# Charting the Digital Landscape of the Conservation Profession

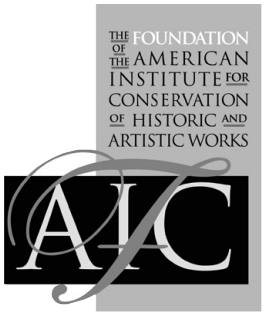
## A Report to the Profession


A project of the
Foundation of the American Institute for
Conservation of Historic and Artistic Works

Diane M. Zorich, Project Director,
Cultural Heritage Consultant

This research was funded by grants from The Andrew W. Mellon Foundation, Getty Foundation, and Samuel H. Kress Foundation.



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# Executive Summary

The Foundation of the American Institute for Conservation of Historic and Artistic Works (FAIC) promotes the advancement of expert knowledge of materials and technologies to conserve and preserve global cultural heritage. Its investments in research, education, and knowledge-sharing programs help position the field to address its current and future needs.

Despite its broad experience and reach, FAIC has found it difficult to identify the investments needed to support the use of information technology in the discipline. Conservation's digital landscape — the digital information, technologies, support infrastructures and behaviors that conservation professionals rely on to conduct their work — is complicated, the field's capacity to harness the potential of this environment is poorly understood.

In 2014, FAIC began an effort to address this problem. With support from The Andrew W. Mellon Foundation, Getty Foundation, and Samuel H. Kress Foundation, the organization conducted a yearlong series of activities (research, a community survey, discussion forums, interviews, and an analysis of online resources) to map the digital landscape as it exists today, and to identify strategic investments in the environment that will serve the community and help it flourish as a profession.

To that end, FAIC enlisted the aid of hundreds of conservation and allied professionals to identify:

- How those in the profession create, use, share, analyze, and manage digital resources for their work
- The problems they encounter in these activities
- Their perspectives on why these problems exist
- Their ideas on how these challenges can be met (or overcome) and the opportunities exploited

This community input was used to identify the high-level issues that account for the current state of conservation's digital landscape, and to outline the challenges that must be overcome to make this landscape more serviceable for the profession. Key issues emerged in six distinct areas:

## Leadership

The field lacks coordinated leadership to envision, propose, track, and support digital initiatives across the profession. Without this leadership, the digital landscape of the profession will continue to develop in a scatter-shot fashion, and the inability to identify and make sense of the abundance of online resources will continue to plague the field.

## The Visibility of the Profession

Conservation professionals tend to have a low profile in cultural heritage institutions and with the public. Forum attendees noted that there are senior administrators in cultural institutions who do not recognize the value that conservation brings to their institutional mission, and fail to include conservators in leadership teams where they could bring that value to the fore. This situation may be one of the reasons why the digital needs of conservation have been a lower priority than in

other areas in an institution. Yet, conservators have an unparalleled opportunity to capitalize on the recent outward-looking direction in cultural heritage institutions and can increase their profile both within institutions and with the public. By understanding and advocating for the mission-critical nature of their work, they can improve senior administrators' understanding of the role of conservation in their organizations.

## The State of the Field's Digital Content

Conservation's knowledge base is steeped in an "information amalgam" of complicated, cumulative, and unstructured data that is hard to access in a digital environment. Despite recent efforts to develop digital tools, the field lacks the information infrastructures (e.g., standards, workflows, systems, repositories, etc.) necessary to adequately use, share, and preserve its information online.

## Resources

Cultural institutions often underestimate or minimize the information and technology needs of conservators, failing to incorporate conservation departments into institution-wide strategies for IT. The field is also adversely affected by recent changes in funder strategies that have reduced support in the digital sphere. New models of resource building that could fund and sustain digital efforts are absent from the profession.

## Policies

The conservation community's policies and practices are outdated and do not address digital issues that now are routinely encountered by conservation professionals. Policies about transparency, collaboration, and sharing of digital resources — which are necessary for effective use of the online environment — are too-frequently viewed with apprehension by the community. Yet, addressing these policies is critical if forward-looking change is to occur.

## Training

Conservation professionals create large numbers of digital resources, but many lack the skills needed to effectively use, manipulate, and engage with these resources in the digital realm. Digital competencies for the profession have not been established, and current methods of professional training and professional development are inadequate for initial digital skills acquisition and continuing education in this arena.

The report addresses the challenges and opportunities in each of these areas in more detail, and offers short-, mid-, and long-term recommendations to help address them. Incorporated into the report are additional perspectives provided by professionals who responded, over a month-long "open comment" period, to a copy of the draft report posted online. The recommendations suggest a way forward that will lead to greater efficiencies, more reliable knowledge bases, and increased cooperation and collaboration within the profession and with its allied communities. Implementing these recommendations will require effort at all levels of the profession, but will result in a more functional, robust, and thriving digital landscape for the field.

# Foreword

The Foundation of the American Institute for Conservation of Historic and Artistic Works (FAIC) elevates the vital role of cultural heritage conservation by applying its expertise to urgent global preservation initiatives while empowering conservation professionals, motivating collecting institutions, and engaging the public.

Digital resources are a key element within FAIC's mission. Its 2013-2015 Strategic Plan set goals to strengthen the organization through increased outreach and communications; advance the conservation profession; and provide information resources (with particular focus on transforming CoOL). Its new 2016-2018 plan has incorporated recommendations from this report into its strategies for advancing the profession and providing information resources. AIC and FAIC have developed and assumed responsibility for an increasing number of digital resources in recent years, most notably Conservation OnLine (CoOL), the ConsDistList, Connecting to Collections Care, Conservation Wiki, and Conservators Converse. These resources provide crucial resources for those charged with caring for collections in the United States as well as around the world. At the same time, maintaining, updating, and growing these resources has become an increasingly large burden.

Of course, creating, identifying, and managing digital resources are challenges shared by the entire conservation community. As this report demonstrates, digital resources are central to most of the tasks that conservation professionals undertake, from researching methods of manufacture to sharing their work with colleagues and the public.

This study allowed FAIC to take a broad look at the digital resources connected to conservation, draw on the collective experiences and knowledge of experts within and outside of conservation, and map out specific steps that can be taken to meet many of the needs identified. Although many of the recommendations begin with "FAIC should…" or "AIC should…," it is clear that there are many stakeholders in this work, and we look forward to partnering with an array of organizations and individuals to develop a digital landscape for the conservation profession that is effective, efficient, and sustainable.

We are grateful to The Andrew W. Mellon Foundation, Getty Foundation, and Samuel H. Kress Foundation for their support and involvement. Our deepest thanks must also go to the many individuals who contributed their time, knowledge, and voices to this study. Special thanks go to the Advisory Committee members and to Diane Zorich for her creative and patient leadership.

*—Eryl Wentworth, Executive Director, AIC and FAIC*

# Introduction

The Foundation of the American Institute for Conservation of Historic and Artistic Works (FAIC) promotes the advancement of expert knowledge of materials and technologies to conserve and preserve global cultural heritage. It invests in research, education, and knowledge-sharing programs[1] that help the field address present and future needs. While FAIC's breadth and experience encompasses a wide range of conservation issues, the organization has found it challenging to identify the investments needed to support information technology use in the profession because the field's capacity to harness the potential of these technologies is poorly understood.

Earlier efforts to explore this potential focused on the digitization and management of conservation documentation and how conservation information might be included in the public record.[2] These areas continue to be debated today, but a new concern has emerged that alters the nature of these early discussions: the access to an abundance of online material. What can be done to assist conservation professionals in locating, filtering, and integrating these disparate materials? How can the reliability and authenticity of these materials be determined? What can be done to ensure the best use of them in day-to-day activities, and to maximize their effectiveness to support the growth and development of the discipline?

The labyrinthine nature of the online environment is a source of continuing frustration to many conservators, who have come to rely on this environment for information critical to their work. This frustration overlaps with concerns about the substantial amount of conservation information that remains offline in local systems, where its use and long-term preservation status are uncertain. In truth, the operational environment for conservation information is a scattered one. Conservation professionals must navigate more resources, located in more environments, than ever before.

> *'What do I do in the digital landscape? I make stuff. I find stuff. I use and organize what I make and find. I share what I've learned.'*
>
> —Nancie Ravenel,
> Shelburne Museum
> Digital Landscape Forum #1,
> San Francisco, 2014

Adding to this situation is the lack of a shared understanding of how conservators work with digital content and resources. What digital tools and resources are conservation professionals using and creating? Who are the audiences for their digitally generated content, and how is it being delivered to these groups? What kinds of digital tools and platforms does the conservation community need to support the profession? Can existing tools and platforms be used or adapted?

