time.

B. Reconnecting Digital Humanities and Traditional Humanities Centers: A Pathway for Digital Art History and Art History Research Centers?

Those engaged in digital art history believe that DHCs have made digital humanities a valid research area within the humanities, and could help digital art history gain similar credibility in the field of art history. However, those who work in the digital humanities are quick to point out that the move toward greater credibility in the "traditional" humanities is fairly recent and ongoing. It took its first formal turn with a recent initiative between centerNet (an international network of digital humanities centers) and the Consortium of Humanities Centers and Institutes (CHCI). Under the terms of this initiative, the two organizations will pursue joint activities that explore the relationship between digital practices and disciplinary expertise, and investigate the role of digital scholarship within and between universities and colleges, and with audiences beyond academia ("digital publics").[48]

Digital humanists note that traditional humanities research centers have long been places of innovation in their support of interdisciplinary research. DHCs are extensions of this, albeit with a digital focus and with specialized staff dedicated to assisting the humanities scholars in their digital enterprise. A DHC's contribution to the broader humanities tradition is to define how digital resources can generate new forms of scholarship and how scholars can build on existing digital resources to create new scholarship (much like the role concordances played in generating scholarship in the past.)

As DHCs proliferate and mature, the opportunities to work with traditional humanities centers grow increasingly apparent to both entities. Together they can explore the interfaces between technology and nontechnology areas of the humanities, and develop curricula that align humanities training with evolving practice. And they might discover they complement each other in previously unimagined ways. Traditional humanities centers, for example, might serve as a hub for digital humanities projects, offering neutral space that transcends DHCs' increasingly disciplinary boundaries.

There is a sense among many digital humanists that the "digital" modifier will fall away and the distinctions that now exist between digital and traditional humanities will start to blur. As one individual phrased it:

> *... at some point the notion of what counts as digital humanities should not be*

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48. "CHCI and centerNet Announce Joint Program | Scholarly Communication Institute", June 21, 2010. http://uvasci.org/2010/06/chci-and-centernet-announce-joint-program/.

considered more distinct from humanities. The example with biology is good one. For a long time computational biology was thought to be very esoteric area – few people were out trying to do that. And now it is part of biology – just another area of the discipline... We would like to move to this, all of this, (to) humanities.

Does greater collaboration between DHCs and traditional humanities centers portend a similar path for art history? It might help foster an environment that narrows the chasm between digital art history and traditional art history. For the moment however, those who participate in digital art history feel adrift: they are neither embedded in art history research centers nor in DHCs. Until digital art historians have a stronger foothold in some institutional structure, it is hard to know whether the greater meshing of digital scholarship and traditional scholarship that is taking place in the broader humanities world will eventually come to pass in the discipline of art history.

C. Pro-active Approaches to Image Access

A number of legal and social factors beset image access for art historical research and publication. Copyright, proprietary repositories, risk aversion, embargo policies, and excessively vigilant artist rights agencies and estates are some of the factors that make image access one of the most challenging, time consuming, and costly aspects of the research process. Many of these factors are governed by law and thus hard to overcome. However, others are governed by tradition, which could be changed if there were the will to do so.

One change that is deemed critical, at least in the US, is the creation of guidelines for the fair use of images in art historical research and publication. Fair use guidelines, if created by a coalition of art history organizations and legal scholars, and endorsed throughout the discipline, are seen as potentially "game changing."[49] They would give normally reticent art historians guidance on when to invoke fair use, and would encourage them to exercise this right. They also would educate artists, estates, and their representative agencies, which are widely perceived to be overly vigilant in asserting rights in situations that are clearly fair use. Moreover, the guidelines could be useful in the legal arena, where courts often consider a community's traditions when ruling on copyright disputes.

More open access policies by repositories for public domain materials also would go a long way in making the online environment more conducive to art historical publication. Repositories that exert strict control over their collections need to be convinced that their stridency hurts the profession and might harm their institutional reputation. One scholar suggested a more fruitful approach, framing the situation as follows:

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49. Similar guidelines developed by other communities are said to have had a transformational effect on these communities. See "Best Practices | Center for Social Media", 2012. http://www.centerforsocialmedia.org/fair-use/best-practices.

... the Web is awash with poor quality images and metadata of works from their (research center) collections. Given this reality, centers would do better to reposition themselves as centers of excellence, and strive to make everything available online at the highest quality levels possible. Centers who do this will quickly become known as the place for authoritative, high quality versions of their works, and people would be drawn to them for this reason, as well as for their expertise and for access to materials that they cannot legally put online.

