

**NATIONAL ENDOWMENT
FOR THE HUMANITIES**

SAMPLE APPLICATION NARRATIVE



Preservation and Access Education and Training
Institution: University of Michigan

Digital Preservation Management: Effective Short-Term Solutions to Long-Term Problems 3

Project Description

The Inter-university Consortium for Political and Social Research (ICPSR) with the School of Information, the University Library, and the Bentley Historical Library at the University of Michigan request funding from the National Endowment for the Humanities for *Digital Preservation Management: Effective Short-Term Strategies for Long-Term Problems 3*, a project to continue to develop and build on the core curriculum of this popular continuing education program.

The project represents a significant contribution to the digital preservation community because digital preservation continues to rank highly as an organizational challenge and priority¹ and the workshop curriculum provides the means for an organization to develop feasible action plans that address organizational (the what), technological (the how), and resource (the how much) requirements for digital preservation. Ongoing feedback from workshop participants shows that the workshop is able to produce measurable developmental results for organizations and individuals. It is the only comprehensive and intensive continuing education opportunity available in the United States to managers with an organizational or technological background who are or will become responsible for digital preservation.

In addition to continuing the popular five-day workshops, this two-year project responds to feedback from past workshop participants by developing one-day and two-day advanced workshops on key organizational topics and challenges for digital preservation, such as managing preservation metadata, Open Archival Information System (OAIS) implementation and workflow, and the economics of digital preservation. The project augments and enhances the award-winning online tutorial developed for the workshop series on the fundamentals of digital preservation, including an ongoing compilation of case studies and exemplars. The project extends the potential reach and impact of the curriculum by increasing the base of experienced workshop instructors through the establishment and promulgation of a train-the-trainers program.

Drawing on the University of Michigan's cumulative and sustained commitment to the long-term management of digital content, the educational program presents an integrated approach to developing digital preservation strategies that encompass the life cycle of digital objects. The curriculum emphasizes short-term risk management strategies while research and development go forward in creating longer-term solutions. Issues to be covered include: program planning, gap analysis, risk assessment, resource requirements, legal issues, digital object management (e.g., metadata, content formats and standards), storage and maintenance, disaster preparedness, bridging preservation and access, and technology responsiveness.

The goals of this initiative are to foster critical thinking and sound management in a technological realm and to provide the means for exercising practical and responsible stewardship of digital assets as technology, standards, and digital content evolve. The curriculum incorporates a pedagogy that ensures ready access to basic technical information, reflects adult learning styles, and maximizes the benefits of a limited enrollment seminar. The program stresses the importance of leveraging both managerial and technical perspectives in developing institutional programs.

The core workshop curriculum of this successful continuing education program was developed in two phases at Cornell University Library with NEH support. Continuity in the transition of the workshop program to Michigan will be ensured by the involvement of the two developers of the curriculum who are serving as the principal investigator at ICPSR and the chair of the advisory board for Phase 3.

¹ The Northeast Document Conservation Center (NEDCC) 2006 survey and Digital Library Federation (DLF) 2007 survey represent recent efforts to document organizational concerns and efforts regarding digital preservation.

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¹ An electronic copy of the notebook materials is available to NEH reviewers at:
<http://staging.icpsr.umich.edu/temp/dpm-notebook/> using the password and login DPMworkshop

Project Narrative

The Inter-university Consortium for Political and Social Research (ICPSR) with the School of Information, the University Library, and the Bentley Historical Library at the University of Michigan request funding from the National Endowment for the Humanities to offer an enhanced version of the education and training program, *Digital Preservation Management: Effective Short-Term Strategies to Long-Term Problems 3*. The first two phases of this successful program were developed at Cornell University Library with NEH support. This two-year project builds on the Cornell curriculum, with continuity provided by the two developers of the workshop series who are serving as the principal investigator at ICPSR and the chair of the advisory board.

We seek funding to:

- Extend and enhance the award-winning online tutorial on the fundamentals of digital preservation for cultural repositories developed for the workshop series
- Offer four one-week workshops with a limited enrollment of twenty-four participants, based on the core curriculum and an ongoing compilation of case studies and exemplars
- Develop and offer six one- and two-day topical workshops (e.g., developing policies and plans, applying the Open Archival Information System (OAIS) standard, the economics of digital preservation) with a limited enrollment of sixteen participants
- Provide partial tuition support for 192 participants attending the workshops
- Develop and extend the base of experienced workshop instructors by leveraging the pool of experienced instructors at the participating institutions and through the establishment and promulgation of an advanced train-the-trainers program
- Identify and apply the requirements for well-documented, sharable workshop curriculum to convey the objectives and principles of the core curriculum while allowing for the presentation styles and preferences of instructors

The participating institutions draw on the University of Michigan's cumulative and sustained commitment to the long-term management of digital content, the educational program will present an integrated approach to developing digital preservation strategies that incorporate organizational, technological, and economic aspects encompassing the life cycle of digital objects. The curriculum will emphasize short-term risk management strategies while research and development goes forward in creating longer-term solutions. Issues to be covered include: program planning; gap analysis; risk assessment; resource requirements; legal issues; digital object management (e.g., metadata, content formats and standards); storage and maintenance; disaster preparedness; bridging preservation and access; and technology responsiveness.

Project Significance

This program is the only intensive workshop series that is aimed at managers from organizations that are or will be implementing digital preservation programs in cultural institutions or settings of any kind, the only continuing education training opportunity that provides a comprehensive approach to digital preservation management, and the only program of its kind that is based in the U.S. The goals of the workshop are 1) to foster critical thinking and sound management in a technological realm and 2) to provide the means for exercising practical and responsible stewardship of digital assets as technology, standards, and digital content evolve. The curriculum

incorporates a pedagogy that ensures ready access to basic technical information, reflects adult learning styles, and maximizes the benefits of a limited enrollment seminar, such as greater access to instructors, inclusive discussions, and opportunities to work in small groups. The program stresses the importance of leveraging managerial and technical perspectives together in developing institutional programs.

The Challenges of Digital Preservation

Institutions are increasing aware of the challenges of long-term preservation and increasingly reliant upon digital content in all forms. The 2007 survey of digital preservation systems by researchers at the Getty Research Institute (Boughida and Hubbard) received 316 responses. The survey highlights the need for more in-depth coverage of digital preservation systems implementation issues and workflow development. Respondents to surveys like these acknowledge that a continuing challenge in digital preservation is the need for organizations to systematically respond to ongoing technological change. Well-documented examples demonstrate that an organization's failure to manage its digital content to keep pace with technology as it evolves and emerges leads to obsolescence and loss. Technological innovations offer the potential to create new kinds of digital content; provide new capabilities, tools, and techniques; and require an adequate and appropriate organizational strategy to ensure access to the digital content that is generated by ongoing technology developments.

Since this Digital Preservation Management workshop series began in 2003, a number of significant developments have occurred:

- A continual evolution of the type, capabilities, and use of digital content. For example, digital video and geospatial content have become much more widely used with the lowering of barriers to large files, increased capabilities and capacities of common computers, and the accessibility of well-packaged applications like Google Maps.
- An increasing focus on the need for longevity of digital content and research results as e-science, e-social science, and e-humanities initiatives flourish around the globe.
- A rising concern about the longevity of scholarly publications in digital form increase and the publisher's responsibility toward e-journal content is scrutinized¹
- An ongoing shift from offline tape to online disk storage to meet archival storage and geographically dispersed redundancy requirements with the availability of developments such as grid storage through providers such as the Chronopolis project at the San Diego Supercomputing Center, and the Lots of Copies Keeps Stuff Safe (LOCKSS) technology
- An increasing complexity surrounding intellectual property and rights management issues as the extent and significance of digital content grows
- A trend towards self-assessment and audit to demonstrate that digital archives are trustworthy and compliant with prevailing standards and practice

Why This Training Program?