1 See http://www.conservation-us.org/foundation.

2 Rudenstine, Angelica Z. and Timothy P. Whalen. "Conservation Documentation in Digital Form: A Dialogue about the Issues." Conservation Perspectives, The GCI Newsletter. The Getty Conservation Institute, Summer 2006. http://www.getty.edu/conservation/publications_resources/newsletters/21_2/news_in_cons.html; and Roy, Ashok, Susan Foister, and Angelica Rudenstine. "Conservation Documentation in Digital Form: A Continuing Dialogue About the Issues." Studies in Conservation 52 (2007): 315–17. http://conservationspace.org/Community_Design/Entries/2009/3/13_London_Meeting_-_Ken_hamma_files/Conservation%20Documentation%20in%20Digital%20Form%20A%20Continuing%20Dialogue%20about%20the%20Issues.pdf

In 2014, FAIC began exploring these questions in more depth. With the support of The Andrew W. Mellon Foundation, Getty Foundation and Samuel H. Kress Foundation, FAIC conducted a yearlong series of information-gathering activities designed to discover the contours of conservation's "digital landscape."

## Project Goals and Objectives

In the context of this project, "digital landscape" refers to the digital information, technologies, support infrastructures, and behaviors that conservation professionals rely on to conduct their work. The project goal was to better understand this landscape so that future efforts to build on it can be undertaken with a more informed understanding. To that end, FAIC enlisted the aid of hundreds of conservation and allied professionals to identify:

- How they create, use, and manage digital resources for their work
- The problems they encounter in these activities
- Their perspectives on why these problems exist
- Their ideas on how these problems might be overcome

The objective of this undertaking was to cull from these insights the high-level issues that account for the current state of conservation's digital landscape, and to outline the challenges that must be overcome to make this environment more serviceable to the profession.

## Report Structure

This report documents the project's findings and recommendations, and provides a strategic context for further digital efforts in the field. The core of the report focuses on six key areas that affect the community's digital landscape. Each area is addressed in its own section, where the issues are laid out for that area, and recommendations are offered that address those issues. Recommendations are tagged with a relative assessment of when they should be implemented: i.e., "short-term" recommendations should begin within the next six months; "mid-term" within one year; and "long-term" within two years.

Embedding the recommendations within each section is necessary for context, but it does make it difficult to keep track of all the recommendations and their relative timeframe for implementation. To address this issue, a summary list of all recommendations by timeframe may be found in Appendix A of this report.

Readers will note that many of the report's recommendations issue a call for action by FAIC and its partner organization, the American Institute for Conservation (AIC). Both organizations are committed to improving the digital landscape of the profession and taking a leadership role in this effort. However, the very scale and scope of these issues demand community solutions. FAIC/AIC can only take the lead with support from other leadership organizations in the community, both in North America and abroad, and with individual conservators who will join in the work effort. All conservation organizations and conservation professionals are encouraged to move forward on the

recommendations noted here, and incorporate them into their plans and activities.

A final section addresses the future of Conservation OnLine (CoOL), an iconic resource in the profession that has suffered in recent years from inadequate support. While CoOL is not the focus of this project, discussions about its status and future arose so often in project discussions that it is addressed here as an addendum to the report.

# Project Methodology

The project's design, implementation, and oversight were undertaken by FAIC and AIC staff, a project director and assistant, and an advisory committee.[3] Information reported here was derived from a community survey, a baseline review of online resources, interviews with international experts and special projects personnel, and community forums. These activities were designed to gather data and insights about digital integration in the field,[4] and each is summarized below.

## Community Survey

In May of 2014, FAIC conducted a survey to explore how conservation professionals are using digital resources, what limitations they face in doing so, and what additional digital tools and resources they need.[5] More than 750 professionals completed the survey. Their responses suggest that conservation professionals use a variety of online resources for their work.

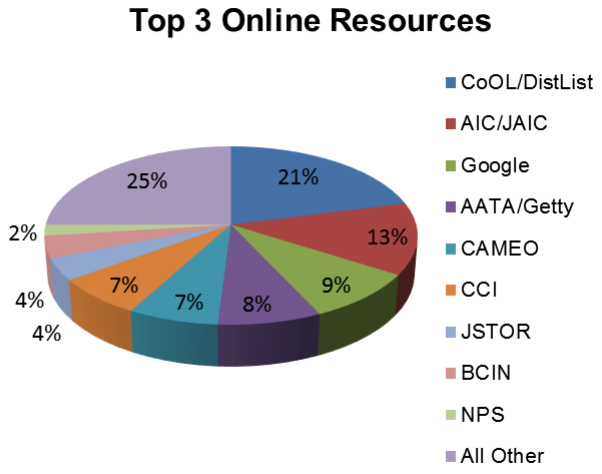


Figure 1.

Google is a prominent tool used to locate resources, but the most frequently queried sites are those developed specifically for the conservation profession or those created by allied professions (e.g., National Park Service) and information aggregators (e.g., JSTOR) (see Figure 1.) The most popular topics of search queries are suppliers, the deterioration of materials, the history/manufacture of objects, and conservation treatments (including procedures and case studies, for example). The most frequent problems associated with online resources are an inability to find information specific to a particular query, out-of-date information, unreliable information, and the amount of time it

3 Project team members are Eryl Wentworth (Executive Director, AIC/FAIC), Eric Pourchot (Institutional Advancement Director, FAIC), Bonnie Naugle (Communications Director, AIC), Diane Zorich (Consultant and Project Director), and Ayesha Fuentes, (Independent Conservator, Project Assistant). Advisory Committee members are Kenneth Hamma (Independent Consultant, Advisor to The Andrew W. Mellon Foundation), Pamela Hatchfield (Head of Objects Conservation, Museum of Fine Arts, Boston), Nancie Ravenel (Objects Conservator, Shelburne Museum), and Koven Smith (Director of Digital Adaptation, Blanton Museum of Art)

4 General information, notes, presentations, and reports associated with this project can be found at www.conservation-us.org/digital_landscape.

5 For the full report, see Charting the Digital Landscape of Conservation, Survey Results. August 2014. http://www.conservation-us.org/docs/default-source/reports/the-digital-landscape-of-conservation-survey-report.pdf?sfvrsn=0

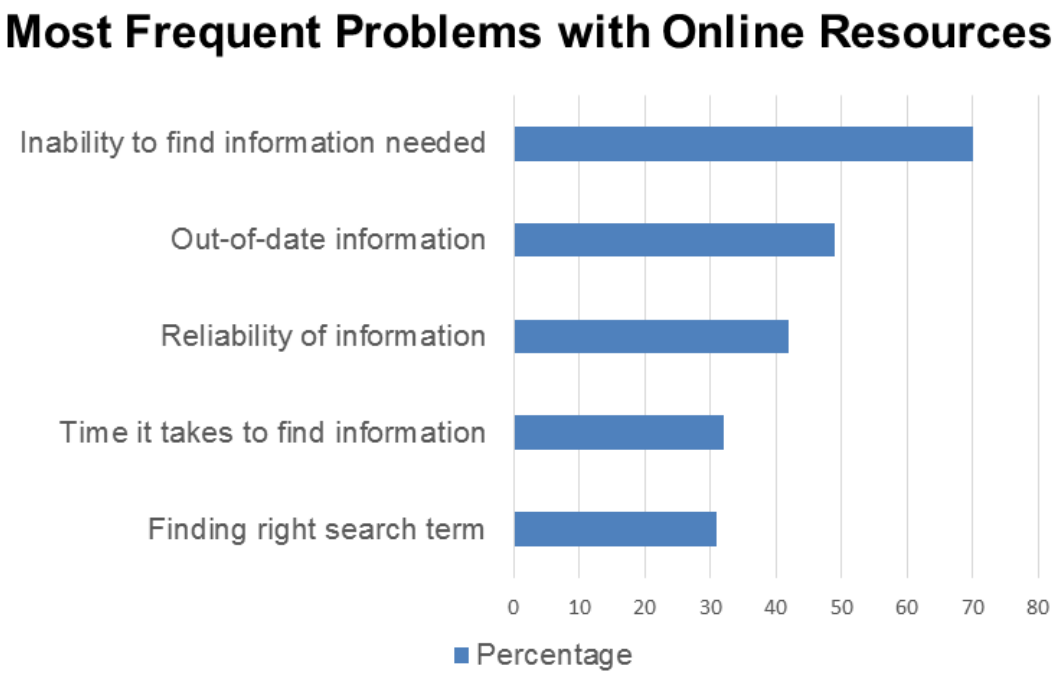


Figure 2.

takes to find and assess the reliability of relevant information (See Figure 2).

Nearly two-thirds of survey respondents routinely create digital documents and images, but many also create content on social media platforms and websites. Inadequate time and staffing are cited as the major factors affecting the ability to create and maintain digital resources. These factors might account for other concerns expressed in the survey, such as an inability to keep resources current, and a lack of procedures (in place, or being followed) for preserving the digital assets created by conservation professionals. Inadequate digital skills and training were also cited as key factors that hinder digital resource creation.