But if repositories are to reap the benefits of being seen as the providers of authoritative content, they have to reestablish themselves in this light with savvy use and placement of quality content in the online environment.

The Rijksmuseum recently undertook a modest but far-reaching experiment in an effort to reposition itself in this manner.[50] The Museum makes high quality images of its public domain works available without restrictions on its Web site, but when these images are retrieved via search engines, they and other Museum images are "lost" amid innumerable, lesser quality images of the same works. For example, the Museum found that over 10,000 poor quality, "yellowish" versions of its Vermeer painting The Milkmaid[51] are available online. The prevalence of so many "yellow Milkmaid" images has led visitors to question the verisimilitude of the Museum's own quality reproductions. To push against this tide, the Rijksmuseum placed its high quality metadata with the reproduction of the work into various online open access channels. In the Museum's view, "opening up our data is our best defence (sic) against the 'yellow Milkmaid'."[52]

D. What is a Digital Publication?

While art historians are aware of digital publishing and its complexities, some underlying conceptual issues have yet to be considered. In particular, what constitutes publication in the digital world? Should new online forms of publication be valued equally? Are they equivalent in value to print publications?

The discipline currently views digital publication through the lens of its print precursor. However, the very notion of publication is expanding as new forms emerge online that have no print equivalent. For example, Web sites, databases, blogs, wikis, etc., are gaining inclusion within the publication rubric. While many in art history do not believe these formats to be publications in the sense they ascribe to the concept, most agree that the boundaries are being stretched. The major bibliographic citation style guides (MLA, Chicago, APA, etc.) have tacitly

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50. Verwayen, Harry, Martijn Arnoldus, and Peter B. Kaufman. "The Problem of the Yellow Milkmaid: A Business Model Perspective on Open Metadata." Europeana White Paper No. 2, November 2011. http://www.scribd.com/doc/73652620/Europeana-White-Paper-2 .

51. "Vermeer, Johannes. The Kitchen Maid. Oil on canvas, 45.5 x 41 cm, c. 1658. Rijksmuseum Amsterdam. http://www.rijksmuseum.nl/images/aria/sk/z/sk-a-2344.z.

52. Verwayen et. al. 2011, pg. 2. See also "JISC Digitisation Programme» Utopian DH Project 2: Art History Is Words Not Images." JISC Digitisation Programme, January 24, 2012, http://digitisation.jiscinvolve.org/wp/2012/01/24/utopian-dh-project-2-art-history-is-words-not-images/ for a discussion in which the Rijksmuseum strategy is considered in the broader context of metadata's value for art online images of art works.

acknowledged this expansion as well by developing citation formats for content found in new media platforms (Web sites, blogs, Tweets, wikis). They have done so in response to scholars' increasing need to reference these formats in their work.

Current digital publishing efforts in art history, innovative as they are, still convey a sense of "publication" that is embedded in conventional norms. It is easier to accept digital publications when they can be understood through a traditional publication metaphor, and to devise ways to include this type of scholarship in current evaluation systems. Assessing digital resources (such as databases) or online research projects (such as the Raphael Research Resource[53]) is less clear-cut because they depart from this metaphor. Yet when viewed from the perspective of evaluative criteria rather than publication format, the originality, research, and intellectual effort invested in digital resources or research projects often equals or exceeds that of a published monograph. In this light, it becomes harder to justify why the latter is assigned greater scholarly value than the former.

E. Evaluating and Apportioning Credit in Digital Projects

Every discipline is struggling with how to evaluate digital projects and apportion credit to the individuals who work on them. Part of the difficulty is that these projects are never "finished" in a conventional sense: they undergo many iterations as they develop and evolve. A present instantiation of a project might no longer contain visible traces of earlier work. Similarly, "under the hood" efforts that are foundational to a project often are not visible and thus cannot be easily evaluated.

Complicating this scenario is an academic culture that evaluates scholarly production by assessing individual effort. Because digital projects are collaborative endeavors where it can be hard to tease out "who did what," they have a limbo-like status in the academic community, awaiting discipline-specific guidelines for how they might be assessed in the context of dissertation review, academic promotion, tenure, or other situations that require evaluative measures.

