

Preservation of State Government Digital Information: Issues and Opportunities

Report of the Library of Congress Convening Workshops
with the States

The Library of Congress
National Digital Information Infrastructure and Preservation Program

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Executive Summary

The Library of Congress, through its National Digital Information Infrastructure and Preservation Program (NDIIPP), is implementing a national strategy to protect significant digital content that is at risk of loss. This effort includes identifying stakeholder communities and the digital material of concern to them. The Library has established an initial network of preservation partners and is exploring how best to work with additional stakeholders to expand the scope and impact of NDIIPP. A focus of this exploration has been state and local governments and their digital information assets.

State and local governments generate and hold vast amounts of digital information. Many functions, from administering justice to conducting emergency management operations to reporting on official activities, now depend on the use—and reuse—of electronic data and documents. Much of this information has short-term value, although a considerable fraction must remain available for many years to document significant facts and events. All signs point to continued growth in the volume and complexity of this information. But few governments have taken steps to ensure their digital information is adequately preserved.

State libraries and state archives traditionally have managed, preserved, and provided public access to significant government information in paper, and their duty typically extends to the digital realm as well. Most libraries and archives are having serious trouble fulfilling this digital responsibility. They are overwhelmed by a host of technical, organizational, and other shortcomings. Some grounds for optimism exist, however, as these institutions have voiced determination to overcome the barriers to digital preservation.

The Library of Congress convened three workshops with representatives from all 50 states during 2005 to listen and learn about how states are coping with the digital preservation challenge. Findings from the workshops are outlined in this report.

Workshop participants told of scarce funding, limited staff expertise, and inadequate technical infrastructure. There were accounts of problems managing all aspects of the digital life cycle, from creation to public access. This litany of difficulty, however, is only part of the story. At the start of the first workshop, a participant encouraged his colleagues to look beyond tribulations to a more balanced view that recognizes accomplishments and offers ideas for doing better. Observing that some states are making progress, he also pointed to the willingness of so many representatives to attend the NDIIPP forums. This, he said, indicated a broad determination to improve. His statement proved true, as all the workshops featured reports of challenges counterbalanced with positive details about preservation-related projects and testimonials to the necessity and power of collaboration.

Five basic themes emerged from the workshops.

- Identifying Significant Digital Information
 - Publications, web pages, data sets, and records are the top generic priorities for preservation
 - Courts and legislatures, as well as executive branch agencies, produce many varieties of significant digital information
 - Copyrights claimed by commercial entities, as well as the opacity of state policies about the copyright status of government information, can complicate preservation
 - Records management contributes to an approach that emphasizes attention to actions taken during all stages in the life of digital information
- Learning by Doing—With Some Help
 - States recognize strong stewardship responsibility for their digital information
 - States need assistance in learning about preservation objectives and options
 - Many state libraries and archives have limited technical resources but want to initiate preservation projects
 - States want broad information about digital preservation projects, best practices, and collaborative opportunities
- Operational and Technical Infrastructure
 - Several states have developed modest capabilities for digital preservation
 - Many states face serious barriers to infrastructure development and extension
 - State librarians and archivists need to work with information technology organizations to develop a common vocabulary and shared perspective
 - The Enterprise Architecture approach in most states offers a largely untapped opportunity for libraries and archives to work effectively with information technology organizations

- Breaking Silos: Communication, Collaboration, and Partnership
 - State libraries and state archives need to work more closely together
 - Many states need to improve their policies, practices, and organizational relationships to support digital preservation
 - Libraries and archives must be more active and more effective in reaching out for support from decision makers and stakeholders
 - States want help to bring related communities together, initiate partnerships, facilitate communication, and otherwise build a digital preservation community

- Resources: Funding, Personnel, Mandates
 - Many states have insufficient budgets, too few staff, and inadequate legal authorities to undertake effective digital preservation programs
 - A few states have had notable success in gaining funds and improving laws for preservation
 - Libraries and archives must develop more compelling justifications, such as “Return on Investment” analyses, that demonstrate the value of information to stakeholders
 - Libraries and archives need to either train existing staff or hire new staff to fill a present gap in skills needed for digital preservation

The workshops were of great value in helping the Library of Congress learn about the complex issues faced by the states. Participants shared a bounty of facts about significant categories of digital information and helped identify basic priorities. Attendees were enthusiastic, motivated, and keen to share ideas and experiences. They were also eager to establish or strengthen personal connections within the multiple communities represented, activities that continued after returning home in several cases. This commitment—and even passion—for improving digital preservation was remarkable. Despite the barriers, there was no shortage of earnest optimism and suggestions for potential collaboration. The Library is grateful for the willingness of so many to help contribute to the findings outlined in this report, which will inform NDIIPP as it moves forward.

Introduction

What Is at Stake

We know a great deal about the first telegram, the first telephone call, and the first sound recording. Even though these events took place well over a century ago, the content of each communication is very well documented. Information technology spreads this knowledge even further today: Anyone with access to an Internet connection can, for example, go to American Memory on the Library of Congress web site (<http://memory.loc.gov>) and get many facts about each event, along with digital versions of related documents and other evidence.