Survey respondents felt the digital landscape would be more useful if there were: better indexing of information within existing resources; repositories for research findings and data sets, and for conservation treatment records; archives of past conservation practices; and clear identification of trustworthy information (See Figure 3). Broader issues that inhibit the creation, quality, and sharing of information include intellectual property policies, institutional IT policies, and inadequate support for developing and maintaining digital resources.

The audience for conservation information was not addressed in the survey but the topic did arise in questions about resource creation. Digital resources such as documents, reference databases, and images are being created or maintained for personal, organizational or professional use, but not for public consultation and use. However, the general public was singled out as a common audience for social media, websites, and video/audio resources.

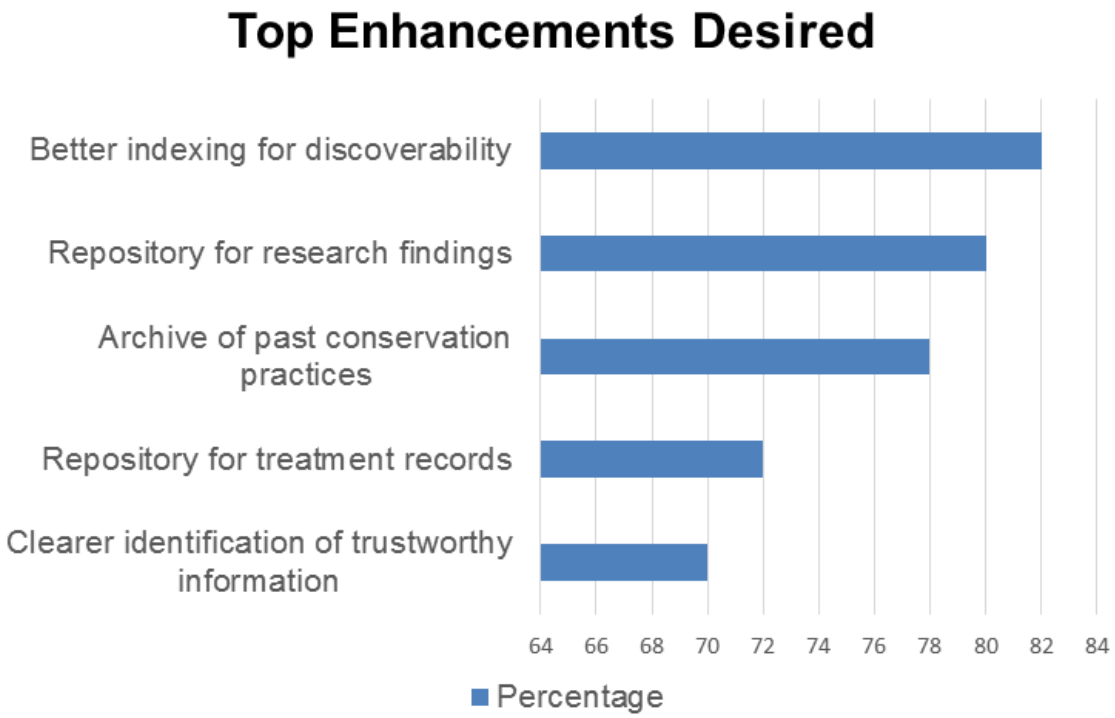


Figure 3.

## Baseline Review of Online Resources

To better understand the extent and breadth of online resources used by conservators, a sample of approximately 500 online resources was reviewed and each resource in the sample was categorized by function. These resources vary in scope from large, encyclopedic sites like CoOL, to specialized documents serving niche audiences. They span multiple formats (e.g., text, audio, video, images, databases) and are found on widely variable platforms (e.g., YouTube, Facebook, Wikipedia). Their primary audiences include conservators and professionals allied with the field (e.g., chemists, forensic scientists, trade/craftsmen) as well as institutional staff from museums, libraries, and heritage groups. A large number of resources, especially those developed by vendors, independent conservators, and preservationists, serve conservation professionals and the general public.

The creators of these resources are as diverse as the audiences they serve, and are as likely to come from the commercial sector as they are from the nonprofit world. Some of the creators of these resources, and the types of resources they create, are:

- Artists (information on their work)
- Scientists (results of their experiments on light, paint, climate, etc.)
- Software developers (information on instrumentation use)
- Museum conservation departments (treatments and preservation)
- University departments/laboratories (treatments, lab results, experimentation)
- Government offices and non-governmental agencies (NGOs) (training resources and guidelines, and emergency response measures)

- Funders and grant agencies (funding opportunities, findings generated by funding recipients such as white papers, preservation guidelines, assessment tools)
- Manufacturing and services sector (trade literature information)

Despite the abundance and variety of online materials, there are a number of resources that are missing from the online environment. Many journals and articles that provide important technical and preventive care information for professionals remain undigitized. Also missing are online archives and repositories for older conservation records (especially critical for conservators in private practice), and public interaction and engagement activities that are used successfully in other professions (e.g., crowdsourcing). Pay-walled resources such as scientific journals and databases, while online, are effectively nonexistent for those in the profession who cannot afford the access fees, especially private practitioners.

## Interviews

Six phone/Skype interviews were conducted with 10 individuals (see Appendix B) during the course of the project to get international perspectives and to explore projects that came to the project team's attention. A list of discussion questions was developed for the international interviews, but interviews with project leaders were more informal and narrowly focused on the projects being discussed. Interviewees' comments were anonymized and incorporated into general notes that fed into the project's findings.

## Forums

Conservation professionals and representatives from allied communities met in three different forums to define the community's current digital environment and discuss how it might be shaped to support future endeavors. To elicit a wide array of insights and issues, each forum had a different purpose, structure, and group of participants. The latter were selected by the project team using criteria such as domain experience and the ability to do "big picture" thinking. All forum discussions were conceptual and strategic rather than technical, with outcomes that informed the project team as it moved through the various phases of the project. A fourth and final forum served as a wrap up meeting for the project team and advisory committee.

- Forum 1 — San Francisco, May 31, 2014

  This first forum took place at the AIC annual meeting and served as the official project "launch." Four experts provided context for the project with presentations that included a project overview and preliminary review of the survey findings; a history of digitization efforts in the field, what they reveal, and possible ways forward; a demonstration of one conservator's experience with online information and digital resources in her daily work; and a case study from outside the community on data sharing, collaboration, and lessons for the conservation community. The open discussion that followed these presentations identified concerns about privacy and preservation issues, the information needs of conservators in private practice, and community support of online resources. The forum was open to all conference attendees.

- Forum 2 — Weismann Preservation Center, Harvard University Library, Cambridge, MA, September 11-12, 2014

  This forum was held over two days and was structured as a series of large and small group discussions. The first day's discussions focused on current digital resource issues and the limitations they put on the profession. On the second day, attendees were asked to identify the outcomes that might be possible if known limitations were removed, and to think about strategic ways the profession could move towards these outcomes. The 25 participants represented conservation and allied professionals from museums, libraries, and historic sites, conservators in private practice, funders, and administrators.

- Forum 3 — Dallas Museum of Art, Dallas, TX, December 4-5, 2014

  The discussions in this two-day forum were structured around a series of case studies, followed by commentary from representatives in allied communities. Forum participants also identified practical steps (grassroots efforts and "low-hanging fruit" projects) the community could take to build capacity that leads to greater digital integration in the profession. The 28 participants included museum conservators, conservation fellows, independent conservators, senior administrators, university faculty, funders, and representatives from the library, computer science, and preservation services communities.

- Forum 4 — Washington, DC, February 19, 2015

  The final forum was a project "wrap-up" meeting, attended by the core project team and advisory committee. The group reviewed project outputs to identify key findings from the project activities, identified gaps that were not addressed in previous project discussions, suggested possible "next steps" and recommendations, and outlined a structure for the final project report.

# Characteristics of the Profession

The digital needs of the conservation profession arise from a set of characteristics that are specific to the discipline. These characteristics are summarized here because they frame other findings and recommendations in this report.

### Conservation encompasses a complex intersection of interests that is unique in the cultural heritage community

Conservation has a distinctive role in the cultural heritage community because it relies on a large, diverse network of allied professionals who contribute to its efforts. In the course of daily activities, conservation professionals might work with groups as varied as artists, archaeologists, materials scientists, chemists, construction workers, curators, collectors, digital imaging professionals, craftsmen, physicists, security personnel, and more.

### Conservators have diverse skill sets and backgrounds

Practitioners might have studied or trained in areas as varied as art history, archaeology, chemistry, decorative arts, photography, restoration, imaging technologies, and more. Because of this diverse training, the specific digital skill sets needed to support each conservation professional will differ according to need.