Although participants in this study felt art history's leadership was slow to address ways to incorporate new modes of scholarly production, they were optimistic that the evaluative issues will be resolved over the next few years because the increased amount of scholarly production in digital form will force the issue. As they see it, the acceptance process is already occurring somewhat organically, as more digital scholarship is produced and works its way into the "package" of materials they are asked to review as part of tenure and promotion decisions. As one scholar said:

> *Surely someone is going ask me when I next review someone, 'please can you look at this electronic resource as well as giving us your opinion of (their other work)?'... And I can imagine writing a reference that says, 'look these are good articles, but this Web resource is extraordinary.' And I would expect a university department to give credit for it.*

53. The National Gallery, London. "Raphael Research Resource", n.d. http://cima.ng-london.org.uk/documentation/.

F. Social Media

Social media is increasingly being used as a means of scholarly communication. Through these channels, scholars engage in discussions with colleagues about methodologies, post inquiries related to their research, and pass along relevant information to their field.[54] This trend might have a transformative effect on scholarship:

> *As more scholars move more of their workflows to the public Web, we are assembling a vast registry of intellectual transactions – a web of ideas and their uses whose timeliness, speed, and precision make the traditional citation network look primitive. …. This new ecosystem promises to change not only the way we express scholarship, but the way we measure, assess, and consume it.[55]*

Art history scholars do not appear to be part of this trend, preferring instead to use email or listservs for scholarly communication rather than blogs, wikis, or other forms of social media. What are the implications of this? A vast amount of information is now available on social media platforms that is not available on Web sites or in databases. Additionally, these platforms offer broader opportunities to share research results because they reach far wider audiences.[56] What are art historians missing by not being part of the scholarly information and networking that increasing passes through these channels? What opportunities are being lost by not promoting new research, programs or other scholarly efforts in the discipline via these channels?

Encouraging the discipline to use social media forums for scholarly communication will require some convincing and handholding, as both biases and fears about the use of these communication channels remain high in the discipline. Nevertheless, there are important strategic reasons for doing so. First, these communication channels cast a broader net than email and listservs, extending the discipline's reach and impact to a larger scholarly community. More importantly, use of these channels help move the research process further into the digital arena. Art historians already conduct a portion of their work in an online environment – they routinely search through databases or Web resources for information relevant to their research inquiry at some point in their research process. Conducting scholarly communication via social media channels essentially puts another part

54. For a survey of scholarly use of social media by age and social media platform see: Gruzd, Anatoliy, M. Goertzen, and P. Mai. Survey Results Highlights: Trends in Scholarly Communication and Knowledge Dissemination In the Age of Social Media. Social Media Lab: Dalhousie University, February 1, 2012. http://www.slideshare.net/primath/survey-results-highlights-trends-in-scholarly-communication-and-knowledge-dissemination-in-the-age-of-online-social-media.

55. Priem, Jason. "As Scholars Undertake a Great Migration to Online Publishing, Altmetrics Stands to Provide an Academic Measurement of Twitter and Other Online Activity | Impact of Social Sciences." Impact of Social Science. The London School of Economics and Political Science, November 21, 2011. http://blogs.lse.ac.uk/impactofsocialsciences/2011/11/21/altmetrics-twitter/.

56. A recent experiment by humanities scholar Melissa Terras illustrates the impact of social media in the context of her own publications. Terras found that when she tweeted or blogged about certain publications, their download rate from her university's digital repository increased eleven-fold over publications she did not tweet or blog about. See Terras, Melissa. "Is Blogging and Tweeting About Research Papers Worth It? The Verdict." Melissa Terras' Blog, April 3, 2012. http://melissaterras.blogspot.com/2012/04/is-blogging-and-tweeting-about-research.html.

of their research workflow into this realm as well. In doing so, it extends the functional perception of the online world from being "a place to search" to "a place to interact." This might well be revelatory for a discipline that, as one scholar noted, still narrowly views the digital realm as just "one big research library."

G. Addressing Ambivalence

Art historians who remain ambivalent about digital art history cite an absence of convincing arguments about technology transforming research and scholarship. While they acknowledge the value of technology in identifying and delivering resources, and personally benefit from using technology in this way, they feel these capabilities simply address the mechanics of research but do not transform the nature of it. The sentiments expressed by the following scholar are characteristic of others in the discipline:

> *I wouldn't say that it allows or breaks new theoretical ground...I wouldn't say that intellectually it has led to new work.   ...I have become completely addicted to it (for searching), but I am crunching everything I find into fairly traditional art historical interpretative frameworks.*

Those who work in digital art history need to make a more convincing case about its value for research and scholarship. Claims about the transformative nature of digital art history - how it allows one to pose new questions or investigate inquiries in new ways - need to be demonstrated in a concrete fashion. Projects that pull together materials into a new online resource or tool are valuable, but many participants do not believe they make the big, convincing statements that demonstrate how "digital" can advance scholarship and result in new art historical methodologies and frameworks. They advocate instead for more interpretive projects that allow art historians to see new lines of inquiry or address research questions in new ways.