Ironically, much less is known about significant firsts connected with the Internet itself. The wording of the first e-mail, sent in 1971, is lost to time, as is the text of the first web page, which appeared about 1990.¹

This dissipation of memory epitomizes a trend that is spreading—and deepening—on the heels of advancing change in our society. “When a newspaper's front page hits the newsstands, it creates, so the saying goes, the first draft of history,” notes *The Guardian* newspaper. “But how much history can news websites contribute, when their ‘front pages’ rarely linger more than a single day? And will the trend towards charging for access to online archives eventually destroy the historical archives of the new media industry?” This observation is tied to a story about an Internet publisher’s epiphany on September 11, 2001. “When I saw three different entry pages to CNN within 10 minutes on September 11, I realized: the history of the net was being built—and destroyed—within minutes.”²

State governments, like many other organizations, have embraced information technology with gusto. But, as with newspapers, these improvements come with risks that only become apparent later. The risks are hard to see because they spring from unintended consequences rather than deliberate policies. State governments, in fact, still profess lofty aims put forth during the paper-based past to keep citizens informed about official actions. California law proclaims this intent with eloquence:

It is the public policy of this state that public agencies exist to aid in the conduct of the people's business and the proceedings of public agencies be conducted openly so that the public may remain informed.... The people of this State do not yield their sovereignty to the agencies which serve them. The people, in delegating authority, do not give their public servants the right to decide what is good for the people to know and what is not good for them to know. The people insist on remaining informed so that they may retain control over the instruments they have created.³

¹ Darwin Magazine, January 2002, http://www.darwinmag.com/read/010102/buzz_mover.html; Tim Berners-Lee, FAQ, <http://www.w3.org/People/Berners-Lee/FAQ.html#Examples>

² *The Guardian*, September 16, 2002, <http://media.guardian.co.uk/mediaguardian/story/0,7558,792675,00.html>

³ California Codes, Government Code Section 11120-11132, <http://www.cafc.ca.gov/PDF/bagely.pdf>

Good intentions notwithstanding, there is evidence that governments are having trouble making and keeping important information available. As agencies use increasing levels of technology, current digital data and documents are not always properly managed, and older “legacy” digital materials may be purged, removed from the Internet, retired from systems, or otherwise rendered much harder to find and use—irrespective of value for documenting actions and keeping citizens informed. Consider some worrisome indicators from the federal government. The Government Printing Office (GPO) estimated in 2003 that more than 60 percent of the publications it makes available through the Federal Depository Library Program (FDLP) are online documents, and forecast that the percentage would reach 95 percent shortly. Yet at least 50 percent of all publications are already “fugitive documents”: they never make it to the FDLP, either because they were never submitted or because they were removed from the web.⁴ Major issues also are obvious in connection with official electronic records. In 2001, the National Archives and Records Administration (NARA) issued a report concluding, in part, that “Government employees do not know how to solve the problem of electronic records—whether the electronic information they create constitutes records and, if so, what to do with the records,” and “for many federal employees, the concept of a ‘record’ and what should be scheduled and preserved is unclear.”⁵

The American Association of Law Libraries, in its *State-By-State Report On Permanent Public Access To Electronic Government Information*, presents a blunt assessment of problems with federal information and also raises red flags for the states:

The need to provide permanent public access to and preserve electronic government information is challenging and as yet unmet in any comprehensive manner either at the federal, state or local level. Technical obsolescence and the failure to create a centralized and coordinated system at any level of government have resulted in the loss of huge amounts of electronic government information during the past decade.⁶

But while attention is now focused on preserving digital information, it is worth knowing that issues very much remain with more old-fashioned kinds of records and documents. “Not only are Web publications endangered, but under the current California depository program only a small percentage of *printed* state publications are being identified and received in depository libraries,” declares the 2003 report *Managing and Sustaining A State Government Publications Program in California*.⁷ This underscores the validity of an oft-noted observation that the biggest problem with preservation rests not with technology, but with social and organizational issues. It follows that addressing the problem requires taking a broad, critical look at

⁴ *Fugitive Documents- On the Loose or On the Run*,
http://www.access.gpo.gov/su_docs/fdlp/pubs/adnotes/ad081503.html#3

⁵ *Report on Current Recordkeeping Practices within the Federal Government*, <http://www.archives.gov/records-mgmt/faqs/pdf/report-on-recordkeeping-practices.pdf>

⁶ *State-By-State Report On Permanent Public Access To Electronic Government Information*,
http://www.ll.georgetown.edu/aallwash/State_PPAREport.htm

⁷ *Managing and Sustaining A State Government Publications Program in California*,
<http://www.library.ca.gov/assets/acrobat/OCLCFIN.pdf>

government laws, processes, and relationships that now control the fate of information. Change in these areas is needed before technology comes into play as a critical factor.