### Conservation has wide-ranging audiences

The field's traditional audiences include corporate entities (such as cultural institutions, auction houses, or insurance companies) and collective groups of individuals (such as families, private collectors, art historians, artists, or archaeologists.) New constituencies are emerging in computer science/data science departments that have expressed interest in conservation research datasets. The general public, previously characterized as a secondary audience, is fast becoming important to the profession, as attested by the increasing number of conservation blogs, websites, and social media platforms being created or used by conservators to convey information about their work, and growing efforts to expand public appreciation of the importance of the field.

### Conservation professionals work in diverse environments

Conservation professionals may work in organizations (such as museums, archives, libraries, or research centers), in field situations (such as historic or archaeological sites) or in home offices and studios. These work environments dictate different information environments.

## Findings: What is the Existing Digital Landscape and What are its Problems?

The conservation community's digital landscape has developed opportunistically, as technologies aligned with professional needs. As this landscape expanded, its potential for enhanced collaboration and communication became apparent, but few attempts have been made to explore how it might be used to address discipline-wide problems and processes. Today, the landscape continues to be dominated by individual and local initiatives rather than collective efforts that might serve the entire profession.

Over the course of this project, a number of factors were found to have a pivotal role in shaping the current digital landscape. These factors fall into the following categories:

- Leadership
- The visibility of the profession
- The state of the field's digital content
- Resources
- Policies
- Training and professional development

The issues that play out in each category, and recommendations on how to address them, are explored below.

# Leadership

The field is served by many professional organizations and leading institutions, both in North America and abroad, whose work helps promote and sustain conservation as a thriving discipline. However, there is no coordinated effort among these groups to identify or leverage activities taking place in the digital landscape that might have field-wide implications.[6] Nor are there any joint efforts underway that consider other digital initiatives and related work (e.g., data standards, preservation, building digital capacity) needed to make the digital landscape more functional. Conservators cite many important programs and projects taking place in the broader digital sphere that could be important for the field, but no one is taking a holistic view of these activities, or looking at the "big picture" to present a vision of what is needed to bring the current digital landscape more in line with the discipline's needs.

In the absence of clear guidance and leadership, conservation professionals struggle to find ways to navigate the evolving digital landscape on their own. The result is countless numbers of local solutions to community-wide problems, unnecessary and redundant expenditures of time and money, and a proliferation of digital assets that cannot be readily shared. Coordinated leadership efforts among professional organizations and leading institutions, here and abroad, are needed to guide and collectively move the field forward in the digital arena.

## *Recommendations*

### Leadership Forum (Short-term)

As a follow up to the May 7, 2015, leadership forum at the Smithsonian American Art Museum,[7] AIC should convene a forum of representatives from leading organizations in the conservation community to discuss:

- Changes in the field's leadership environment over the last decade
- The impact these changes have had on the profession
- Ways to coordinate leadership that will lead to positive changes in the digital landscape

### Digital Strategies Advocate (Short-term)

FAIC should seek funds for a new position — a Digital Strategies Advocate — who would identify and drive coordinated digital strategies across the community. This individual would serve as the central liaison for FAIC on digital initiatives in the profession and in allied communities. He/she would track advances in the field's digital landscape, identify and help build collaborations in that landscape, and be responsible for promoting training and outreach for digital initiatives across the community. Funding should be sought to support the position for at least five years, at which time FAIC can reassess the position, the landscape, and the strategies needed to move it forward.

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6 See ConservationSpace http://www.conservationspace.org/Home.html; Lauren Robinson et al., April 6, 2015 "Conservation module in database". [Online Forum Comment thread] MCN_L, Retrieved from http://mcn.edu/pipermail/mcn-l/2015-April/007940.html; and Integrating Data for Conservation Science, The Getty Conservation Institute. http://www.getty.edu/conservation/our_projects/science/integrating_data/related.html for some examples of interesting digital efforts underway in the field.

7 Leadership Forum, Smithsonian American Art Museum, Washington, DC, May 7, 2015.

**Funders Summit (Mid-term)**
FAIC should convene a meeting of the field's leading funders to report on leadership forum discussions, explain FAIC/AIC's plans to help drive the transformation needed in conservation's digital landscape, and solicit the funders' thoughts and readiness to support these plans.

## Increasing the Visibility of the Profession

> *'Conservation has to break away from its guild tradition.'*
>
> —Forum #1 participant

Many conservators who participated in this study expressed concerns about the visibility of the profession to the public and within the cultural heritage community. In some cultural organizations, conservation departments and labs are perceived as service fulfillment centers, a perception that diminishes their strategic role and value in an organization. This marginal role often means conservation projects and programs are among the first to be cut in times of fiscal uncertainty.

The role of conservation professionals within institutions also contributes to the problem. Conservators are not always included on senior administrative teams, so their perspectives and expertise cannot be demonstrated more broadly among their institutional colleagues. And unlike other professions, their contributions to advancements in the field — as demonstrated through research, publication, presentations and teaching — are not always considered in hiring or promotion decisions (with the notable exception of many university-based positions).

Conservation information often receives scant attention from senior administrators, and the value this information brings to an organization's mission, programs, and activities is largely ignored. This omission has an impact on the discipline's digital environment. Large, institutional digitization and technology infrastructure projects often exclude conservation departments because their information is not thought to be integral to an organization's activities. Historically, information systems developed for museums and similar cultural institutions have addressed conservation activity and documentation in cursory ways. As a result, numerous ad-hoc record-keeping systems have emerged to address conservation data.

> *'Embrace the field's history and its critical importance… You may think of your records as simply your own files, but as a community you hold here the documentation of the physical existence of works, of buildings and sites, that is as much a record of human creativity and human interest in the natural world as that produced by any other field of research.'*
>
> —Ken Hamma, Independent Consultant
> Digital Landscape Forum #1, San Francisco, 2014

Conservators participating in the forums acknowledged that they bear some blame for this state of affairs. Collectively, they have not made a convincing case for the value of their work in the context of their local institutions. Few conservators seek leadership opportunities, and leadership training in the profession is rare. Conservation professionals tend to be hesitant to share information and slow

to communicate their activities to the public. They do not enter into broader discussions in the cultural sector, and frequently are unaware of projects within their own profession that might have a disciplinary impact. They do not participate often enough in cross-sector meetings, public presentations, and other platforms where their values could be conveyed. For a profession that is so expansive in seeking information, conservators are often insular when representing their own needs.

Conservation's low profile in the professional sector extends into the public sphere, where the discipline is frequently confused with environmental conservation. However, an increase in websites that document conservation activities suggests the field's public visibility may be growing. These online efforts, which often present conservation activities in the context of a compelling story,[8] have generated substantial public interest and demonstrate great potential for extending the reach of the profession.

## *Recommendations*

### Outreach Efforts (Short-term)

*Travel Funds to Promote Attendance at Cross-disciplinary Meetings and Events*

To encourage cross-pollination of ideas and information, funds are needed to allow conservation professionals and allied professionals to travel to one another's meetings and events. AIC and FAIC should review their own meeting funds programs, and consider additional support of cross-disciplinary travel of this nature.

*Showcase Digital Activities*

To encourage public-facing conservation activities and promote a more digital culture within the profession, digital work should be acknowledged at special events with awards and other forms of recognition (e.g., "Best Public Conservation Website"). Professional organizations should feature the work of their constituencies through promotions that highlight new digital work in the field (e.g., "Top Five" Conservation Training Videos of the Year; "Blog Post of the Month"). These efforts can increase visibility at very low cost.

*Improve Digital Infrastructure at the AIC Annual Meeting*

The AIC annual conference is a major event that highlights research and activities in the profession. The inability to share this event — in real time, over global networks — is a missed opportunity to showcase conservation on a world stage. AIC needs to incorporate more digital capabilities — particularly WiFi — into the infrastructure of its annual meeting to bring greater attention to the profession during this event. AIC, collaborating with FAIC if needed, should approach the community's vendors and discuss ways they might offset costs so that a more robust technology infrastructure at the annual meeting is possible.

8 See "Inside the Box: Massachusetts State House Time Capsule Revealed." Museum of Fine Arts, Boston. http://www.mfa.org/exhibitions/inside-the-box-massachusetts-state-house-time-capsule?gclid=CLWs2Z-358QCFerm7AodiUYAiA; "After the Fall: The Conservation of Tullio Lombardo's "Adam"." Metropolitan Museum of Art https://www.youtube.com/watch?v=3oznnP6SkSc. and Conservation Reel (a site which collects and promotes conservation videos.) http://www.conservationreel.org/.