H. Increasing the Visibility and Usage of Digital Art History Projects

The creators of digital art history projects are disheartened by how little interest and use their colleagues make of these projects. Despite their efforts at showcasing them far and wide (at conference and symposia presentations, in print publicity, with online introduction and training seminars, and in demonstrations to visiting colleagues and interested parties), usage and participation is far below what is desired.

At the same time, interviewees express frustration about how difficult it is to learn about digital art history projects, and suggest an online portal to make it easier to locate them. But a portal alone might not solve the issue of connecting projects to colleagues because other issues are at play. The absence of a collaborative tradition suggests that even if digital art history projects come to their attention, art historians might not engage with them. Also, digital art history projects lack

two critical factors that strongly correlate with high-use digital projects in other professions: strong institutional support, and disciplinary acceptance of digital methods in research.[57]

While the creators of digital art history projects can do little on their own to address these larger issues, there are strategies they can employ that might have a greater impact. A study of best practices in digital humanities projects suggests that developers of these projects need to identify their target user community early in the development process and cultivate them for the long-term, seeking their insights about content, interfaces and functionality.[58] The implication is that pro-active efforts to grow a targeted community for a digital resource must be concurrent with the building of the resource. Cultivating a community in this manner might yield greater returns than the broader promotional strategies that digital art historians have undertaken to date.

Another study that examined the long-term usage of digital projects offers an interesting insight about the value of librarians in directing users to digital projects.[59] The authors note that a key role for librarians is to bring important resources to a researcher's attention. Researchers trust their librarians' judgment and will more often follow recommended links from a library or university Web site because they know they have been vetted for scholarly value and interest. Building on this finding, digital art historians might consider the role a university or research center's librarian can play in developing a strategy for repositioning their digital art history project among other frequently-used resources.

57. Warwick, C., M. Terras, I. Galina, P. Huntington, and N. Pappa. 2007. "The Master Builders: LAIRAH Research on Good Practice in the Construction of Digital Humanities Projects." Digital Humanities 2007: The 19th joint international conference of the Association for Computing in the Humanities and the Association for Literary and Linguistic Computing. University of Illinois, Urbana Champaign, pp. 242–244. http://discovery.ucl.ac.uk/4807/.

58. Ibid.

59. Warwick, C., M. Terras, P. Huntington, and N. Pappa. "If You Build It Will They Come? The LAIRAH Study: Quantifying the Use of Online Resources in the Arts and Humanities Through Statistical Analysis of User Log Data." Literary and Linguistic Computing 23, no. 1 (December 14, 2007): p. 27. The open access version of this article can be found at http://discovery.ucl.ac.uk/176758/.

V. Recommendations for Future Work

This report documents ideas, sentiments, and suggestions made by art historians - and those who work in supporting communities - about digital art history and the role of art history research centers in advancing this area. As a first-ever attempt to document community perceptions on this topic, it is intended as both a wellspring for discussion and springboard for future work.

Because art history exists within a larger world of universities, research centers, museums, libraries and other organizations, efforts to advance digital scholarship in the field need to take into account the relationships these entities have with art historians, and the roles they play in art historical research. This study identifies some of these roles and relationships, and in doing so, exposes areas where additional research is needed to better understand the status of digital art history and help chart a course for how to advance it in the field. To that end, the following recommendations are offered.

A. Digital Humanities Training

There is a dearth of digital humanities training for art historians and art history students, and a strong sense that more formal training opportunities are needed in this area. However, there is little consensus on how such training should be structured. Should it be part of the art history curriculum and if so, should it be incorporated into existing courses or developed as a separate training strand? Should the discipline leverage opportunities offered by digital humanities centers, many of whom have a training infrastructure in place? Could it rely on the many topical training opportunities (e.g., workshops, boot camps, seminars, etc.) offered by a host of different humanities or funder programs? A study that examines the existing digital humanities training landscape (both in and outside of art history), identifies models worthy of emulation, and considers how the discipline can leverage existing opportunities, would provide useful insights for those who wish to move forward on this issue.