National Digital Information Infrastructure and Preservation Program Overview

In 2000, Congress recognized the nation needed an exceptional effort to stem the loss of our digital heritage. Legislation that year established the National Digital Information Infrastructure and Preservation Program (NDIIPP), and placed it under the Library of Congress. The law called for an initial plan that:

Should set forth a strategy for the Library of Congress, in collaboration with other federal and non-federal entities, to identify a national network of libraries and other organizations with responsibilities for collecting digital materials that will provide access to and maintain those materials.... In addition to developing this strategy, the plan shall set forth, in concert with the Copyright Office, the policies, protocols and strategies for the long-term preservation of such materials, including the technological infrastructure required at the Library of Congress.⁸

After holding a number of convening sessions with stakeholder communities across the nation, and after studying critical aspects of the challenge, the Library issued its plan for NDIIPP. The plan, *Preserving our Digital Heritage*,⁹ presented a vision for a national network of partners committed to digital preservation and linked through a shared technical architecture. The plan also outlined a strategy for identifying best practices and supporting advanced research into tools, repositories, and overall models for digital preservation. Underlying this approach was a strong commitment to partnership: Given the scope and size of the digital preservation challenge, no single institution—not even the Library itself—could realistically hope to meet the task alone. Instead, the most effective way forward lay in harnessing the collective interest, talent, and resources of communities with a stake in digital preservation.

Collaboration is key to making partnerships work, and NDIIPP rests on a firm commitment to sharing information and building on the insights of others. The Library's role is to provide leadership in building the partnership network and also in spurring awareness of preservation issues among content creators, distributors, stewards, and users. This work will accommodate and support the responsibilities of other organizations for defined information domains, such as the National Archives and Records Administration's legal requirement to assure effective management of federal records and the Government Printing Office's statutory mandate to provide permanent public access to federal government publications.

Congress authorized up to \$100 million to fund NDIIPP, with \$75 million contingent on a dollar-for-dollar match from non-federal sources. The Library, with a core mission to make its resources available and useful to the Congress and the American people and to sustain and preserve a universal collection of knowledge and creativity for future generations, is uniquely qualified to lead this initiative. NDIIPP is currently scheduled to operate through 2010, at which

⁸ H. Rept. 106-1033, <ftp://ftp.loc.gov/pub/thomas/cp106/hr1033.txt>

⁹ *Preserving our Digital Heritage*, <http://www.digitalpreservation.gov/index.php?nav=3&subnav=1>

time the Library will submit a report to Congress outlining results and describing progress toward achieving the national vision for digital preservation.

Through NDIIPP, the Library is serving as a catalyst by making targeted investments, leveraging public and private resources, and stimulating new approaches and methods. In this role as facilitator and change agent, the Library is striving to bring together different communities to work in concert. For success, the Library must encourage effective cooperation and partnership while avoiding centralized control. The intent is to get things started and then step back to permit organizations, institutions, and other stakeholders to direct their own preservation needs within the context of a collaborative, high-level national strategy.

NDIIPP has succeeded in establishing an initial network of preservation partners. The Library awarded funding to eight consortia, consisting of 36 individual institutions and organizations, in 2004. These awards are matched dollar-for-dollar by the winning institutions. The partners have agreed to identify, collect and preserve digital materials within a preservation network, and will share responsibilities for preserving at-risk digital materials of significant cultural and historical value. Supplementing this work is the Library's parallel development of a technical architecture, which is a conceptual framework for supporting the functions and tools required for distributed digital preservation. This architecture looks to a future where digital preservation is conducted by means of widely distributed services, processes, and infrastructures linked through technical and institutional interoperability.¹⁰

The Library has also partnered with the National Science Foundation to launch the first U.S. research program to address digital preservation. Known as the Digital Archiving and Long-term Preservation (Digarch) Program, the initiative funds advanced research with potential for breakthroughs in digital preservation technology. In 2005 the Digarch program funded 10 research projects¹¹ that focus on topics such as preserving complex data types; addressing preservation needs at content creation; automating digital object ingest; and testing incentives for creators to deposit data with archives. Results from this research will be integrated with the larger NDIIPP effort, as well as made available to help advance digital preservation work in the U.S. and around the world.

Workshop Background

A key goal for NDIIPP is to expand the number and diversity of preservation network partners. The Library is also interested in supporting the persistence of digital information with long-term value to Congress, as well as to the nation overall. For these reasons, the Library is exploring how best to include the states and state government information within the scope of NDIIPP. There are some compelling factors involved: Several recent reports make it plain that state government records, publications, and other digital information is at risk of loss.¹² As well, there

¹⁰ NDIIPP Technical Architecture, Version 0.2, <http://www.digitalpreservation.gov/index.php?nav=3&subnav=12>

¹¹ Library of Congress-NSF Research Awards, <http://www.digitalpreservation.gov/index.php?nav=6>

¹² The reports include *State-by-State Report on Permanent Public Access to Electronic Government Information*, http://www.ll.georgetown.edu/aallwash/State_PPAREport.htm; *Web-Based Government Information: Evaluating Solutions for Capture, Curation, and Preservation*, http://www.cdlib.org/programs/Web-based_archiving_mellon_Final.pdf; *North Carolina State Government Information: Realities and Possibilities*,

has never been a national focus placed on how state libraries and archives can work together to preserve significant information.