Attending the Digital Preservation Management workshop series has had a measurable impact on the participants and their home institutions and the demand for the workshop series to continue is high. A workshop participant notes in his letter of support, "my association with the Digital Preservation Management Workshop in May 2004 not only permitted me to profit greatly from

¹ Kenney et al, *E-Journal Archiving Metes and Bounds: A Survey of the Landscape*, CLIR, 2006.

an excellent and unique training program but also to be introduced to a community of professionals, that in one way or another I have been in touch with ever since. And, while I certainly join the chorus in praise of the pedagogical qualities of this remarkable training program, I want at the same to emphasis that this Workshop is quite literally responsible for creating a community in the United States focusing on digital issues.” (see Appendix K) Since the first workshop of the series in 2003, we have presented eleven five-day workshops to 264 participants representing more than 150 institutions. The North Carolina Department of Cultural Resources represents an exemplar institution for the workshop. They have sent one or more staff members to four of the workshops, developed a digital preservation policy that has been vetted and implemented, and, based on their heightened profile, been invited to contribute to North Carolina legislation that pertains to digital preservation.

The majority of workshop participants from Phases 1 and 2 of the Digital Preservation Management workshop series are members of the Participants’ Listserv. We received 87 responses to a recent follow-up survey we posted to the listserv about their activities since attending the workshop. The results suggest that the workshop has contributed to both individual and organizational development. Of the participants who responded to the survey, 96% had shared information with colleagues and the majority had pursued additional readings, used the notebook resources, and revisited the tutorial; 72% had conducted awareness raising activities at their institution; 40% had attended a conference and 18% had attended an advanced digital preservation workshop they would not have otherwise. At the institutional level, 50% had created new policies, procedures, or agreements and developed action plans; 40% had begun drafting a digital preservation policy framework; 30-35% had conducted a digital preservation needs assessment or inventoried digital assets to define the scope and set priorities; 20% had secured senior management support and resources to develop a 3-year plan; and 15% had completed a digital preservation gap analysis. The full list of the brief survey results is provided in Appendix G.

This workshop series is the only ongoing, continuing education offering that focuses on assisting organizations in developing and institutionalizing their digital preservation programs. The results of our scan of continuing education courses specifically devoted to digital preservation confirms the difficulty in finding practice-based training for institutions that are responsible for long-term access to digital assets (see Appendix C for the results). There is no other intensive digital preservation continuing education program in the United States. Since this workshop series began in 2003, there have been additional conferences that are devoted to digital preservation (e.g., the International Preservation (iPRES) conference, sponsored by an international consortium of universities, and the Persistence of Memory Conference, sponsored by the Northeast Document Conservation Center). These conferences represent important contributions to the growth of the digital preservation community, but do not take the place workshops that offer intensive training experiences. The European Union and the United Kingdom, sponsored by the Digital Preservation Coalition and the Digital Curation Centre, have sponsored workshops on a range of digital preservation topics, but attending these workshops is beyond the means of many cultural institutions in the United States. In the United States and elsewhere, we are also seeing the development of graduate courses and programs on digital preservation. Instructors at the University of North Carolina at Chapel Hill, for example, are developing a digital curation curriculum that used the core curriculum of this workshop as its

starting point (see Appendix G). Educational offerings are needed at the graduate level, but they serve a different audience and do not substitute for continuing education programs.

Interest in this workshop series continues to be strong. Each of the five-day workshops offered to date has been oversubscribed, often filling within days of the registration opening. During Phase 2 of the workshop, several institutions that had sent participants to the workshop at Cornell sponsored a two-day version of the workshop by Anne Kenney and Nancy McGovern, e.g., the Library and Archives of Canada, the University of Illinois at Urbana-Champaign, the Canadian Heritage Information Network (hosted by the Museum of Civilization), and the University of California at San Diego with the San Diego Supercomputing Center. In addition, the National Library of New Zealand sponsored a five-day workshop in 2006, and the University of Kansas and the Australian is sponsoring a two-day workshop in September, and the Australian Partnership for Sustainable Repositories are each sponsoring two-day versions of the workshop in Fall 2007. These examples demonstrate the value of and interest in the workshop and the potential to extend its reach to meet community needs. While these host institutions cover the costs of hosting the workshop, they do not provide funding for developing and maintaining the workshop curriculum or the tutorial.

Who Will Benefit from This Program?

There is a broad range of practitioners who can benefit from this workshop series, which targets those who are implementing or planning digital preservation programs in libraries, archives, and other cultural institutions. The curriculum helps prepare institutions to 1) continually respond to new types of digital content; 2) changing technology for creating, preserving, and accessing digital content; and 3) the need for new and evolving roles in managing digital content, e.g., preservation metadata specialists, workflow developers, data curators. The workshop's focus is to assist participants in developing realizable and effective short-term digital preservation objectives based on workable solutions. Each five-day workshop has included a combination of representatives from academic institutions, government agencies at various levels, libraries, archives, and at least one museum. Participants have included representatives from large and small organizations, from public and private institutions, and from corporations as well as educators, policymakers, and funding officers. Scholars and other researchers will benefit indirectly through continuing access to research collections made accessible or only available in digital form. Faculty members in musicology, anthropology, and other disciplines have attended the workshop to enable them to care for their own digital collections.

The workshop has proven beneficial to practitioners at all levels. Based on the feedback from participants and the nature and extent of their participation in the workshop, we have observed three main categories of attendees. In the first category, each five-day workshop group has included between 10% and 30% participants who have some level of skill in a digital area and have had some experience with managing digital content. Participants in this category often convey to us that the workshop has affirmed things they knew, expanded and rounded their knowledge, and given them greater confidence. These attendees have tended to provide leadership and mentoring advice on the workshop participants' listserv, at digital preservation conferences, and beyond, as well as encouraging planning and developments at their home institutions. Those with a technical perspective often express surprise at the scope and value to them of the organizational aspects of the workshop curriculum. In the second category,

approximately 20% to 40% of each workshop group comes to the workshop with little digital experience, though with relevant managerial or functional expertise that is adaptable to digital preservation management. Participants in this category have often had a recent assignment of managerial responsibility for digital preservation and the workshop seems to have a timely and profound impact on them. This category provides enthusiastic feedback about the value of the workshop, especially the opportunity to exchange examples and experiences with other participants, and typically produces the most tangible post-workshop progress in developing policies, conducting needs assessments, completing digital asset inventories, and making progress on other organizational activities. The third category of approximately 10% to 30% of each workshop group includes newer managers and practitioners that are new to the digital arena as well. This category has the steepest learning curve and generally expresses the deepest appreciation for the information and resources conveyed in the workshop tutorial and notebook. Organizations that have sent multiple representatives have commented on the team-building and organizational direction that attending the workshop had for them.

Since its public launch in December 2003, over 50,000 individuals have visited the digital preservation tutorial accompanying the workshop. The site receives an average of 60 visitors per day. A Google search demonstrates that numerous Web sites have linked to the tutorial, including many research libraries, digital collection and other Web logs, the National Library of Australia's Preserving Access to Digital Information (PADI), and numerous educators as supplementary information for their courses. Cornell has executed a memorandum of understanding (MOU) with ICPSR to transfer responsibility for maintaining and updating the tutorial to ICPSR for a minimum of 5 years that is pending approval by the legal staff at Michigan and has drafted a MOU with ICPSR granting non-exclusive rights to present and develop the workshop curriculum. The Principal Investigator of Phase 3, Nancy McGovern, as a primary developer and author of the curriculum has ongoing rights to present and develop the core workshop curriculum.

Institutional Profile

This partnership at the University of Michigan is well-equipped to build on and extend the Digital Preservation Management curriculum. The combined instructors and staff accessible to the project provide a breadth and depth of expertise and knowledge that covers the lifecycle of digital preservation from quality creation of digital content to archival storage of well-formed digital objects to the provision of access to digital content over time, as well as digital preservation policy development, metadata developments and requirements, intellectual property and rights management, good practice and guidance digital preservation, institutional records management, and disaster planning.