B. New Roles for the Art Library and for Art Librarians

Like much of the library profession, art librarians and art libraries are rethinking their roles in the context of the digital age. In this study art librarians spoke of new ways they would like to support and promote greater digital engagement within the discipline. Some of these ideas include serving as intermediaries between scholars and technologists in supporting digital research, becoming a source of digital art history training, rendering digitization services, incorporating digital art and digital performance into art library collections, and taking on a greater role in curating digital collections. Unfortunately, all these aspirations are stymied by lack of funding and increasing workload demands placed on art librarians that limit their ability to develop new services. Research on changes affecting the art history library/librarian could usefully identify how

this critical support structure can best serve the cause of promoting greater digital scholarship in the discipline. A starting point for this research is a recent study by the Association of Research Libraries[60] that identifies challenges faced by other academic libraries as they re-evaluate their services in support of the digital humanities.

C. Examining Digital Art History Further Afield

For logistical reasons, the scope of this study was limited to the US and UK. However, several interviewees suggested that digital art history was perceived differently in other countries, with some countries being more receptive to certain aspects of digital scholarship than others. Comparative studies of digital scholarship in art history research centers would identify whether this is true, and if so, what might account for the different levels of receptivity.

D. Studies of Art Historians at Work

Numerous studies of work patterns and information seeking behaviors of art historians have been conducted over the last two decades,[61] but even the most recent of these studies no longer reflect the realities of art historical research. The ubiquitous use and increasing reliance on online resources, and the frequency with which materials are being made available online, has considerably altered the research landscape. Newer studies can document this change and perhaps identify how the discipline's reliance on online resources might serve as a stepping-stone for further digital engagement. Are there other segments of the research process that can take place in a digital environment and yield greater dividends for the scholar? Is there a natural progression from searching online to organizing, analyzing or publishing research online?

E. Evaluating Digital Scholarship

Current evaluation systems for tenure and promotion need to be modified to address scholarship that exists in purely digital forms. The pressure to make these modifications has generated a plethora of ideas and experimentation from across

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60. Bryson, Tim, Miriam Posner, Alain St Pierre, and Stewart Varner. Digital Humanities (SPEC Kit 326). Association of Research Libraries, November 2011. http://www.arl.org/bm~doc/spec-326-web.pdf.

61. Some of the more notable studies are: Beaudoin, Joan. "Image and Text: A Review of the Literature Concerning the Information Needs and Research Behaviors of Art Historians." Art Documentation: Journal of the Art Libraries Society of North America 24, no. 2 (Fall 2005): 34–37; Rose, Trish. "Technology's Impact on the Information Seeking Behavior of Art Historians." Art Documentation. Vol 21 #2, 2002, pp. 35-42; Bailey, Christopher, and Margaret E. Graham. "The Corpus and the Art Historian" presented at the CIHA London, London, September 3, 2000. http://www.unites.uqam.ca/AHWA/Meetings/2000.CIHA/Bailey.html; and Bakewell, Elizabeth, William O. Beeman, Carol McMichael Reese, Getty Art History Information Program, and Brown University. Institute for Research in Information and Scholarship. Object, Image, Inquiry: The Art Historian at Work : Report on a Collaborative Study by the Getty Art History Information Program (AHIP) and the Institute for Research in Information and Scholarship (IRIS), Brown University. Getty Publications, 1988.

academia, the publishing world, and the foundation sector. These efforts run the gamut from individual manifestos[62] to guidelines by professional associations,[63] to new services that fill gaps in the current system.[64] The art history community needs to review these efforts, take part in those that could benefit the discipline, and build on others where needed.

62. Pressner, Todd. "IDHMC » Evaluating Digital Scholarship", September 2011. http://idhmc.tamu.edu/commentpress/digital-scholarship/.

63. Modern Language Association. "Guidelines for Evaluating Work in Digital Humanities and Digital Media", n.d. http://www.mla.org/guidelines_evaluation_digital; The American Association for History and Computing (AAHC). "Guidelines for Evaluating Digital Media Activities in Tenure, Review and Promotion", 2006. http://theaahc.org/tenure_guidelines.htm.

64. Kolowich, Steve. "Anvil Academic Aims to Provide Platform for Digital Scholarship | Inside Higher Ed." Inside Higher Ed (February 13, 2012). http://www.insidehighered.com/news/2012/02/13/anvil-academic-aims-provide-platform-digital-scholarship.