In planning to work with the states, the District of Columbia, and U.S. territories,¹³ the Library chose to use the same methodology as the initial NDIIPP convening sessions with stakeholders. The approach relies on interactive meetings with knowledgeable individuals representing appropriate communities. This enables the Library to hear about varieties of digital content, as well as to learn about specific preservation issues and needs. On the this basis, as well as through carefully focused analysis, the Library can effectively define NDIIPP involvement with the states.

To identify stakeholders and validate initial assumptions, the Library engaged professional organizations, including the Chief Officers of State Library Agencies (COSLA), National Association of Government Archives and Records Administrators (NAGARA), Council of State Archivists (CoSA), American Association of Law Libraries (AALL), and National Association of State Chief Information Officers (NASCIO). The Library also formed an advisory committee that included representatives from these organizations as well as from the National Archives and Records Administration (NARA) and the Institute of Museum and Library Services (IMLS). Most of the advisory committee members, however, were drawn directly from state agencies with responsibility for preserving their government's digital records and publications. The Center for Technology in Government (CTG), a digital government research center at the University at Albany, State University of New York, assisted the Library in coordinating work of the advisory committee, conducting background research, and implementing other aspects of the NDIIPP states initiative.

On the basis of this work, state libraries and state archives emerged as the key stakeholders. These institutions typically have broad responsibility for preserving and providing public access to state and local government information of enduring value. But it was also apparent that a wider group of communities needed to be engaged. State information technology organizations, which control the technical infrastructure used to create and maintain digital information, are important stakeholders. State records managers are significant because they are closely involved with early decisions about how content is created, how it is managed, and how long it is kept. Other state or local entities or individuals with responsibility for controlling significant digital information, such as county clerks and agency information custodians, also have a role.

Invitations were sent to all state librarians and state archivists (and their territorial equivalents) early in 2005 to attend one of three workshops designed to gather facts and consider collaborative opportunities. "The Library is strongly interested in active collaborations within (and, where possible, between) states, and wishes to promote a shared approach to digital preservation," stated the invitation.

Ideally, this approach draws on an association among various entities with a stake in the long-term management and preservation of government digital information

<http://statelibrary.dcr.state.nc.us/digidocs/Workgroup/WhitePaper.pdf>; and *Status of the Preservation of Electronic Records by State Archives*, http://www.nagara.org/news/ceris_report.pdf.

¹³ Use of the term "states" in this report also should be read to include the District of Columbia and U.S. territories.

in each state, such as the state library, archives, records management organization, county clerks and other information custodians, and chief information officer (or information resource executive)... Please consult between yourselves, and also as appropriate with other stakeholder entities in your state, to determine how best to participate in this initiative.

The invitations asked for up to three representatives from each state to travel to workshops in Washington, DC, and strongly encouraged representatives from each state to attend the same workshop as a team. This team approach was to facilitate interactions between stakeholders and also to enable documentation of blended perspectives. National institutions and organizations, including NARA, IMLS, GPO, COSA, COSLA, NAGARA, and AALL were also invited to send representatives. The invitations generated an impressive response. All 50 states sent at least one person, and nearly all sent teams representing multiple institutions. The District of Columbia sent a team, as did three territories. Attendees were evenly divided between librarians and archivists, with smaller numbers of information technologists, records managers, and others (see Appendix 1).

Workshop activities were split between plenary and breakout sessions. The opening plenary provided background for the Library's interest in learning from the states. Four separate breakout groups were established, each with a CTG facilitator. States participated in the groups as teams, and discussed three focal areas:

1. What kinds of digital content in your state are at-risk and what are the priorities for preservation?
2. How can states extend or build partnership networks in connection with preservation?
3. What preservation-related roles can the states and the Library fill?

A closing plenary session allowed each group to present its findings. Attendees also discussed common—and differing—perspectives. Library and CTG staff offered their own observations, answered questions, and recorded comments. CTG staff also distributed copies of a digital preservation toolkit¹⁴ developed in preparation for the workshops, and provided an overview of its content and potential use. (See Appendix 2 for the complete workshop agenda; the CTG methodology is outlined in Appendix 3.)

During the workshops, the Library mentioned interest in establishing a potential grants program to support digital preservation projects in the states. The shape, scope, and details of such a program are presently undefined. If approved, the program will be designed through use of information gathered from workshop participants.

¹⁴ *Building State Government Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit, Version 1.0*, http://www.ctg.albany.edu/publications/guides/digital_preservation_partnerships.

Workshop Findings

Key Themes

Five basic themes emerged from the workshops. They arose on multiple occasions during all three forums, and often were the focus of spirited group discussion. There was not always consensus about scope, definitions, root causes, or potential strategies. Yet participants time and again touched upon these five overarching topics:

1. **Identifying Significant Digital Information.** The importance and the challenge of identifying types of content that are significant, at-risk of loss, and high priorities for preservation.
2. **Learning by Doing—With Some Help.** Need for assistance in learning about and using preservation tools, approaches, and models, particularly those that can be incrementally applied by institutions with limited technical resources.
3. **Organizational and Technical Infrastructure.** Steps already taken and additional actions needed to build or extend a full range of preservation capabilities, both on the part of individual organizations and between organizations.
4. **Breaking Silos: Communication, Collaboration, and Partnership.** The urgency for different communities and organizations to work together to leverage scarce funding and expertise.
5. **Resources: Funding, Personnel, Mandates.** Issues and ideas in connection with budgets, staff skills, and legal authorities.