The University of Michigan was founded in 1817 as one of the first public universities in the nation and moved from Detroit to Ann Arbor in 1837. It is consistently ranked among the nation's top universities, with over 51,000 students and 5,600 faculty at three campuses. The participating institutions in this curriculum development project have distinct missions and reporting lines, yet each makes significant contributions to the effective management of digital content at the University and well beyond. The following descriptions highlight the strengths of and connections between the partners in the project.

ICPSR

The Inter-university Consortium for Political and Social Research (ICPSR) is the lead institution for this project. Established in 1962, ICPSR is a data archive with a 45-year track record for preserving and providing access to data. Organizationally, ICPSR is one of the centers within the Institute for Social Research at the University of Michigan. ICPSR's unique combination of data resources, user support, and training in quantitative methods make it a vital resource for fostering inquiry and furthering the social sciences. ICPSR has three major operations units -- Collection Development, Collection Delivery, and Educational Resources -- as well as a broad Digital Preservation Function. A membership-based organization with over 600 member colleges and universities around the world, ICPSR engages in partnerships and cooperative arrangements with other major data archives that enable it to reach an even broader audience. ICPSR is the world's largest archive of digital social science data. We acquire, preserve, and distribute original social science research data to enable research and instruction. The major sources of ICPSR's annual budget of close to 15 million dollars are membership fees, sponsored funding in the form of grants and contracts, and the Summer Program tuition.

ICPSR brings a wealth of strengths to the leadership for this project. The Project Director, Nancy McGovern, is a co-developer of the Digital Preservation Management workshop series. She developed and taught major components of the core curriculum, including the online tutorial. Her leadership ensures continuity for the project and her commitment to digital preservation research and instruction provides a path for the curriculum development envisioned for this phase of the project.

ICPSR's long track record for acquiring, preserving, and making available social science research data provides access to a vast knowledge base of data stewardship and the digital content lifecycle. The policies, workflow, tools, and policies in place at ICPSR provide an in-house case study of good digital content management. In Fall 2007, the Digital Preservation Officer will launch a Web site devoted to digital preservation at ICPSR that highlights these developments. ICPSR is also the lead organization in an NDIIPP-sponsored project, Data-PASS, on preserving data at risk. The Data-PASS partnership provides an excellent example of digital preservation as a shared responsibility for exploration within the workshop curriculum. The staff at ICPSR includes experienced instructors and researchers who will be able to contribute to and evaluate the enhancements of and new developments for the workshop curriculum. ICPSR also has a growing online bibliography application that could be extended or adapted to provide the means for an online digital preservation bibliography based on the extensive set of resources compiled for the workshop that will be further developed and updated during the project.

Another core strength at ICPSR is the organizational infrastructure that is already in place for the long-running Summer Program (<https://www.icpsr.umich.edu/sumprog/>), including registration, logistics, online curriculum management tools, and beta audiences for workshop curriculum. ICPSR staff also have the statistical and social science research expertise to enhance the means for workshop evaluation and program evaluation measures and protocols. In addition, ICPSR's contributions include the ability to capture and make available anonymized institutional readiness results for secondary use by researchers and practitioners in the digital preservation community. ICPSR intends to host a collection of data about the development and practices of

the digital preservation community and the cultural heritage community more broadly. There have been a number of surveys conducted nationally and internationally over the past decade by library, archive, and museum associations and researchers. The underlying data and the findings from these surveys should be accessible to the community as good practice emerges and evolves.

School of Information

The School of Information will provide experienced instructors to the workshops delivered in this series with cumulative familiarity with the range of organizational and technological developments in digital preservation, as well as well-honed instructional skills. The School of Information was rechartered by the Board of Regents in 1996, building on the rich traditions of its predecessor, the School of Information and Library Studies. The School of Information is dedicated to investigating the fundamental role of information in society. Its field of study is information: how it is created, identified, collected, structured, managed, preserved, accessed, processed, and presented; how it is used in different environments, with different technologies, and over time.

The School of Information contributes a number of strengths to the partnership for this project. First and foremost it brings experienced faculty specializing in preservation. Margaret Hedstrom will serve on the Advisory Board and consult on the curriculum development. She may also present one or more sections for workshop topics that address her particular strengths, e.g., organizational developments and assessment. Core professors and instructors in the archival program (Elizabeth Yakel, Paul Conway, and David Wallace) will teach a number of the workshop sections. Shannon Zachary, the coordinator of the Preservation course at the School of Information and a preservation librarian at the University Library, will contribute to the further development of disaster planning modules, for example. In addition, other faculty members have expressed interest in the development and enhancement of specific workshop modules, e.g., information economics, information security, technology infrastructure. Beyond serving as instructors, the faculty members at the School of Information have extensive expertise in curriculum development, learning objectives, and course modules that will be invaluable for developing the train-the-trainer program and the workshop curriculum more generally.

Graduate students at the School of Information are ideal candidates for student assistant positions for this project, though interested students from other programs and at other colleges and universities will have the opportunity to apply and compete for the positions. Students at the School of Information also provide a ready beta audience for new workshop modules and offerings. They have expressed a keen interest in digital preservation issues and challenges, and a willingness to provide feedback on the workshop curriculum.

University Library

The creation of the University Library at Michigan began in 1837 with the first library building completed in 1883. Consistently ranked as one of the top ten academic research libraries in North America, the University Library comprises 19 libraries on the University of Michigan campus. Print collections number over 7 million volumes, covering thousands of years of civilization, from papyri to reports of the latest advances in science and medicine. The University Library has more than fifteen years of experience with creating and effectively managing digital content of varying types, including the development of workflows, tools, and

the requisite metadata. The library staff will contribute as knowledgeable practitioners, researchers, and instructors.

The University Library brings several notable strengths to this project, including expertise in preservation principles and practice, information economics, technology management, digital image lifecycle management, and large-scale digital project management. In addition to the participation of library staff as instructors, Paul Courant, the University Librarian, is included on the roster of potential keynote speakers to discuss his work on the economics of information. The staff has a reputation for innovative digital content management. The digital collection lifecycle examples at the library provide illustrative case studies. Though details of the Google digitization are proprietary, that project provides an excellent example of the organizational context for digital content management. Incorporating the library's perspective into tutorial enhancements, advanced workshop topics, and the establishment of the train-the-trainer program provides an important balance for the curriculum development.

The Bentley Historical Library

The Library was established in 1935 by the University of Michigan Regents to carry out two functions: to serve as the official archives of the University and to document the history of the state of Michigan and the activities of its people, organizations, and voluntary associations. The library is comprised of three divisions: the Michigan Historical Collections, the University Archives and Records Program, and Access and Reference Services. The library has amassed extensive holdings on the history of the state and the university.

The Bentley contributes important strengths to the project collaboration. The staff participants provide a tighter focus of interests and skills with an impressive depth. The Bentley staff has extensive knowledge and experience in archival management, electronic records, institutional records, and records management. A topic that repeats throughout the evaluations of Digital Preservation Management workshop participants is an interest in more information and recommendations for institutional records. The Bentley staff members are essential for meeting this demand. They are working on a series of case studies on electronic records, the development of which is being funded by the Andrew W. Mellon Foundation, and they are experienced instructors. As with the Library staff, including their archival perspective in tutorial enhancements, general curriculum and new module development, advanced topic development, and the train-the-trainer program will ensure that the results serve the greatest audience.

Cooperation and Collaboration

There are numerous and increasing examples of cooperation and collaboration among the participating institutions. The Director of ICPSR, Myron Gutmann, is an adjunct professor at the School of Information, and Margaret Hedstrom, a professor at the School of Information, is an adjunct professor at ICPSR. Hedstrom is the principal investigator on a cooperative ICPSR-School of Information project funded by a grant from the National Science Foundation, to explore the incentives for data producers to deposit their data using ICPSR data producers as test cases. Staff members at the University Library and the Bentley Historical Library serve as instructors at the School of Information. The University Library and ICPSR are cooperating in the areas of shared archival storage arrangements and the preservation of faculty data that is offered for deposit in the institutional repository managed by the Library. ICPSR and the

Bentley Historical Library have proposed a joint working meeting on digital preservation to be hosted at a university in China. The Bentley Historical Library preserves the institutional records of all of the partners at Michigan.