### Establish Closer Relationships with Allied Groups (Mid-term)

Many allied organizations and professions have expertise in the digital arena that the conservation community needs. For example, the membership base of the Museum Computer Network and the American Alliance of Museum's Media and Technology Group have a deep understanding of technology, but little insight into the conservation community and its specific technology issues. Greater interaction between these groups would be of mutual benefit. Library and archive groups, such as the Association of Research Libraries, could also provide guidance.

As a key organization representing the profession, AIC is best-positioned to contact these groups and formalize a relationship with them on behalf of the conservation community. The formality of these relationships may vary, but one goal should be to establish liaisons between each group. These liaisons would attend each other's conferences and events, and propose sessions, projects, and activities of mutual interest to their membership bases.

## The State of the Field's Digital Content

The source of conservation's knowledge base is information generated from preservation and treatment activities, original research, and data interpolated from external sources in allied fields. This "information amalgam" is layered, cumulative, and requires authentication — i.e., sourcing, attribution, and context — to be considered reliable and therefore usable. Large swaths of this information, such as a cumulative history of treatments, are as important to a professional as individual data points. Much of this information is captured in narrative form, making normalization and standardization difficult. The variety and profusion of information are challenging to interpret, and interpretations may differ with time as procedures and processes change.

This complexity makes it difficult to structure conservation information for access in a digital environment. Yet this complexity must be represented in digital structures and formats if the information is to remain valuable to the profession. Accomplishing this feat is a key issue for the field, and its failure to do so is a primary reason why conservation's content is so difficult to find and use in digital environments.

More disconcerting is that little headway is being made to tackle this problem. Conservation's digital content is rife with problems. The field's reliance on unstructured narrative formats is at odds with an online environment that relies on structured data for access and use. There are no data standards for conservation information,[9] and existing standards elsewhere have not been tested to see if they might be suitable. There are problems with format compatibility, as conservation data often is generated from proprietary devices. Metadata development remains spotty, making it difficult to exploit the information in any digital environment. Increasing access to conservation's digital content will not be possible until all the issues involved with that content are examined and assessed.

9 Unlike other areas in the cultural heritage sector, which have produced data standards for structuring and sharing information. See LIDO http://network.icom.museum/cidoc/working-groups/lido/resources/) and CDWA (http://www.getty.edu/research/publications/electronic_publications/cdwa/) for examples.

Because online resources are hard to find, and difficult to incorporate into workflows, conservators tend to place the information they find (or create) into personal desktop systems where they can organize it in ways that are meaningful for them. Conservators in cultural organizations also may place portions of this content in departmental or institutional systems (such as a collection management system). Both solutions are short term and problematic. Content stored on individual desktops may only be used by a limited group of individuals, and may be structured in idiosyncratic ways that make it difficult to reuse and disseminate. Departmental and institutional systems can be accessed more widely within an institution, and the content placed in them may be more structured, but these systems are often proprietary and the amount of conservation information they store is inadequate to meet conservator's professional needs.

If access is limited, the ability and incentives to preserve digital content may also be limited. Conservators see this issue in the larger context of their professional archives, which are increasingly digital in form. For example, they worry about the records of conservators in private practice, which face a high risk of loss because there is no parent institution to take on archival obligations by mission or default. But even within institutions, conservators worry that their archives will not be adequately preserved because they exist in idiosyncratic digital formats within disparate systems. The loss of digital archives is a grave concern and runs counter to the commitment to preservation that lies at the heart of the profession. Yet few conservators have a preservation plan for their own digital archives, and fewer still know how to go about creating one.[10]

## *Recommendations*

It is difficult to identify a direct pathway that can address the myriad issues involved with the field's digital content precisely because so many issues need to be addressed. The insights gleaned during this project suggest that the ***best course of action is to put into place resources, people, and activities that will help the field clarify these issues further***, and identify strategic ways to address them. The recommendations listed below can start this process.

*'Conservation is one of the most intensive knowledge-generating activities in a museum, but very often this in-depth knowledge of the object can be held separately, not recorded or not made available to the public.'*

—Nick Poole, Former CEO, Collections Trust

### Working Group of Librarians, Archivists, and Conservators (Mid-term)

The conservation community should work with librarians and archivists to address digital content issues in the field, as these professionals have experience with information organization and preservation in the digital sphere. A Working Group comprised of experts from these three fields should be established to explore the digital content issues in the conservation community. As an initial project,

10 While the components of preservation plans vary, some cultural institutions see sharing information as a vital part of these plans. The Cooper-Hewitt Smithsonian Design Museum, for example, recently acquired a software program as part of its collection, and put its source code on GitHub (a web-based repository hosting service) for others to use freely, hoping that continual use of the code will keep it "alive" and therefore viable over time. Other museums (most notably London's Tate Museum) have adopted this strategy, putting collections-based digital assets in GitHub where they can be freely shared.

the Working Group might review several different access, preservation, and records management scenarios in the conservation community, highlight specific issues that emerge in these projects, and offer suggestions on how they might be resolved. Broader issues could be extrapolated from these scenarios to help identify next steps. In this way, the Working Group would delve incrementally and strategically through the field's digital content issues. Expertise in collections management, digital asset management, and the registrar's functions could also be enlisted.

FAIC should establish this Working Group under the aegis of the Digital Strategies Advocate (see above), who would be responsible for bringing the group together and coordinating its work. Members of the Working Group should be drawn from the professional ranks of library, archives, and museum associations, and should include individuals from the AIC membership who have archival and library experience (e.g., preservation librarians).

### Working Group on Data Standards (Long-term)

Because the absence of data standards in the community limits access and use of the discipline's information online, and because the process of standards adoption requires times and consensus, a Working Group on Conservation Data Standards needs to be established to begin to address this area. An international organization such as ICOM-CC might be best positioned to lead this effort on behalf of the community, and to convene an international group of participants representing key players in the cultural heritage standards community (e.g., The Getty Vocabulary Program, UK Spectrum, CIDOC, ConservationSpace, ResearchSpace, Library of Congress, and others).

## Resources

The resources needed to create and sustain a flourishing digital environment are time, money, staffing, and infrastructure. In the field of conservation, support for each of these key elements falls far short of what is needed. One explanation for this shortfall is the project-based culture that underlies the discipline and which has shaped the way the field is perceived by institutional leaders. Conservation resources are sought on a project-by-project basis, so there has been little incentive to pursue investments that build up digital capacity across the field.

At a more local level, conservators working in cultural institutions report that they would like more time and money to learn digital skills, attend professional conferences, participate in collaborations, or develop preservation plans for their digital content. Their departments or labs typically receive little IT support and often are among the last to get hardware and software. In times of budget constraints, senior administrators may rethink institutional priorities and reallocate budgets, and conservation is rarely a beneficiary of this process.

For independent conservators, the resource issues are different but no less problematic. Their support net relies solely on income generated from client work. Their technology set-up is limited to what they can put into place themselves. Costly online subscription fees limit their access to important digital resources that would help with in their work. The physical or virtual groups they participate in (for purposes of sharing news and information) are informal and difficult to sustain.

External sources of community support, such as funders, universities, and professional associations

face their own resource issues. Conservation's digital resources have become a casualty of changes that many of these organizations have undergone over the last decade. Conservation OnLine (CoOL)[11] is a high profile example of one resource that suffered from this fallout, but other resources have had "close calls," and some have been abandoned outright.[12] The decrease in support by external sources, combined with the absence of strong institutional support, has had a corroding effect on the profession and its digital resources.

New models of resource building are needed in light of these developments. Some of these models might be public-facing, such as inserting the field of conservation into current STEAM (Science, Technology, Engineering, Arts, Mathematics) curricula and projects where resources are now widely available. Other models might include collaborations with new partners who bring a different set of resources to the table. For example, the Knight-Mozilla Fellowships program,[13] which partners software developers with journalists to create community resources, is a model that might be emulated within the field.

## *Recommendations*

### Vision Statement (Short-term)

Resources are made available when circumstances are valued and deemed critical to a larger mission and purpose. The value and mission-driven role of conservation is not well articulated within institutions or to the public at large, and conservators have a difficult time finding the right way to "pitch" their value to these groups. A new and bold vision for the profession and for conservation of collections is needed, one that makes a case for the importance of the field and outlines its future directions. AIC should lead the field in developing a compelling vision statement for the profession.

### Development Officer (Mid-term)

FAIC needs to build up its own organizational capacity in order to assume the various roles outlined for it in this report. Adding a development officer to the FAIC staff is a first step toward achieving this goal.

### New Funders and Partners (Long term)

The field needs to identify and reach out to alternative funding sources and partners to expand digital capacity across the discipline. Opportunities such as those offered by the Office of Digital Humanities (at the NEH), the American Council of Learned Societies (ACLS) Digital Innovation Fellowships, and the Wikipedian In Residence Program[14] are examples of both traditional and innovative programs that merit further consideration.