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Appendices

A. List of Participants

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Aviva Burnstock
Head, Department of Conservation and Technology
Courtauld Institute of Art

Stephen Bury
Andrew W. Mellon Chief Librarian
Frick Collection

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Sterling and Francine Clark Art Institute

Louise Cort
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Professor of English/Director
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Director
Getty Research Institute

Marc Gotlieb
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Director of Digital Learning/Co-Founder
Museum of Modern Art/Smarthistory
(Current position: Dean of Art and History, Khan Academy)

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Getty Foundation/Case Western University

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Starr Director of Research and Academic Program
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Colum Hourihane
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Index of Christian Art, Princeton University

Christian Huemer
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Getty Research Institute

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Intranet Manager, Business Systems Analyst
National Gallery of Art, Washington

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Washington

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Austin Nevin
Mellon Conservation Fellow
Courtauld Institute of Art
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Rory O'Neill
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Getty Research Institute

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Getty Foundation

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Chair, History of Art & Design/Co-founder
Pratt Institute/Smarthistory
(Current position: Dean of Art and History, Khan Academy)

B. Discussion Topics and Questions

While the varying experiences of the interviewees required that individual questions be tailored to their circumstances and domain areas, the following questions were asked of all interviewees to garner perspectives on digital scholarship and pedagogy in art history research centers.

- How are art history research centers using new technologies? (e.g., access to online information resources, fellowships that target art historians engaged in digital scholarship)
- Do art history research centers envision a role for themselves in producing art historians engaged in digital scholarship or teaching? If so, how are they addressing this role? (E.g., via fellowships, teaching, tool development, mentoring, etc.)
- Does the discipline of art history need research centers to be digitally engaged in a pro-active manner to move the field forward in both research methodologies and areas of inquiry? Is this role better filled by other kinds of digital humanities centers that will complement the work of the art history research center?
- What new tools are needed to facilitate art research, scholarship and teaching?
- What are the key barriers to deploying digital capabilities in art history research centers?
- How might art history research centers work with other digital humanities centers (such as those that exist in classics, languages, history, etc.)?
- What can the foundation sector do to advance the role of digital scholarship in art history?

Additional Areas of Inquiry for Site Visits

- **Access to Digital Resources**
  To what extent do centers currently offer access to (or engage in producing) digital resources comparable to their traditional research libraries, photo archives etc.? Do they support use of such resources? How?
- **Fostering Innovation**
  To what extent do centers foster innovation in general? Do they welcome and encourage innovators and innovation today? Is this changing under the impress of digital technologies?
- **Openness to Digital Art History**
  To what extent do centers attract, welcome, or foster digitally engaged art historians? Do centers envision or encourage the emergence of new types of art historians and new ways of producing and disseminating art historical scholarship? Do they envision a role for themselves in producing digitally engaged art historians?

- **Digital Services**
  To what extent do centers envision a role for themselves in developing digital tools, services, or infrastructure for art history?
- **Digitization of Art Historical Resources**
  Do centers with significant collections of information resources (e.g., libraries, photo archives, archives) seek to produce digital versions of these collections?
- **Digital Publishing and Policy**
  Are centers engaging with new modes of art history publishing and related policy issues (such as intellectual property issues)?
- **Institutional Affiliations**
  Do centers that are affiliated with universities or museums have advantages over those who are "standalone" entities?
- **Receptivity to Non-traditional Partners**
  Do centers display a readiness to engage new audiences (museums, teachers, and students) and new collaborators (archivists, librarians, and information technology professionals) in digitally-based activities?
- **Digital Pedagogy**
  Are centers involved in digital pedagogy? Do they offer digital art history or humanities training (in the form of workshops, courses, academic degree programs, postgraduate or faculty training, fellowships/internships?)?
- **Partnering with Digital Humanities Centers**
  Are centers collaborating with other digital humanities centers on art history research projects?   What particular expertise are they seeking from these centers (e.g., technology infrastructure, topical expertise, technology-savvy graduate students)?
- **Digitally-based Partnerships and Projects**
  Are centers collaborating with individuals in other disciplines via technological means? To what extent are they collaborating with these individuals on digital projects?

C. Digital Art History Projects

The following projects were reviewed as background for this study.

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Vincent Van Gogh - The Letters, n.d. Huygens Institute for the History of the Netherlands/, Van Gogh Museum, and Royal Netherlands Academy of Arts and Sciences. http://vangoghletters.org/vg/.