This proposal for continuing education and the proposal the School of Information is submitting to NEH to develop a preservation specialization at the graduate level represents another example of potential collaboration. Though the two proposals address fundamentally different audiences with distinct needs, the proposals complement each other and provide the opportunity to develop case studies and exercises that might be adapted in either setting, for example. No portion of either proposal is dependent on the funding of the other proposal. The participating institutions at Michigan are supportive and collaborative, though each partner is an independent unit. This proposal allows the strengths of the partners to be leveraged for effective curriculum development and delivery.

Curriculum and Work Plan

Curriculum Content

The curriculum is based on digital preservation research and practice at institutions around the world, increasingly including examples from past participants of the workshop series. It also draws on the expertise of outside speakers who address key areas.

Our overall objectives for this education and training program are to:

- Develop practical skills and requisite tools for participants to determine their programmatic priorities and assess alternatives to enable implementation
- Sharpen critical thinking and hone management capabilities for application in an evolving digital environment
- Foster goal-driven, rather than technology-driven, digital preservation programs to empower non-technical experts in selecting and applying approaches
- Build group problem-solving skills by sharing experiences, ideas, and expertise among participants
- Broaden and deepen access to tools and resources to gain an understanding of digital preservation opportunities and challenges and to monitor global developments for institutional implications

Tutorial

The tutorial offers introductory information on the challenges and short-term strategies to address the concerns of organizations that are engaged in digital preservation. Educators and practitioners utilize the publicly available tutorial to encourage a baseline understanding of digital preservation concepts and issues and to raise awareness across their institutions. The tutorial is a prerequisite for participants in the workshop series to provide a starting point for the workshop curriculum.



The tutorial content supports the digital preservation “three-legged stool” concept – organizational context, technological infrastructure, and requisite

resources – developed for the workshop curriculum and presents the fundamentals of two key digital preservation community documents: Trusted Digital Repositories: Attributes and Responsibilities, produced by the Research Libraries Group (RLG) and OCLC, and the Reference Model for an Open Archival Information System (OAIS), produced by the NASA Consultative Committee for Space Data Systems. These are cornerstones of the workshop curriculum. There are six sections of the tutorial: 1) Setting the Stage, 2) Terms & Concepts, 3) Technology Obsolescence, 4) Foundation Documents, 5) Challenges, and 6) Program Elements, plus additional readings (see Appendix A for a list of tutorial contents). Readers have access to definitions, key concepts, practical advice, exercises, up-to-date resources, and the means to send comments and questions directly to workshop staff. The tutorial is designed to be informative but also entertaining, so readers will find a “Chamber of Horrors” on media obsolescence, a digital preservation timeline, self-assessment quizzes and exercises for individuals and organizations, and a series of “Did You Know” breakouts that convey interesting examples in a humorous style. Based on feedback from readers and reviewers, the tutorial requires four to eight hours to complete.

In this phase of developing the curriculum, we will add a section to the tutorial on technology responsiveness to complement the technology obsolescence section; revise the preservation metadata section to include implementation examples for the Preservation Metadata Implementation Strategies (PREMIS) data dictionary and provide a more comprehensive foundation for course content on preservation metadata; and add a section on institutional repositories in relation to digital preservation goals and objectives, as well as integrate additional practical advice and examples for raising awareness about digital preservation programs and supplement the content on certification with self-assessment and audit principles and practice. Appendix A provides more specific explanations of the developments planned for Phase 3.

Workshop

The workshop is an intensive, results-driven educational offering in which small groups work together to define and address a continuum of issues raised by the challenges associated with preserving digital assets. Participants are introduced to current and emerging standards, tools, and practices and asked to consider the implications of these developments for their own situations. Through lectures, exercises, group discussions, a class project, and the use of an extensive notebook containing action plan templates and resources, participants move from theories and concepts to implementation strategies that are grounded in practical solutions and next steps. Feedback from participants on workshop evaluations highlights the value of this rare opportunity to gather with colleagues who are experiencing similar digital preservation challenges and to share information and frustrations. The workshop prepares and encourages participants to raise awareness about digital preservation at their home institutions, to identify achievable next steps for digital preservation planning and action, and to prioritize their responsibilities for their digital assets so that some measurable progress becomes possible.

Phase 3 will build on Phases 1 and 2 of the curriculum development and will involve considerable effort to maintain the content currency and respond to tutorial users and workshop participants. The curriculum develops and extends incrementally based on feedback and review of each workshop, and the tutorial undergoes both routine checking and substantive periodic

updates and revisions. Keeping up in this rapidly changing environment is one of the greatest challenges to trainers and practitioners alike.

To maintain the currency of the content, the workshop team actively monitors research and initiatives that are funded by the National Endowment for the Humanities, the National Science Foundation, the Digital Library Federation (of which ICPSR is an allied member), the National Digital Information Infrastructure and Preservation Program (NDIIPP) at the Library of Congress (of which ICPSR is a research partner), the Joint Information Systems Committee (UK), the Digital Preservation Coalition (a curriculum development partner for this workshop series) and the Digital Curation Centre in the UK, the British Library, the European Union, Deutsche Forschungsgemeinschaft and the nector program (Germany), Koninlijke Bibliotheek (the Netherlands), the national libraries and archives in Australia and New Zealand, and others. National and international standards that relate to digital preservation, file formats, naming conventions, persistent identifiers, compression, storage media, and metadata are monitored via numerous relevant print and online publications, listservs, Web blogs, and project Web sites. The student assistants will be invaluable in ensuring the currency and comprehensiveness of the tutorial and workshop content.

In this phase of the curriculum development, the five-day curriculum will be enhanced with more illustrated examples of workflow and tool integration for digital preservation programs, preservation metadata (implementation and organizational issues), examples from a broader range of digital content (e.g., digital audio and video, geospatial information, Web-based content), preserving the products of the research lifecycle, and data stewardship for e-science and e-social science. Examples and exercises will place greater emphasis on adjusting scalability of digital preservation approaches to suit a range of organizational contexts and requirements. Though the approaches apply to programs of all sizes and scopes, more case studies and examples are needed to illustrate how approaches are adapted to various contexts in practice. The five-day workshop curriculum will inform the development and provide the starting point for advanced topical workshops (as described below) to address the needs expressed by workshop participants for additional training on specialized and advanced topics. Appendix B provides detailed outlines for the current tutorial and workshop including plans for expanding the scope of coverage.

Enhancements and Innovations

In addition to maintaining content currency and expanding coverage of the tutorial and the five-day workshop curriculum, this phase of curriculum development breaks new ground by developing advanced one-day and two-day workshops to supplement the core curriculum in response to subject-specific requests from workshop participants. We will develop a train-the-trainer program to build the base of instructors by tapping the pool of past workshop participants and working with educators at the participating institutions. We will determine the requirements for a “workshop-in-a-box” approach to create a well-documented and portable curriculum that encapsulates the core principles and objectives of the curriculum while allowing for instructor preferences in presenting the materials. These enhancements and innovations respond to feedback from past and potential workshop participants who urge the continuation of the successful five-day workshops and the addition of workshops that provide more in-depth coverage of a range of organizational and technological topics. This continuing education

program aims to address the lifelong learning objectives of organizations and individuals engaged in digital preservation. A long-term objective of the curriculum development project is to be responsive to the needs of the digital cultural heritage community by building a base of instructors and a network of providers to offer on-demand and just-in-time workshops.