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11 See Conservation Online (CoOL) http://cool.conservation-us.org/about.html. FAIC assumed responsibility for CoOL in 2009 when Stanford University Libraries discontinued its support. Nevertheless, the costs to maintain and improve CoOL pose a huge challenge for FAIC, and new models are being sought for its continuance. See Addendum A of this report for more information.

12 See Preserving Access to Digital Information (PADI), National Library of Australia (a static archive of the resource is available at http://pandora.nla.gov.au/tep/10691)

13 See The Knight-Mozilla Fellowships. http://opennews.org/what/fellowships/.

14 See Office of the Digital Humanities, National Endowment for the Humanities. http://www.neh.gov/divisions/odh; American Council of Learned Societies (ACLS) Digital Innovation Fellowships. https://www.acls.org/programs/digital/; Wikipedian In Residence. http://outreach.wikimedia.org/wiki/Wikipedian_in_Residence.

The rise in digital collaborations has generated funding models and support by new partners that also should be explored. International funding collaborations like the Digging into Data Initiative[15] have formed to leverage national funds in an international context. The idea behind this effort might extend to other contexts. For example, it might be feasible to fund an international conservation standards initiative by drawing in international partners whose governing states are willing to contribute funds to the effort because they see the value it will deliver at the local level.

## Policies

The community is creating and using digital resources with little guidance on best practices or the ethical issues affecting use. AIC's *Guidelines for Practice* and its associated commentaries,[16] which articulate policy standards for the profession, were last updated in 2008 and do not align with current policies and practices that exist in the cultural heritage community. In particular, the Guidelines that address disclosure, confidentiality, documentation, and preservation of documentation are at odds with the principles of transparency, collaboration, and sharing necessary for effective use of information in the online environment. The process of creating and upgrading these policies also needs to be changed to be more transparent and to incorporate input and review from a broader community.

But before the field addresses its own guidelines, it needs to familiarize itself with guidelines for digital practices in other communities in the cultural sector, and be aware of recent shifts in policy positions that are affecting these guidelines. For example, there is growing movement in the museum community towards more open access to collections,[17] and many cultural heritage collaborations now require openly shareable metadata as a prerequisite to participation.[18] Communities tightly allied with conservation also are developing practices that break with disciplinary traditions, such as the recent acceptance by artists and art historians of fair use guidelines for their profession.[19]

These examples signal important changes in the cultural heritage sector's policy arena. Conservation must align its own policies and practices with these sectors, or risk being isolated from the communities of which it is a part. Doing so will mean changing long-established policies and traditions, and convincing colleagues that these changes are needed to position the field for the future.

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15 See Digging into Data, a collaboration of ten international funders to support projects that explored how "big data" changes the research landscape in the humanities and sciences. http://diggingintodata.org/

16 AIC Code of Ethics and Guidelines for Practice, http://www.conservation-us.org/about-us/core-documents/code-of-ethics-and-guidelines-for-practice/code-of-ethics-and-guidelines-for-practice

17 See Open Collections. OpenGLAM. http://openglam.org/open-collections/

18 The Digital Public Library of America Policy Statement on Metadata. http://dp.la/info/wp-content/uploads/2013/04/DPLAMetadataPolicy.pdf and the Council of Library and Information Resources Application Guidelines, Hidden Collections Grant Program. http://www.clir.org/hiddencollections/applicants/applicantguidelines.html

19 See College Art Association, Code of Best Practices in Fair Use for the Visual Arts. 2015. http://www.collegeart.org/pdf/fair-use/best-practices-fair-use-visual-arts.pdf.

## *Recommendations*

### Restructure the Process for Revising the AIC Code of Ethics and Guidelines for Practice (Short-term)

The Guidelines currently are written by a single task force and approved by the AIC Board of Directors. This process worked well in the past but the expansive nature of the field and its interactions with myriad cultural sectors require a more open and fast-moving process. To achieve greater agility and transparency, the process should be restructured to:

- Include different voices and perspectives from within the community
- Incorporate an external review component into the process
- Ensure that the Guidelines undergo review at more frequent intervals
- Incorporate a review of guidelines of practice in key allied communities

### Revise the AIC Guidelines to Incorporate Digital Components of Conservation Practice (Mid-term)

The creation and use of digital resources are now common in the profession, but the Guidelines do not reflect this reality. A systematic update is needed to:

- Develop a new guideline whose central plank declares 1) the importance of the digital landscape to the profession and 2) the obligation of those in the profession to make that landscape serviceable for the field.
- Revise existing guidelines that are integral to the digital landscape, so they incorporate best practices that support the growth and development of this landscape.
- Ensure these guidelines align with similar guidelines in the library, archive and museum communities and with other closely allied organizations and professions.

# Training and Professional Development

Conservation professionals create a large number of digital resources, but have a superficial knowledge of how to use, manipulate, and engage with these resources in the digital realm. Conservators can, of course, collaborate as needed with experts in appropriate fields, but the digital knowledge and skills set of the conservation profession also needs to expand. Few in the profession have experience with code-based works, and fewer still understand the concept of "big data," the large datasets whose potential is unearthed with nontraditional data processing applications. A prevailing sentiment in the profession is that "individuals will pick up these skills on their own," but there is no evidence that self-learning of this nature is taking place. Indeed, conservators admit to inadequate digital skills and cite time constraints and lack of training and professional development opportunities as key factors that limit their ability to learn new skills in this area.

Addressing the skills gap is a major concern. Conservation training programs are not equipped to take up this training mantle in their present form. They can teach digital skills only in a tangential manner, and cannot expand their curricula — which is already replete with coursework — to incorporate additional formal training in this area. Indeed, a significant reorganization of

*'I have taught graduate students in museums studies, including online courses in conservation, and have found that the students enrolled were not as tech savvy as I thought they would be. I assumed they would know how to use social media, and would already have had accounts for major sites like Flickr, Twitter, YouTube, and Wikipedia. But they didn't, and so we had to spend a lot of time getting up to speed.*

*When I developed a course for Johns Hopkins University, I created a "Week 0" in my syllabus, where enrolled students had to research, create, and set up all the social media and other accounts they would need to effectively participate and succeed in the course. This was all done before the first week of classes.*

*I think that all graduate students today should have a standard set of accounts that they hold and know how to use. In the same way many learned how to type on typewriters, having online accounts today should be seen as 'basic skills.'*

—Richard McCoy

professional training programs would be required to accommodate the growing information and digital literacy needs of the profession.

Even if such reorganization were to come about, the ever-changing nature of the digital landscape means training in digital skills and competencies is a career-long pursuit. Traditional approaches to training cannot be the sole answer. It may be that professional training programs are best positioned to incorporate a basic understanding of the role of data into their curricula, leaving specific skill acquisition to take place over one's career through alternative training and professional development programs.

A number of these alternative programs have emerged in the cultural and academic community. In the cultural arena, projects such as the Getty's "10 Minute Tech" program, Imperial War Museum's "Computer Club," "23 Things" program, and THATCamps have successfully taught digital skills to a wide range of cultural heritage professionals.[20] These programs began as grassroots efforts to fill gaps in training at no or low cost. In the academic community, new models are emerging in the form of MOOCs and online courses, and in certification programs such as badging.[21] Alternative training models such as these offer important learning opportunities, and need to be adopted in the conservation community.

20 The Getty's "10 Minute Tech" program https://www.youtube.com/watch?v=toRnpDFlUmY; "Computer Club Awesomeness: An interview with IWM's Carolyn Royston." Blog. *Museum Geek*. https://museumgeek.wordpress.com/2013/07/08/computer-club-awesomeness-an-interview-with-iwms-carolyn-royston/; Blowers, Helene. "6 Years of 23 Things." Blog posting, August 21, 2012. http://www.heleneblowers.info/2012/08/6-years-of-23-things.html; What is a THATCamp? http://thatcamp.org/about/.

21 Diaz, Veronica, Smith, Sondra R. and Tracy Petrillo. "Seven Things You Should Know about Badging for Professional Development." *EDUCAUSE*. August 7, 2014. http://www.educause.edu/library/resources/7-things-you-should-know-about-badging-professional-development; "Seven Things You Should Know About MOOCS." *EDUCAUSE*. November 9, 2011. http://www.educause.edu/library/resources/7-things-you-should-know-about-moocs.

An underlying issue in all discussions about training is an uncertainty about what should be taught. No core digital competencies have been established for the profession, so there is disagreement on what constitutes digital proficiency and how it should be achieved. The development of core digital competencies will be a key priority for the field, and one that must be addressed before other training issues can be considered.

## *Recommendations*

### Create a Digital Competencies Task Force (Short-term)

AIC should create a Digital Competencies Task Force under the aegis of its Education and Training Committee (ETC). Leaders from the professional conservation training programs should be invited to serve on the task force, along with other conservators and educators.