Each of these themes warrants careful scrutiny with an eye to identifying different perspectives, understanding fundamental issues, and exploring collective solutions.

Identifying Significant Digital Information

A primary goal of the workshops for the Library was to gain an understanding about which varieties of state government digital information were preservation priorities, and state teams worked at length to provide these details. The team approach allowed librarians, archivists, records managers, and information technology staff from each state to identify content and vote on priorities. The results represent a blending of perspectives and are useful for broadly depicting the content most in need of attention.

After clustering and consolidation, the information categories seen as the top priorities were:

- Records (examples include documents associated with legislative and judicial activities, land use, and actions of elected officials)

- Databases/data sets (examples include electronic court filings and e-government transactions)
- Publications (examples include government digital documents and publications that may—or may not—be on the web)
- Web sites sponsored by state and local governments

Some categories clearly overlap. Records can include data sets, publications, and web sites; publications can reside on web sites; and databases can have web interfaces. This reflects a basic conceptual challenge in identifying and prioritizing state government digital information. Some participants were inclined to define information by its data type (such as data sets, web pages, and e-mail messages), while others preferred referring to the originator or functional context of the information (such as court filings, legislative information, and government records).

During the workshops, library representatives were often most concerned with electronic publications, and the library-based preservation projects described tended to focus on item-level description and control. The concept of permanent public access was also raised more often in a library context. Archivists and records managers typically were most interested in public records, which included a broad array of information types and categories. The archival focus was more on handling aggregates rather than items. Information technology staff were generally less concerned with the content itself and were more interested in methods for information management and control, most especially system security. While everyone shared common interests and concerns, and recognized a need for common solutions, there is a need to parse different perspectives and develop strategies (and vocabularies) that span communities. Arizona offers one potential model for this. A representative from the Arizona State Library, Archives and Public Records described an institutional focus on both “file cabinet documents” (records) and “public documents” (publications) in digital form.

Two major state government entities and the digital information associated with them frequently came up in workshop discussions: Courts and legislatures. The discussions mirrored findings from a 2005 report from the Legal Information Preservation Alliance:

Legal information recorded in digital formats is at a much higher risk of being lost than information in analog formats. Digital materials, created via e-government initiatives, by publishers who now publish to the web, by local courts who utilize court management systems, and by libraries who digitize analog resources so that the digital surrogate can be made web accessible, all create challenges for preservation.¹⁵

Many state courts present an array of information through their web sites, including publications, dockets, and decisions. Some states use web sites to offer audio and video web-casting of court oral arguments. Depending on jurisdiction, both live and recorded past arguments are available. Online docketing and filing, are widespread, as are jury management and citation payment

¹⁵ *Preserving Legal Materials in Digital Formats*,
http://www.aallnet.org/committee/lipa/LIPA_White_Paper_Final.pdf

systems.¹⁶ A workshop participant noted that her state uses streaming video technology to record depositions; others described a variety of online court information management systems.

State legislatures also create and maintain significant digital information. Similar to the courts, many legislatures offer live audio or video web-casting of proceedings. Legislatures also make use of automated systems for bill management and other activities. Individual legislators use web sites, e-mail, and blogs to communicate with constituents.¹⁷ A number of significant legislative documents and reports are in digital form. California law, for example, requires electronic public access to many kinds of legislative information, including the legislative calendar, the text of each bill introduced in each current legislative session, and a list of matters pending on the floors of both houses of the legislature;¹⁸ the state also issues its official budget exclusively in digital form.¹⁹ Workshop participants voiced concerns about management of this information in their states; one participant, for example, noted that the video file formats used for recording legislative proceedings made preservation difficult.

Geographic Information Systems (GIS) were discussed during the workshops, although attendees often had difficulty distinguishing them from database applications in general. Two states did, however, note innovative GIS projects. West Virginia mentioned that its State Historic Preservation Office is working to make GIS data available to state and federal agencies, as well as to the public, through the web. Maine detailed its GeoArchives project, a venture of the state archives to: 1) set standards to designate a select set of state GIS records as archival; 2) develop an internet-based system prototype; and 3) amend state rules to recognize and enforce the implementation of the new standards throughout state government. This project, undertaken with support from the National Historical Publications and Records Commission (NHPRC), is a model for extending institutional capability in relation to complex electronic record types.²⁰

Issues tied to copyright coverage of state information factor into preservation concerns. In California, state policies governing copyright and intellectual property “are, as in nearly every other state, extremely opaque.” The chief problem is that California state law fails to declare that public records reside in the public domain. “Generally, when a government remains neutral, or when there is the absence of a claim of ownership, the provisions of the Federal Copyright Act apply to a publication. Thus, copyright ownership would appear to be in place for agencies per federal law absent any statement for public domain in California law.”²¹

An attendee described situations where state digital information was subject to the copyright of commercial contractors that either generated the information on behalf of the state, or that packaged existing state information for sale to the public. Regarding the latter, the state was permitted to have copies of the newly repackaged—and newly copyrighted—content, but was not allowed to provide public access. Data brokerage services such as LexisNexis and Westlaw

¹⁶ The National Center for State Courts, http://www.ncsconline.org/D_KIS/Trends/2005/AppCtsTecTrends.html; <http://www.ncsconline.org/WC/Events/IntCtsView.htm>

¹⁷ The National Conference of State Legislatures, <http://www.ncsl.org/programs/lis/cip/lit.htm>

¹⁸ *State-By-State Report On Permanent Public Access To Electronic Government Information*, Survey Report: California, http://www.ll.georgetown.edu/aallwash/states/ca_survey.pdf

¹⁹ *Managing and Sustaining A State Government Publications Program in California*, op cit.