Advanced Workshops to Supplement the Core Curriculum

ICPSR will develop and present one two-day and two one-day intensive, advanced workshops each year. Workshop participants routinely request more time and examples for specific topics in their end-of-workshop evaluations. The five-day workshop schedule cannot accommodate this request without sacrificing some of its comprehensiveness, an aspect of the workshop that is highly valued by participants. Based on these suggestions, the likely topics for Year 1 are OAIS Implementation and Workflow, the Economics of Digital Preservation, and Preservation Metadata. Appendix B contains more detailed descriptions for each of these topics. The topics for Year 2 workshops will be determined by additional feedback from participants and with input from the advisory board. Possible topics include case studies on digital preservation policies and plans, digital preservation rights management, records management in the context of digital preservation, digital preservation technology infrastructure, and managing persistent identifiers. The curriculum development for these workshops will include an environment scan and broad-based background research by the student assistants, the identification of topics to be added to the foundation layers in the online tutorial, discussions with the participating instructors at Michigan and the Advisory Board members, the development of curriculum materials (including slides, exercises, an action plan framework, relevant exemplars, and additional resources) using the model developed for the five-day workshop and building on its content, and evaluation of the curriculum after at least one full presentation of the workshop. We will enlist contributions from and review by past participants using the Participants' Listserv.

Train-the-Trainer Program

ICPSR will develop and extend the base of experienced workshop instructors through the establishment of a train-the-trainers program. We will test and evaluate three approaches to training instructors:

- 1) *Comprehensive observation, assignments, and practice*: The first approach involves including one past workshop participant in each workshop to observe (before, during, and after the workshop) and teach or co-teach at least one section. This approach would help prepare instructors who could oversee the presentation of a workshop and would be able to teach individual sections. This is an optimal approach, but available time and resources will produce ten instructors with this approach, one for each workshop in the series. Each participant would receive general training experience; four will be trained in the full five-day curriculum; and an additional six would become familiar with the specific curriculum of the one-day and two-day workshops. Funding for this approach is included in the project budget under external instructors.
- 2) *Classroom observation and assignments*: The second approach would involve encouraging interested instructors to attend the workshops as participants and engage in extracurricular assignments and exercises during and after the workshop. This approach would help prepare instructors to present individual sections in future workshops. The

participants in the second approach would pay the registration fee. The resources required for the preparation of the train-the-trainer materials for the exercises and the evaluation of the assignments (beyond the workshop core curriculum) for the second approach are reflected in the budget under ICPSR workshop staff time. This approach would potentially expose forty or more participants to the train-the-trainer program, but the degree of exposure would be significantly less than in the first approach. There would be much less time for each participant to practice.

- 3) *Concentrated train-the-trainer instruction, assignments, and practice.* The third approach involves arranging for a group of interested trainers to attend a week-long session in Ann Arbor that is devoted to the train-the-trainer program and is not offered as part of a regularly scheduled workshop. This approach would ideally prepare instructors to present one or more workshops using the Digital Preservation Management curriculum through a program sponsored by their home institutions. This approach will require institutional (or professional association) support for the participants to attend a week-long train-the-trainer session. This would entail travel expenses, but no registration fee would be charged by ICPSR for the third approach. The time required for preparation of the training materials for this third approach is included in the ICPSR staff time and may include participation by other Michigan instructors.

Both of the first two approaches would benefit from observation of the workshop being presented to real participants; the third approach would not have that benefit, but would be devoted to instructional principles and practice using the workshop curriculum as the framework. The assessment of the effectiveness of each of the three approaches (based on feedback from participants and evaluations from instructors) and the lessons learned from implementing the train-the-trainer program will be included in the final project report. In developing each approach, the workshop team will seek advice and input from the providers of other train-the-trainer programs. We will establish a separate listserv or online space (e.g., a wiki or a Web blog) for participants in the train-the-trainer program and instructors to exchange information, ideas, examples, and curriculum developments. Appendix B contains more detailed descriptions and potential numbers of participants for each approach.

Workshop-in-a-Box Curriculum Development

It has been our intent from the start of this workshop series to develop a core curriculum that would provide a baseline for use in a broad range of contexts so that we could build a broad, even global, base of practitioners who have taken the workshop, who share a common language, and who have acquired the tools and been encouraged to launch or enhance their own digital preservation programs. We are pursuing this objective using a modified open source approach for developing and distributing the curriculum development to trusted providers. Feedback from workshop participants demonstrates clearly that it is the combination of experienced practitioners, a practical and adaptable curriculum, and the obvious enthusiasm of the instructors for presenting and discussing the topics that has made the workshop series a success. We have been reluctant to simply post the curriculum materials for open public use. To ensure that the curriculum retains its unique characteristics as we share the materials with a growing base of instructors, we would like to encourage the extension and sustainability of the workshop curriculum, for as long as it remains useful, through the development of a distributed network of

institutions and professional organizations (for librarians, archivists, and museum specialists that are engaged in the lifecycle management of digital content) to host and support the workshop series. During this phase of curriculum development, we would like to develop a method for packaging the curriculum using the concept of “workshop-in-a-box” – or everything needed by a host and its instructors to present the workshop – a portable package containing documentation, learning plans, a set of possible exercises with notes from instructors who have used them, a modular syllabus, and synthesized feedback from participants who have taken the workshop. In designing the curriculum packaging, we will incorporate lessons learned from sharing the curriculum with a team of instructors at the Digital Preservation Coalition (DPC), our partners in Phase 2 of this curriculum development project (see Kevin Ashley’s letter of support on behalf of the DPC). Appendix B contains additional information about this aspect of the curriculum development.

Structure and Delivery of the Curriculum

Phase 3 will continue the commitment to the principles, underlying pedagogy, and delivery method that have made Phases 1 and 2 so successful.

Adopt Key Principles of Adult Education

The success of the curriculum depends not only on the content but also on the underlying pedagogy and delivery method. There is tremendous value in developing a teaching approach that fits the characteristics and learning needs of the target audience. Our target audience includes adult professionals who have been charged with developing digital preservation programs in their home institutions. We incorporate key principles and conditions that facilitate adult learning—especially in the realm of professional development in new areas. Our approach to teaching and learning builds on the following premises that were tested and shown to work effectively in Phases 1 and 2.

- *Adults are autonomous and self-directed learners who need to be involved in learning.* The workshop curriculum includes sessions that allow participants to work in small groups and assume responsibility for their own learning. The class project provides participants with opportunities to reinforce and apply the information presented during the lectures via the tutorial (see Appendix B).
- *Adults connect learning to their own work experiences and past knowledge base.* A concerted effort is made to draw on the experiences of the participants themselves. Prior to attending the five-day workshop, each participant completes a Survey of Institutional Readiness and brings whatever examples of organizational documentation that they have to share with others (see Appendix F).
- *Adults are goal and relevancy oriented. Learning has to be directly applicable to their work to be of most value.* The workshop is designed to move from self-assessment to the development of digital preservation policies and practices. The workshop notebook provides action plans for participants to use in creating a comprehensive preservation plan that is appropriate to the specific needs and circumstances of the home institution. NOTE: As an alternative to providing a hard copy of the notebook, an electronic copy of the notebook materials is available to NEH reviewers at: <http://staging.icpsr.umich.edu/temp/dpm-notebook/> using the password and login: *DPMworkshop*.

Limit each Workshop to Twenty-Four Participants

Encouraging participants at the managerial level to attend the workshop creates an environment that encourages participants to reflect on the value of information received in relation to the situation at their home institutions and to develop decision-making skills consonant with their own institutional contexts. Limiting each workshop to twenty-four participants encourages individual participation and constructive group dynamics. The Participants' Listserv provides a vehicle for information sharing and discussion among instructors and participants.

Because enrollment is limited, formal selection criteria are communicated to potential attendees. The ideal candidate is an individual in a position of responsibility to develop or influence an institutional digital preservation strategy. Applicants who can demonstrate institutional support (e.g., a letter of commitment by their director) are given priority. Timely registration for the workshop is also considered. Space permitting, participation by multiple staff members from the same institution is encouraged, especially if that allows both organizational and technological perspectives to be included.