### Develop Digital Competencies Set for the Profession (Mid-term)

The Digital Competencies Task Force should draft a set of digital competencies for the profession and identify a training agenda that will help the community develop these competencies, as well as a process for reviewing and updating the competencies periodically.

### Implement Training in Academic Programs and Develop Continuing Education Programs (Long-term)

The professional conservation training programs should implement whatever portion of the Digital Competencies Task Force training agenda applies to them. Other groups that can develop and provide continuing education programs need to be identified. These groups might include formal organizations such as FAIC, but also include the alternative, grassroots efforts that have been effective at local levels (see above).

# Conclusion: Getting from A to B[22]

The word "charting" that is used in the title of this project has a two-fold meaning: to map out the landscape as it exists today, and to plot a course for its future. Explorations into the current digital landscape reveal a rich but discontinuous environment that fails to meet the growing needs of the conservation profession and the audiences it serves. The reasons for this failure are rooted in issues of leadership, policy, training, digital content, resources, and the low visibility of the profession and its practitioners. Many of these issues were first discussed as long ago as 2006,[23] when representatives in the community met to assess the challenges of "digital documentation." The difference a decade later is that these challenges have grown more complex with the growth of information networks, and are overwhelming the community and limiting its potential.

The recommendations made in this report suggest a way forward that can lead to greater efficiencies, more reliable knowledge bases, and increased cooperation and collaboration within the profession

22 Ken Hamma, who spoke in the first project forum, used this phrase to summarize the goal of this project. See http://www.conservation-us.org/docs/default-source/education/hamma-digital-landscape-am-presentation_2014.pdf?sfvrsn=2.

23 Rudenstine et. al., 2006.

and with its allied communities both here and abroad. They will guide the community in creating a digital landscape that accommodates its needs and that helps the field flourish. Organizations must take the lead in structuring this more robust digital landscape, but it will take efforts at all levels of the profession — and significant assistance from allied professions — to help bring it about.

# Addendum: Conservation OnLine (CoOL)

CoOL was not a focus of this project, but the future of CoOL was a topic that arose in all project conversations. Its outdated interface and high maintenance costs puts this resource at risk, and project participants spoke often about ways it might become a revitalized, sustainable resource. These discussions, filtered through the lens of the project team and advisory committee, offer useful insights into how CoOL might be restructured for the future. A possible pathway forward is addressed in this addendum.

CoOL has long been the premier resource for online access to the literature of the field and an important communication channel for conservation professionals. It is, as one conservator noted, "the place you go to first for quick answers." Begun in 1987 by Walter Henry, then Lead Analyst in the Preservation Department at Stanford University Libraries, the resource consists of two related but distinct components: a listserv ("ConsDistList") and a portal of historic resources/publications that cover a variety of conservation and preservation issues.

CoOL has grown exponentially since its inception, and continues to be heavily used. In 2014, the resource had more than one million page views and 500,000 users. Given its longevity, it is not surprising that CoOL is showing its age. The interface and underlying code are outdated, and hosting and maintenance are costly.[24] Its search results are inconsistent and its embedded links are often broken. It cannot integrate the media-rich formats that have become a ubiquitous component of online resources. Some of CoOL's problems (e.g., broken links) have been addressed with individual fixes, but these have built up over time and make CoOL unwieldy to administer. Its value is diminishing, and it risks obsolescence without significant improvements in functionality.

Conservation professionals have tolerated CoOL's problems because it remains a vital resource for the field. Its extensive content is vetted and edited by those in the profession, lending it an imprimatur that is valued in the community. CoOL also serves a little-acknowledged but highly important preservation function: by keeping resources in the portal for the long-term, CoOL ensures that they stay online even if their source sites should disappear. For these reasons, CoOL continues to be cited as the model of a trusted online resource in the profession. Indeed, when conservation professionals were asked about online resources over the course of this project, their response was often "we need something like CoOL, but better."

The thousands of valuable, curated resources in CoOL argue for its redesign rather than the creation of a new resource. But any redesign that takes place must address CoOL's listserv and portal components independently. Each of these components has separate purposes, issues, and needs.

## Conservation DistList ("ConsDistList")[25]

The listserv has approximately 10,000 subscribers from more than 90 countries. Information distributed via the list includes job and event postings, and inquiries about topics important to

24 In 2015, CoOL's costs totalled approximately $80,000.

25 See Conservation DistList Archives. http://cool.conservation-us.org/byform/mailing-lists/cdl/ .

the field that range from the durability of archival boxes to environmental monitoring techniques. Messages sent to the list are vetted by a moderator and emailed to subscribers in the form of a weekly digest.

The listserv provides a low barrier to entry for its subscribers, but it does not scale well when message throughput is high. The weekly digest message makes for an awkward reading format. Responses and discussion threads are not possible. Unlike most listservs, the administrative overhead for the ConsDistList is high because of its curated nature. There is a searchable archive of messages going back to the listserv's beginnings, but the search capability is not reliable, and searching is not optimized for broader discoverability on the open Web with search engines such as Google or Bing.[26]

The limitations of the listserv format are particularly apparent when compared with newer, alternative forms of online communication such as forums or "groups." These platforms are easy to organize and search, can be accessed on the Web, allow threaded conversations that can be grouped by topic, and give users a choice about what they want to see and how they might wish to respond. For some organizations, discussion forums have superseded listservs as a community communication vehicle because of these more advanced features.

Other organizations are using popular social media platforms, such as LinkedIn, Twitter, and Facebook, in lieu of listservs. However, a more "ideal" platform for the conservation community might be one that offers the interactivity and topical organization of forums, coupled with capabilities that link topic threads to relevant resources on the Web. This functionality can now be found in popular commercial products,[27] and might filter down into more open products over time.

There is a growing consensus that the ConsDistList needs to migrate to a more feature-rich platform for communication and archiving of the list's content. Newer and better alternatives to listservs are freely available, and moving to one of these platforms will facilitate timely discourse among colleagues and help build a knowledge base from the collective input of conservation professionals.

## The CoOL Portal

The CoOL portal contains a wealth of information resources, including the listservs of more than 30 allied organizations and groups; a directory of conservation professionals; publications, professional papers, documents and links to online resources on 21 conservation topics; and the websites of allied organizations and specialty groups (as well as mirrored sites of several other organizations.) Most of the resources are formatted in HTML files that are pulled together, organized, and delivered by means of a complicated backend process that includes programming scripts and other specialized coding. This process, which has become unwieldy to administer, requires a new approach if CoOL is to become a more functional and sustainable resource.

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26 This situation is even more problematic for the AIC Specialty Group discussion lists. These online lists use the same listserv software (Mailman) as the ConsDistList and are archived within CoOL, but they are closed lists that can be searched only by date and author.

27 Sinkov, Andrew. "Context: Your Work Enriched by the Smartest Minds". *Evernote News*. October 2, 2014. https://blog.evernote.com/blog/2014/10/02/context-work-enriched-smartest-minds/.

Deciding on this approach has been the subject of many discussions. While conservation professionals would like an overhaul that fixes all of CoOL's problems, this approach would be premature. There is uncertainty about how CoOL is used and what additional functionality is needed. Rather than pursue a "big fix," a more judicious approach would be to identify incremental improvements that would improve CoOL and yield information useful to building the resource in a more strategic manner.

For example, converting CoOL's HTML-formatted resources into a wiki format would be a marginal improvement that yields substantial results. Each HTML page in CoOL would be standardized and properly indexed, so searching would improve. FAIC would be able to identify successful and unsuccessful queries, and could use its page analytics to see what is being searched. Both users and FAIC would see immediate returns, with FAIC gaining the information it needs to make informed decisions about further improvements.

Before this approach can get underway, the number of HTML pages in CoOL needs to be determined, and a decision must be made about what portion of these pages should be targeted in an initial conversion. FAIC then could solicit bids to identify estimated conversion costs, and seek one-time funding to implement the conversion. While the conversion is taking place, FAIC could set up a workflow for capturing and reviewing search query successes and examining other information derived from page analytics. After a set amount of time, this information could be analyzed to determine how to move CoOL forward in a step-wise progression.

The test-bed conversion of HTML records outlined above is one possible project that FAIC might pursue as it moves the portal portion of CoOL toward greater functionality. Other discrete elements in CoOL's dataset might prove equally feasible as test-bed projects. The CoOL Working Group, which sits within FAIC's administrative umbrella, is the logical entity to make these determinations and oversee work in this area. But before it can do so, the Working Group needs to expand its membership to include outside experts who can bring more technical knowledge to the process, and knowledge about business models for online resource (see below).