²⁰ GeoArchives Web Site, <http://www.maine.gov/geoarch/>

²¹ *Managing and Sustaining A State Government Publications Program in California*, op cit.

now collect and distribute state statutes, legislative histories, court decisions, and administrative codes. A host of lesser known services provide Internet access to public records relating to property, criminal convictions, bankruptcies, liens, marriages, divorces, and other subjects. One participant stated that data brokers were cooperative, but only to a point. “There’s no guarantee they will cover everything of interest to the state. They will also provide access to the content, but potentially not forever.” Another attendee noted that government information perceived to be under copyright typically was not preserved in their state because of legal barriers to reproduction and access.

Copyright concerns carry over to preservation activities, even in cases where the status of the content is not the issue. Information created with and dependant upon software can itself be construed as subject to that software’s copyright protection. Missouri records management guidelines state: “Since most software is copyrighted, make sure you negotiate with vendors for the rights to the data you have created and to have the ability to migrate necessary software components to be able to access your data.” The guidelines observe that use of open source software is an option to avoid copyright infringement.²²

A number of states made a case for the importance of records management in connection with digital preservation. Records management was seen as effective because it can generate inventories of electronic information throughout government agencies, as well as identify content categories that require long-term or permanent retention. With its focus on coordinating the actions of stakeholders as they create, use, manage, and retain information, records management helps ensure a comprehensive approach to digital preservation. This approach is preferred, as it emphasizes attention to decisions made during stages in the life of digital information. Such decisions determine how easy—or hard—it will be to keep digital information available and accessible over time. States do not, however, have a uniform approach to records management policies. Representatives from Minnesota, Nebraska, and Kansas noted they have comprehensive, statewide records management guidelines, while attendees from other states said they had difficulties establishing or implementing such policies.

Learning by Doing—With Some Help

Many workshop participants said they wanted to undertake digital preservation projects, but did not know what to do, how to get started, and where to get useful tools, models, and other information. Examples of what was said include:

- What is digital preservation and how do you know if you are doing it right
- What does a good digital preservation program look like
- What would an electronic archive look like—how do you design one
- We want to get started but have no idea how

²² *Digital Imaging Guidelines*, <http://www.sos.mo.gov/records/recmgmt/DIGuidelines.pdf>

- I need to know what the standards and best practices are
- How do we do appraisal and selection
- Priorities for preservation are still uncertain—what’s important to save

Participants often worried about this broad and fundamental uncertainty, especially since nearly everyone agreed that they wanted to undertake digital preservation activities. There was a general consensus that getting a basic understanding of what needs to be done is an essential first step. Not to do so results in paralysis. One attendee painted a stark picture of their state: “No one is managing or preserving digital information. We haven’t identified it, don’t have a plan, and don’t have any money.” On the other hand, there was a widespread willingness—and even eagerness—to learn what needs to be done and to start doing it. There also was evidence of impressive optimism. While noting that “we are behind the power curve—in an embryonic stage,” a territorial representative declared this situation was actually an advantage because “we can build it [a digital preservation infrastructure] right the first time.”

The best way to boost understanding, according to participants, was to learn from practical examples of successful digital preservation projects. There were calls for demonstrations of workable approaches, as well as a stated willingness to “steal or adopt successful models.” Interest in gaining hands-on experience with tools, methods, and techniques was also great, which was in keeping with the overall interest in practical learning from tangible products. This was in contrast to opinions expressed about studies, reports, and projects that approach digital preservation in theoretical or abstract terms. When asked specifically what states *did not* want, one attendee declared: “Another academic study of digital preservation.” Others observed that the time had come to “stop planning and get moving,” and to “move from guidelines to implementation.”

These ideas are echoed in the Library of Congress report *It’s About Time: Research Challenges in Digital Archiving and Long-term Preservation*.²³ In outlining findings from a 2002 meeting of experts, the report states:

There should be a dual focus on striving to preserve valuable digital information while also “learning by doing.” Development of more effective preservation methods and technologies will demand many years of research. But, as one participant said, “if research never ends, then archiving never begins.”

The states are interested in exactly this approach. But they want some assistance.