Utilize a Variety of Learning Methods

To enhance the educational experience and address different learning styles, the workshop incorporates combinations of six key teaching and learning formats: presentations, group discussions, individual and small group work, a class project completed in groups of six participants, case studies, and offsite visits when possible and appropriate. In addition, the workshop instruction team for each workshop consists of up to seven instructors plus a keynote speaker for the five-day workshop, offering participants an array of teaching styles. During Phase 2 of the curriculum development for the workshop, the lecture component of the five-day workshop was balanced with an emphasis on the other learning formats, especially small group work and group discussion. Phase 3 continues this trend as we revise the five-day curriculum and develop the curriculum for one-day and two-day workshops.

Take Advantage of Distributed Learning Opportunities

The Web provides a beneficial and effective option for professional development through distance education. The workshop series utilizes this teaching format through its online resources, which are accessible at all times in English and French (with the possible addition of more languages) without fees or user restrictions, to reach the widest possible audience. A printable PDF version is always offered to meet the needs of those with limited connectivity. Users have time and place flexibility to determine their own pace for learning. The tutorial is organized into sections, allowing readers to repeat parts when necessary or to skip portions not of interest to them. This component-based approach facilitates the workshop team's ability to maintain content currency. The comments link allows readers to send questions and suggestions to the teaching team via email. This creates a continuous stream of feedback for the instruction team as well as a direct connection for users.

Work Plan

Appendix D provides the Gantt chart to document the work plan.

Update and expand coverage of five-day workshop and tutorial (Months 1-5)

- Conduct environmental scan for updating the curriculum (e.g., recent publications, research results and developments, conferences and meetings, technical reports)

- Refine the content of curriculum materials, the learning objectives, and outcomes based on the results of the scan and on a deeper analysis of workshop evaluations
- Assemble resources required for successful delivery of the curriculum: relevant publications, Web-based examples, sample projects, tools for demonstration
- Update and expand coverage in the tutorial and workshop curriculum, including examples and exercises
- Announce revised version of the tutorial and provide revised tutorial content to the Canadian Heritage Information Network (CHIN) to update the French version
- Refine the responsibilities checklist for the workshops (see Appendix E)

Announce workshops, schedule instructors, update Web site and tutorial (Months 1-4)

- Determine the dates for the entire series and make tentative assignments of Michigan instructors for each workshop
- Confirm keynote speakers for each five-day workshop and make necessary travel and other arrangements (see Appendix I for biographic paragraphs of potential keynote speakers)
- Update workshop Web site to disseminate information about the workshop (including information on the tutorial, admission requirements, application form, workshop dates and the associated deadlines, partial tuition stipend, etc.)
- Publicize workshops and open registration for the first five-day workshop
- Select participants two months in advance of each workshop

Conduct initial curriculum evaluation (Month 5)

- Conduct formal evaluation of the revised tutorial
- Review/refine session outlines and participant exercises
- Assess and evaluate the skills of the teaching and support team in light of these evaluations
- Refine curriculum based on these evaluations

Develop and implement train-the-trainer program (Months 2-24)

- Complete the environment scan of train-the-trainer programs and compile results
- Develop the scope, description, and criteria for the three train-the-trainer approaches
- Develop the application for train-the-trainer attendees and seek applicants, recruit participants, and seek institutional hosts
- Review applications and select a participant for each workshop
- Offer train-the-trainer sessions
- Revise/refine train-the-trainer sessions based on feedback

Present five-day workshops (Months 6-22)

- Offer four five-day workshops: Spring 2008, Fall 2008, Spring 2009, Fall 2009
- Systematically review participants' feedback and discuss with instructors after each workshop, prepare review package for the advisory board meeting see Appendix J for biographic paragraphs of advisory board members)

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- Work with student assistants to update content, expand resources, and perform background research on research and developments in support of the workshop series
- Incorporate participants' feedback into curriculum revisions

Develop and present one-day and two-day workshops (Months 2-22)

- Draft outline for each workshop
- Convene instruction team to review/refine outline, determine scope and sequence of sessions, assign research tasks to student assistants, and set development schedule
- Hold weekly review meetings to assess status, adjust schedule, fill gaps
- Develop lectures, exercises, resources, and supplementary materials
- Accumulate examples and resources for workshop, work with student assistants
- Adapt class project approach for use in two-day workshops

Conduct ongoing curriculum evaluation (Months 5-24)

- Collect and analyze Institutional Readiness Surveys from workshop participants (see sample form in Appendix F and sample results in Appendix G)
- Administer participant evaluation form at the end of each workshop
- Continue to solicit feedback on the tutorial via online evaluation form (Appendix E)
- Adapt survey and evaluation forms for one-day and two-day workshops
- Develop and administer evaluation form for train-the-trainer participants
- Conduct ongoing workshop/tutorial evaluation based on Web statistics and use comments
- Analyze the comments/suggestions of workshop participants
- Seek ongoing feedback from participants about progress and outcomes
- Arrange post-workshop instruction team meetings for self-evaluation of individual sessions and the full curriculum
- Revise curriculum in response to feedback
- Include experts on Advisory Board in curriculum evaluation

Hold advisory board meetings (Months 6 and 18)

- Make local and travel arrangements for advisory board meeting two months ahead
- Prepare review package for advisory board members (e.g., compilations of curriculum materials, workshop evaluations, train-the-trainer activities and evaluations)
- Develop meeting agenda with advisory board chair (make arrangements for meeting notes and meeting support)
- Hold meeting
- Compile and share advisory meeting results and recommendations
- Revise and enhance curriculum based on recommendations

Refine and update curriculum and tutorial (Months 7-24)

- Provide continuing education opportunities for the instruction team for curriculum update
- Add new components to the tutorial and workshop to reflect technology developments
- Revise the tutorial on a quarterly basis
- Implement findings of the evaluation process to improve and refine the curriculum
- Respond to tutorial user inquiries in a timely fashion
- Develop and test workshop-in-a-box curriculum packages

Prepare final report and recommendations (Months 23-24)

- Conduct online survey of workshop participants and selected users of the tutorial
- Conduct follow-up interviews with a selected group of respondents to discuss outcomes, suggestions for curriculum modifications and developments, ongoing needs
- Compare the workshop with other digital workshops to determine whether it continues to fill a continuing education need
- Prepare and submit the final report to NEH

Evaluation

Evaluation has been an essential component of the first two phases of curriculum development for the workshop series and will continue to play a central role as the curriculum is enhanced and extended. Various methods will be used to assess how well the curriculum objectives are achieved, to collect input for continuous revision and refinement of the workshop and the tutorial, and to verify adherence to the principles identified in the *Structure and Delivery of the Curriculum* section of this proposal.

In the first two training series, we invited external reviewers, including Evelyn Frangakis, Neil Beagrie, and Maggie Jones, to formally evaluate the tutorial. Their feedback proved invaluable in ensuring that the tutorial provided a solid baseline as a prerequisite for workshop attendees and as a comprehensive introduction for other users. We continue to solicit feedback through the online evaluation form, available on the home page of the tutorial (see Appendix F), and workshop evaluations as new content is introduced and existing content is supplemented. Tutorial enhancements have regularly included usability testing and adjustments to meet usability guidelines, improve navigation, and avoid broken links.

The workshops are evaluated in several ways. During each workshop, instructors use the completed surveys of institutional readiness to adjust the level of session content and seek participant feedback each day to ensure that questions are addressed. At the end of each workshop, participants complete a formal written evaluation (see Appendix F). This form developed for the five-day workshop will be adapted for use in the one-day and two-day workshops. After the workshop, the instructors meet to review the evaluations and share their own assessments of the workshop in preparation for the next workshop. Any section that scores below a “good” rating (3.0) is redesigned and the roster of guest lecturers is adjusted accordingly. Lessons learned from each workshop will be captured as documentation for the curriculum to contribute to the development of learning objectives, instructor guidelines and examples, and additional exercises.