## A New Business Model

Incremental projects such as the one proposed above will improve CoOL's functionality but they will not ensure its sustainability. A new business plan is needed to keep the resource alive into the future. At the moment CoOL is freely available, but it is not without cost. Since 2008 FAIC has assumed the burden of this cost, bolstered in part with modest individual donations. FAIC's backing keeps CoOL online and available, but cannot support anything other than minor improvements. Without a new business model, CoOL will continue to be at risk, even if new features and functionality improve the resource.

Resource support comes in the following guises: subscription-based, member-based, and institutional sponsor-based models, or some combination thereof. Going forward, FAIC faces a quandary as it migrates CoOL from its current sponsor-based model: any new model that is fee-based will not succeed until improvements in CoOL are substantial enough to warrant such a fee.

There are ways to implement a new model while improvements in CoOL are underway. For example, FAIC could ask for volunteers to help edit CoOL in return for free access to the resource if it became fee-based. Bridge funding might be available to cover costs associated with incremental and well-defined improvements (such as the wiki conversion project noted above), if a long-term support model can be convincingly articulated to a funder. In the end, FAIC in conjunction with the CoOL Working Group, needs to explore all funding models and move forward on a plan to implement a new business model in tandem with the development of CoOL.

*'What is this resource really worth to you? There are costs in bringing these resources together. Community tools have to be supported by the community. If we don't pay, it goes away.'*

—David Bloom, VertNet Coordinator,
University of California, Berkeley
Speaker, Digital Landscape Forum #1,
San Francisco, 2014

## *Summary of Recommendations for CoOL*

1. Identify and migrate the ConsDistList portion of CoOL to a more user friendly, functional communication platform.
2. Conduct an assessment of CoOL's format and content, with an eye toward identifying and implementing a small project that will yield maximum impact on use of the resource, and give FAIC insights into the use of CoOL.
3. Use this first project's results to identify and define the next logical project, and develop subsequent projects that build on each other in the same iterative manner.
4. Identify a new business model that will help sustain CoOL in the future. FAIC must take the lead in making this decision, as it is CoOL's sponsor and administrative home.
5. Expand the CoOL Working Group to include outside experts who can advise on technical aspects of conversion, agile project development, and business models for community-based resources.

# Appendix A — Recommendations: Sequence

The recommendations outlined in this report should be implemented in the following sequence to build on capacity and momentum from one recommendation to another. [Note: This summary does not include recommendations suggested for CoOL that are listed in the previous section.]

## Short-Term Recommendations

- Hire a Digital Strategies Advocate
- Create a Vision Statement for the Community
- Conduct a Leadership Forum
- Create a Digital Competencies Task Force
- Restructure the Process for Revising the AIC Code of Ethics and Guidelines for Practice
- Undertake Outreach Efforts
- Travel Funds to Promote Attendance at Cross-disciplinary Meetings and Events
- Showcase Digital Activities
- Improve the Digital Infrastructure at the AIC Annual Meeting

## Mid-Term Recommendations

- Hire an FAIC Development Officer
- Hold a Funders' Summit
- Revise the AIC Guidelines to Incorporate Digital Components of Conservation Practice
- Develop Digital Competencies for the Profession
- Create a Working Group of Librarians, Archivists, and Conservators
- Establish Closer Relationships with Allied Groups

## Long-Term Recommendations

- Identify New Funders and Partners
- Implement Training in Academic Programs and Develop Continuing Education Programs
- Establish a Working Group on Data Standards for the Conservation Community

# Appendix B — Participants

## Invited Forum Attendees

**Fran Bass**
Associate Conservator for Objects
Dallas Museum of Art

**Meg Bellinger**
Director Yale Digital Collections Center
Institute for the Preservation of Cultural Heritage, Yale University West Campus

**Brenda Bernier**
James Needham Chief Conservator,
Head of Weisman Preservation Center
Harvard Library

**David Bloom**
VertNet Project Coordinator
University of California at Berkeley

**Connie Bodner**
Supervisory Grants Management Specialist, Museum Services
Institute of Museum and Library Services

**Foekje Boersma**
Project Manager, Managing Collection Environments Initiative
Getty Conservation Institute

**Angela Chang**
Assistant Director and Conservator of Objects and Sculpture
Straus Center for Conservation and Technical Studies, Harvard Art Museums

**Tom Clareson**
Senior Digital & Preservation Services Consultant
Lyrasis

**Kirk Cordell**
Executive Director
National Center for Preservation Technology and Training, National Park Service

**Pete Dandridge**
Conservator and Administrator
The Sherman Fairchild Center for Objects Conservation, Metropolitan Museum of Art

**Michele Derrick**
Schorr Family Associate Research Scientist
Museum of Fine Arts, Boston

**Tiarna Doherty**
Chief Conservator
Lunder Center, American Art, Smithsonian Institution

**Deena Engel**
Professor
Department of Computer Science, New York University

**Ben Fino-Radin**
Digital Repository Manager
Museum of Modern Art

**Franziska Frey**
The Malloy-Rabinowitz Preservation Librarian; Head of Preservation and Digital Imaging Services, Harvard Library

**Benjamin Haavik**
Team Leader for Property Care
Historic New England

**Martin Halbert**
Dean of Libraries, University of North Texas; President, Educopia Institute

**Kenneth Hamma**
Independent Consultant
The Andrew W. Mellon Foundation

**Laura Hartman**
Paintings Conservator
Dallas Museum of Art

**Pamela Hatchfield**
Head of Objects Conservation
Museum of Fine Arts, Boston

**Arlen Heginbotham**
Associate Conservator, Decorative Arts Conservation
J. Paul Getty Museum

**Unmil Karadkar**
Assistant Professor
School of Information, University of Texas at Austin

**Dale Kronkright**
Head of Conservation
Georgia O'Keeffe Museum

**Henry Lie**
Director and Senior Conservator of Objects and Sculpture
Straus Center for Conservation and Technical Studies, Harvard Art Museums

**Mark Leonard**
Chief Conservator
Dallas Museum of Art

**Michele Marincola**
Professor of Conservation
Institute of Fine Arts, New York University

**Max Marmor**
President
Samuel H. Kress Foundation

**Bert Marshall**
Project Director, ConservationSpace
National Gallery of Art

**Richard McCoy**
Independent Art Conservator

**Paul Messier**
Independent Conservator of Photographs, Paul Messier LLC

**Bonnie Naugle**
Communications Director
American Institute for Conservation

**Eric Pourchot**
Institutional Advancement Director
Foundation of the American Institute for Conservation

**Nancie Ravenel**
Objects Conservator
Shelburne Museum

**Koven Smith**
Director of Digital Adaptation
Blanton Museum of Art

**Eliza Spaulding**
Paper Conservator
Worcester Art Museum

**Angela Spinazzè**
Senior Director for Collaborative Programs
Lyrasis

**Robert Stein**
Deputy Director
Dallas Museum of Art

**Erin Stephenson**
Andrew W. Mellon Fellow in Paintings Conservation
The Menil Collection

**Courtney von Stein Murray**
Samuel H. Kress Fellow in Objects Conservation
Denver Art Museum

**Mary Striegel**
Chief, Materials Research
National Center for Preservation Technology and Training

**Jeffrey Warda**
Paper Conservator
Solomon R. Guggenheim Museum

**Eryl Wentworth**
Executive Director
American Institute for Conservation and Foundation of the American Institute for Conservation

**Paul Whitmore**
Director, Art Conservation Research Center
Institute for the Preservation of Cultural Heritage, Yale University West Campus

**Diane M. Zorich**
Project Director and Consultant
American Institute for Conservation and Foundation of the American Institute for Conservation

## Interviewees

**Aviva Burnstock**
Head of the Department of Conservation & Technology
The Courtauld Institute of Art

**Kristen deGetaldi**
Lead, Technical Art History Website
University of Delaware

**Neal Johnson**
Independent Cultural Heritage Technologist
Washington, DC

**Dominic Oldman**
Head of ResearchSpace/Senior Curator
The British Museum

**Joseph Padfield**
Conservation Scientist
National Gallery, London

**Karen Trentelman**
Senior Scientist
**Catherine Patterson**
Associate Scientist
**Alison Dalgity**
Senior Project Manager
Data Integration for Science in Conservation (DISCO), Getty Conservation Institute

**Athanasios Velios**
Reader in digital documentation, University of Arts London; Webmaster, International Institute for Conservation of Historic and Artistic Works

**Graham Voce**
Executive Secretary
International Institute for Conservation of Historic and Artistic Works

## Survey Participants

More than 700 professionals participated in the survey. The majority of participants were from the United States and Canada, but individuals from 25 other countries also took part.[28]

28 See *Charting the Digital Landscape of Conservation, Survey Results.* August 2014. http://www.conservation-us.org/docs/default-source/reports/the-digital-landscape-of-conservation-survey-report.pdf?sfvrsn=0. pp. 3-6.