There was a split among states in terms of those that were developing experience through collecting and managing digital content and those that were not. While both groups wanted national institutions or other external entities to offer concrete improvements, the actively engaged states tended to express more specific interests. The recently launched Washington State Digital Archives, for example, called for new digital file formats that could reliably present

²³ *It’s About Time: Research Challenges in Digital Archiving and Long-term Preservation*, http://www.digitalpreservation.gov/repor/NSF_LC_Final_Report.pdf

information over time and technological change. The Kansas State Historical Society noted its use of open-source digital repository software, and expressed desire for improved methods of automated ingest. From the Illinois State Library came interest in learning how to apply incentives to get state agencies to include electronic files in the Illinois Digital Archive. States that had less practical familiarity tended to want broader solutions, often with frank admission that they were not especially clear on how to apply them. The workshops did, however, facilitate good exchanges and entrées for ongoing conversations between the relative preservation “haves” and “have-nots” among the states.

A common issue that arose during all the workshops was concern about a gap in information technology knowledge on the part of librarians, archivists, and records managers. One participant opined that the present knowledge deficit is so deep that it will take ten years for meaningful change to occur. We must wait for the next generation to be fully educated, according to this view, and until then the current generation will be working with uneven knowledge levels. Others were more optimistic about the ability and willingness of current staff to pick up needed technical skills, especially with suitable learning opportunities.

Attendees also expressed a need for developing other skills. “How do we handle the culture change from paper to digital information processing?” asked one. Others noted a desire to gain the expertise needed to establish or revise policies, procedures, and authorities for library, archival, or records management operations. Another common thread involved learning how to get different elements of state government to develop a shared understanding and work together. A participant called for the means to “educate possible partners that don’t understand digital preservation.” There was frequent mention of a perceived need to raise the awareness of information technology departments and their staffs. But it was also recognized that cultural heritage institutions need to look inward as well. One attendee stated that libraries and archives do not present a clear vision of their needs for digital preservation, and traced that to an inadequate knowledge of information technology and how it can be applied.

The workshops included an opportunity to offer ideas about the preservation-related roles and responsibilities of the states and those potentially of NDIIPP and other national entities. In outlining ideas regarding what they themselves should do, the states showed a prevailing determination to undertake the work of managing and preserving digital information. There was near uniform agreement that the states had to acquire the knowledge, experience, and enabling technology to meet this need. The most frequently cited obligations included:

- Select/appraise and collect the most important information
- Ensure ongoing access
- Establish necessary policies and authorities
- Extend existing partnerships and build new ones to share capabilities
- Improve communication with stakeholders

State representatives also affirmed a primary role in ensuring the proper physical storage and long-term management of significant digital content. Fulfilling this role could entail building a preservation infrastructure at the institutional level, which could include acquisition of a full-featured digital repository. The role could also be met through inter- or intra-state partnerships featuring a limited number of repositories connected to multiple institutions through robust technical and procedural interoperation. A state library or state archives could, for example, establish a large-scale repository and enter into collaborative service-level agreements with its peers in other states; other providers could also offer this service.

In addition to recognizing stewardship responsibilities, most states were vocal about a perceived urgency for learning how to manage and preserve digital content sooner rather than later. While a number of obstacles were noted—most particularly funding and other resources—the major barrier was seen as a shortage of practical information about how to plan for and undertake even basic digital preservation projects.

Participants emphasized the value of studying existing projects that explore development of digital preservation policies, practices, and infrastructure components. Representatives whose institutions were engaged with such projects, such as Washington State with its Digital Archives and Minnesota with its Electronic Records Management Guidelines, offered to work with other states to share expertise. That many participants learned about these opportunities at the workshops accentuates a basic issue: States that could benefit from collaborative opportunities often do not know about them.

The desire for sharing tangible facts and building practical knowledge was further brought into focus in connection with participant ideas about the potential role of NDIIPP and other national institutions and organizations. While funding was frequently mentioned, the overall top choice of the participants for national-level help was sharing information and building knowledge (see Table 7). As one individual stated, “We want the Library to continue to facilitate our partnerships with other states so that we can learn from each other and not reinvent the wheel.” National leadership was seen as uniquely suited to promote information sharing, bring diverse communities together, and spur collaboration. Specific ideas for this included:

- Engage the private sector in cooperative efforts
- Develop digital preservation information profiles for states
- Facilitate ideas for collaborative projects among states
- Bring together diverse groups within the states to enhance understanding
- Work with national professional organizations to encourage a unified approach
- Establish a web-based information clearinghouse to identify and distribute models, standards, and best practices

Organizational and Technical Infrastructure

Many states were concerned with planning and building a digital preservation infrastructure. Two perspectives materialized. A few states outlined initiatives to test, build, and implement policies, processes, and infrastructure components. Many more states noted barriers that prevented them from pursuing much at all in the way of preservation-related projects, although they wanted to improve.