Additional feedback is sought from former workshop participants through the Participants’ Listserv, established by Martin Halbert, Director of Library Systems at Emory University, at the end of the first workshop. The Cornell workshop team took on responsibility for maintaining the listserv during Phase 2 of the workshop series and the listserv will be moving to ICPSR for Phase 3. Participants are invited to join the listserv, which currently includes more than 250 past participants, at the end of each workshop. Although use of the listserv has been sporadic, it offers a continual source of feedback for the instructors and a means for sharing new content with earlier participants.

The first two phases of the workshop series included a systematic review of workshop evaluations, an online survey of past participants for additional post-workshop feedback, and follow up discussions with respondents who provided contact information. The results of this review formed the basis of the list of advanced topical workshops that are proposed for Phase 3 of the workshop.

The success of Phase 3 of the workshop series will be measured in several ways. The first goal is to create the following deliverables: an updated and expanded tutorial, an enhanced five-day workshop curriculum, and new curriculum materials for four one-day and two two-day advanced workshops. This goal will be met if ICPSR holds four five-day workshops, develops and presents the one-day and two-day workshops, produces well-documented and portable curriculum materials, and releases an enhanced version of the tutorial each year with continual updates of links and basic content. A second goal of the project is to ensure that the workshop curriculum meets the needs of the target audience, managers who are or will become responsible for digital preservation. This goal will be met if workshop and tutorial evaluations average 3.5 or higher on a scale of 1-4, with 4 representing excellent. Both the tutorial and the workshop exceeded this goal in both Phase 1 and Phase 2 of the workshop project (see Appendix F).

A third goal is to encourage the sustainability of the workshop series by building the base of instructors through the use of a roster of instructors at Michigan, the implementation of a train-the-trainers component of the project, and the identification of institutional partners to sponsor the management and further development of the workshop curriculum. This goal will be met if the roster of Michigan instructors in various combinations presents the slate of workshops, a dozen new instructors have the opportunity to work with the curriculum, and a minimum of 2 or 3 institutional partners agree to sponsor workshops based on the curriculum. A number of past participants have expressed interest in the train-the-trainer program and several institutions have inquired about the possibility of sponsoring the workshop, so this goal is realistic.

The fourth goal of the workshop series is to encourage the development of effective short-term digital preservation programs. This goal will be achieved if 50% or more of the workshop participants make at least one significant change to protect digital assets at their institutions within one year of taking the workshop; if 30% are able to convince their institutions to adopt or significantly revise formal policies for digital preservation; and if 10% or more are able to implement new programs within two years of their participation in the workshop.

The Participants' Listserv provides the means for periodic surveys of workshop participants as one means to assess the progress and development of workshop participants. In preparation for this grant, we posted an online survey that resulted in responses from 87 workshop participants. The summary of the results are provided in Appendix G.

Staff, Faculty, and Consultants

Nancy Y. McGovern, is the principal investigator and project director for this project. She became the Digital Preservation Officer for ICPSR in September 2006. As Digital Preservation Officer and Director of Research and Assessment Services at Cornell University Library, she

collaborated with Anne Kenney on the development of the Digital Preservation Management workshop series. She has been a principal instructor for the workshop and since it began in 2003. She is a member of the ISO working group on digital archive certification and served as a member of the RLG/NARA Digital Archive Certification Task Force, experiences that inform the development of the workshop curriculum. She has focused on digital preservation research and practice since 1986, when she began a decade of service on the senior staff of the Center for Electronic Records at the U.S. National Archives. She is completing her PhD on a digital preservation topic at University College London. For this project, she will direct the curriculum development for new and existing modules, oversee the tutorial enhancements, supervise the project manager, keep partner institutions informed and involved, and ensure that each workshop is well-presented and orchestrated, and complete and submit project reports to the Advisory Board and to NEH. As a core instructor, she will devote considerable time to preparing, teaching, and revising the workshop curriculum. She will oversee tutorial updates, coordinate the train-the-trainer component of the workshop, and serve as liaison to potential institutional sponsors of the workshop series.

The *Project Manager* for Phase 3 of the curriculum development project will coordinate the scheduling and presentation of each workshop; manage all curriculum materials and project files; maintain the workshop schedule responsibilities checklist for each workshop; serve as the principal liaison with the keynote, Michigan, and external instructors; compile and update the workshop notebooks and associated resources; and supervise the student assistants for the project. This position will be hired for the project, preferably from the pool of past workshop participants, several of whom have expressed interest in becoming more involved with the development of the workshop. The job description for this position is provided in Appendix H.

David Merchant is the Program Coordinator for the Summer Program in Quantitative Methods of Social Research at ICPSR. He has almost ten years of experience in various aspects of organizing the Summer Program and will be an ideal fit for coordinating the DPM workshop arrangements. David will organize all logistical and supporting aspects of the workshop. His responsibilities include publicity, financial accounting, workshop registration, travel and hotel, equipment purchases, printing and distribution of course materials, and arranging conference rooms and catering. He will maintain and monitor project budgets.

Wendi Fornoff is an experienced Web Designer at ICPSR who specializes in usability. She has been responsible for the transition of the tutorial from Cornell to ICPSR, a process that is almost completed. Wendi will coordinate the maintenance and enhancement of the tutorial and workshop Web site. She will be in charge of monitoring usage of the tutorial, developing online surveys, compiling evaluation results, and coordinating responses to questions and comments sent by readers.

Student Assistants will conduct background research, support instructors in the development of curriculum materials, provide content and updates needed to enhance the tutorial, develop examples and case studies for use in the tutorial and workshops, and assist with the delivery of workshops. As previously stated, student assistants may draw from the strong group of graduate students at the School of Information, from other academic programs at Michigan, or from programs at other colleges and universities.

Michigan Instructors

In addition to the ICPSR staff identified above, instructors for the five-day, two-day, and one-day workshops will include experienced educators and practitioners from the participating institutions at the University of Michigan, the School of Information, the University Library, and the Bentley Historical Library (see Appendix H for résumés of instructors). Tapping the breadth of experience at Michigan through the roster of potential instructors will allow for controlled experimentation with and observation of the benefits and challenges of scheduling and presenting workshops from a pool of potential instructors as the workshop series extends into a network of institutional hosts. The ultimate objective is to construct a distributed organization of hosts and instructors that will be able to deliver workshops in response to community needs.

Potential instructors from the School of Information include:

Elizabeth Yakel is an associate professor in the School of Information and coordinator of the Preservation of Information specialization in the Master of Science in Information program. Before joining the SI faculty, she was an assistant professor at the University of Pittsburgh, School of Information Sciences. Prior to that, she worked in a variety of archival and records management settings. Her research interests include use and user services for archival materials, particularly focusing on the digital realm, and the development of recordkeeping systems. She has published widely on many aspects of archival use and user services and recordkeeping systems in major archival journals, including *American Archivist*, *Archivaria*, and *Archival Science*. She is a Fellow of the Society of American Archivists and has won numerous awards for her research and writing in the area of archives. Her expertise will be generally useful for developing and presenting workshop modules on the organizational aspects of digital preservation as well as particularly pertinent to the development of the advanced workshop on institutional records and instrumental in the development of the train-the-trainer program.

Paul Conway, Associate Professor, has extensive teaching experience in the preservation and archives fields and has made major contributions over the past 30 years to the literature on archival users and use, preservation management, and digital imaging technologies. His research interests include the challenges of representing and interpreting visual and textual resources in digital form, ethics and information technology, and incentive systems for digital preservation, particularly in the context of emerging interdisciplinary scholarship in the humanities. He has held leadership positions at the National Archives and Records Administration, the Society of American Archivists, Yale University, and Duke University. In 2005, Conway received the American Library Association's Paul Banks and Carolyn Harris Preservation Award for his contributions to the preservation field. He is a Fellow of the Society of American Archivists. His expertise will contribute to the enhancement and presentation of organizational and technological sections of the core curriculum, as well as contribute to the development of topical workshops in the areas of preservation metadata, institutional records, the economics of preservation, and to the establishment of the train-the-trainer program

David A. Wallace is a lecturer III at the School of Information. His major areas of research include investigations into the connections between archiving and the shaping of the present and the past; the role of archives in enabling and denying accountability and justice; and

computerization of government records. Since 1994 he has authored more than 45 publications and given over 50 presentations at professional forums on recordkeeping and accountability; freedom of information; government secrecy; professional ethics; electronic records management; graduation archival education; information infrastructures; and, cultural heritage on the Web. He is co-editor of *Archives and the Public Good: Accountability and Records in Modern Society* (Westport, Connecticut: Quorum Books, 2002). In 2001 he received ARMA International's Britt Literary Award for best article in the peer-reviewed *Information Management Journal*. Wallace has consulted widely, including associations with the Nelson Mandela Foundation's Centre of Memory; the South Africa History Archive; and Computer Professionals for Social Responsibility. He will contribute revising and delivering the legal issues and policy-related sections, have a formative role in developing the advanced institutional records workshop, and assist with the development of the train-the-trainer program and its implementation in the advanced workshops.

Potential instructors from the University Library include:

John Wilkin is Associate University Librarian for Library Information Technology and Technical Access Services. He has been actively involved in the creation and management of digital collections for more than fifteen years, including leadership of the Humanities Text Initiative and the Digital Library Production Service at Michigan. He coordinates the Library's participation in the large-scale digitization project with Google. He has led digital library research and development in the areas of discovery, metadata, and distributed digital libraries. His expertise will contribute to ensuring the relevancy and currency of the tutorial and workshop curriculum, to the identification and development of case studies and examples, and to the delivery of organizational and technological sections of the core curriculum, as well as to the development and delivery of advanced workshops on metadata, workflow, and others.

Perry Willett has headed the Digital Library Production Service at the University Library since 2004 and has worked with electronic resources in libraries since the late 1980's at the University of Indiana and at the State University of New York at Binghamton. He has written about and conducted research on electronic texts in the humanities and digital collections for the past decade. He will contribute to the development of an in-depth example of workflow development and implementation for digital content management, to the development of the metadata workshop, and generally contribute examples and content to the enhancement of the tutorial and the development of the workshop curriculum.

Anne Karle-Zenith is a Special Projects Librarian at the University Library in the areas of information technology and technical services. She has responsibility for workflow development and is becoming increasingly involved in training and documentation and is active in a working group for training at the Library. She is a past participant in the DPM workshop. Before graduating from the School of Information at the University of Michigan, she worked for nearly a decade in copyright, contracts, and information management for the music industry. She will assist with the identification, compilation, and development of examples and case studies for the tutorial and the workshop curriculum and specifically contribute to the development of modules and workshops on workflow and metadata.

Potential instructors from the Bentley Historical Library include:

Nancy Bartlett, is Head of University Archives, Bentley Historical Library, University of Michigan and Assistant Director for Academic and International Programs at the Bentley Historical Library. With undergraduate and graduate degrees from the University of Michigan, Nancy Bartlett has held a variety of professional positions at the Bentley Historical Library over the past twenty-two years. Since 2006, she has also taught a course on archival administration as an adjunct lecturer in the University of Michigan School of Information. Areas of research, editing, and writing have concerned archival history, cultural studies of archives, emigration archives, archives and visual materials, and the history of architectural pedagogy at the University of Michigan. As head of the University Archives, she has developed policy and procedures for the appraisal and transfer of digital records. A Fellow of the Society of American Archivists, she has participated in a number of international research and teaching initiatives in Russia, China, Denmark, and France. She is an experienced instructor will take a leading role in the development and delivery of the workshop on institutional records, identify and propose updates and enhancements to the tutorial and workshop curriculum, and assist with the development and implementation of the train-the-trainer program.

Nancy Deromedi, is an associate archivist at the Bentley Historical Library, University of Michigan. Her experience with digital records began in 1997, while still a graduate student, with the digital files of former University president James J. Duderstadt. She has worked on numerous U-M digital initiatives such as establishing processes for the transfer of key university records to the University Archives, serving on the preservation committee for the implementation of the university's institutional repository ("DeepBlue") and serving on the committee for the implementation of the university-wide blogging service, called mBlog, which will include an archival component. She is also a regular lecturer in the Archives Practicum, which is a core course within the archives track at the School of Information, University of Michigan. She is completing several case studies that will be a core part of a workshop on electronic records in an academic setting. The workshop, sponsored by the Bentley Historical Library and funded by the Andrew W. Mellon Foundation, will include university archivists and records managers from 23 large research universities. She has given several presentations to a wide variety of national and international audiences on digital issues and initiatives at the University of Michigan. Her instructional experience, her work on the development of the electronic records case studies, and her involvement with key electronic initiatives will be essential to the development of the institutional records workshop, as well as generally to enhancing the tutorial and the workshop curriculum.

External Instructors

The *external instructors* for the workshop series will be recruited primarily from the pool of workshop participants for Phase 1 and Phase 2. Participants from Phase 3 will be eligible once they have completed the five-day workshop. For each workshop in Phase 3, one external instructor will participate in the preparation, delivery, and assessment of the workshop to experience the full lifecycle of the workshop and to teach or co-teach at least one session of the workshop. Ideally, each external instructor will have secured an expression of interest from his/her home institution or from a professional organization with digital preservation interests for hosting the workshop. The external instructors will contribute to the successful delivery of workshops and benefit from their train-the-trainer experience.

Advisory Board Members

Phase 3 of the curriculum development will have an experienced Advisory Board to guide the transition of the workshop series from Cornell, its original home institution, to its new home at ICPSR (see Appendix J for biographic paragraphs of Advisory Board members).

Anne R. Kenney, Cornell University Library, will chair the advisory board. She served as the principal investigator on Phases 1 and 2 of the Digital Preservation Management workshop series curriculum development projects and originated the workshop model with an equally successful series of digital imaging workshops.

Steve Dalton, Boston College, is a past participant of the DPM workshop and a workshop provider for the Northeast Document Conservation Center (NEDCC) training series as Director of Field Services, including the School for Scanning.

Robin Dale, UC Santa Cruz, was keynote in Phase 2 of the DPM workshop series and she has led or been deeply involved in several major digital preservation initiatives, including Trusted Digital Repositories, OAIS, and digital archive certification.

Diane Geraci heads the Social Science Library at Harvard College Library and has taught the week-long course on social science data services, including preservation, since the late 1980's.

Myron Gutmann is the Director of ICPSR and a professor of history and information at the University of Michigan. He has been directly and indirectly involved with data preservation since the late 1960's.

Margaret Hedstrom, a professor at the School of Information of the University of Michigan, served as the opening workshop keynote speaker in Phase of the DPM workshop series. She has authored many articles on digital preservation topics and she was an author of the seminal 1996 report, *Preserving Digital Information*.

Theresa Pardo, Center for Technology in Government, was a principal on the NDIIPP project on state needs assessment for the Library of Congress, serves on the faculty at the University of Albany in public administration and information technology, and has worked on digital preservation research and development projects for the past decade.

The mixture of expertise on the Advisory Board is well-suited to evaluating the workshop curriculum and in reviewing the plans and outcomes presented by the workshop staff.

Budget

The Inter-university Consortium for Political and Social Research (ICPSR) with its partner institutions at the University of Michigan – the School of Information, the University Library, and the Bentley Historical Library – is seeking support to conduct a two-year program that will result in further refinement and expansion of the online tutorial, enhanced curriculum for four intensive five-day workshops, the development and presentation of six topical one- and two-day workshops, travel support for external train-the-trainer participants, and expenses for one advisory board meeting per year to inform the curriculum development process. Additional notes on the project budget are provided in the more detailed Budget section of the proposal (pages 37-39).