Some states are developing infrastructures with potential broad applicability to managing significant digital information. Examples include:

- Arizona is developing an innovative approach (dubbed “The Arizona Model”) to work with web-based state documents. The model provides a framework for conceptualizing tools and approaches to content identification and selection, acquisition, description, reference, and preservation. The state is also building a repository “to store and provide access to digital information in all forms, including public records and reports created by state and local governments, as well as personal papers, photographs, and other historical records.”²⁴
- Minnesota’s electronic records management guidelines “provide information on a variety of topics, such as file formats and file naming, electronic records management strategies, electronic document management systems, digital media, storage facilities and procedures, e-mail and web content management, and electronic and digital signatures.”²⁵
- Washington has built “the nation’s first archives dedicated specifically to the preservation of electronic records from both State and Local agencies that have permanent legal, fiscal or historical value.”²⁶
- Illinois manages the Capturing E-Publications of Public Documents project that aims “to demonstrate a national model and provide the tools for online state document capture and preservation.”²⁷
- Kansas operates the Kansas State Publications Archival Collection (KSPACE), a pilot project “to address the long-term preservation and access requirements of electronic government publications and documents.”²⁸
- The state libraries of Arizona, Connecticut, Illinois, North Carolina, and Wisconsin are working with the University of Illinois at Urbana-Champaign and OCLC, in partnership with NDIIPP, on the ECHO DEpository project, which is seeking “the development of

²⁴ Current Projects, <http://www.lib.az.us/diggovt>

²⁵ Electronic Records Management Guidelines, <http://www.mnhs.org/preserve/records/electronicrecords/erguidelines.html>

²⁶ Digital Archives Background and History, <http://www.digitalarchives.wa.gov/Content.aspx?txt=background>

²⁷ Capturing E-Publications (CEP) of Public Documents, http://www.cyberdriveillinois.com/departments/library/who_we_are/cep.html

²⁸ Kansas State Publications Archival Collection, <http://www.kspace.org/aboutkspace.jsp>

new tools for selecting and capturing materials published on the Web, the evaluation of existing tools for storing and accessing digital objects, and research into the challenges of maintaining archived digital resources into the future.”²⁹

These approaches were mentioned during the workshops, and there was broad interest in them as potential models. States with advanced projects underway generally expressed willingness to provide assistance to their peers. The exploratory nature of these projects was also noted, along with warnings that there is as yet no “silver bullet” solution for digital preservation.

A variety of other ideas for and approaches to developing preservation infrastructures were broached. One participant suggested that states should avoid building preservation repositories and instead rely on the agencies that create information to also assume preservation responsibility. This “non-custodial” approach could entail libraries and archives assuming technical ownership of the information while leaving it within the existing systems and under the supervision of technical staff elsewhere in state government. Another attendee, showing some frustration with uncertain preservation objectives voiced by colleagues, stated “It doesn’t matter what our priorities are. What matters is that we don’t have a [technical] solution.” One workshop group took the position that a single digital preservation repository was needed to meet the needs of all states; this idea ran directly counter to what most others felt was appropriate. Multiple attendees described converting digital information to microform, although one state was exploring discontinuance of microform in favor of digital preservation. A number of participants mentioned digitization projects—the scanning of books or other hard copy materials to produce digital copies to enhance access.

There was some discussion about the enterprise architecture (EA) approach in state government. According to the National Association of State Chief Information Officers (NASCIO), the EA methodology:

Systematically determines... needs and demands, and then reshapes government processes, organization, and supporting management systems to deliver products and services efficiently and effectively. Redundant operations are replaced with shared service models that are agency independent freeing up resources to be more effectively applied within the agencies.³⁰

Most states have an information technology organization headed by a Chief Information Officer (or someone with a similar title) who is working to implement an EA by developing a comprehensive understanding of state agency information management needs. In theory, the EA process will enable state libraries, archives, and records management operations to have their infrastructure needs built into a state-wide strategy. Some states are already doing this. Kentucky has, for example, aligned e-mail management requirements with the state EA.³¹ But

²⁹ The ECHO DEpository Project, <http://www.ndiipp.uiuc.edu/>

³⁰ *Enterprise Architecture White Paper*, https://www.nascio.org/washwatch/NASCIOWw/whitepapers/whitepaper_05-02EnterpriseArchitecture.doc

³¹ Commonwealth Office of Technology, Enterprise Standards: 4000 Information/Data Domain, Category: 4060 Recordkeeping - Electronic Mail, http://gotsource.ky.gov/dsweb/Get/Document-20485/Standard_4060_Electronic_Mail.doc

most workshop participants appeared to have little awareness of EA, either conceptually or as it was deployed in their states. Once they were oriented, however, there was often enthusiasm indicated for the potential advantages of the approach.

Optimally, engagement with EA will put state libraries and archives on a path to develop an infrastructure suitable to undertake large-scale digital management and preservation. One way to define this ultimate goal is as an "information infrastructure" consisting of "a comprehensive and integrated implementation of law, policy, programs and workflows to preserve vital government information; it [the infrastructure] encompasses records management, technology implementation, system design, information creation, and long-term preservation."³²

Many barriers to infrastructure development were mentioned. Attendees talked about inadequate funding; trouble finding models to emulate; vendors that promise preservation "solutions" that fall short; shortage of technical skills among library and archives staff; difficulties communicating and working with other government agencies; and reluctance to make mistakes by "picking the wrong technology." Fusing concerns, one participant claimed that even if they had the money to buy preservation technology, they were not convinced the right technology now exists. A consistent thread was a less than favorable view of state information technology organizations. Some participants claimed that information technology staff were either unresponsive or interested only in applying short-term technical fixes rather than addressing broad infrastructure needs. Collaboration with information technology organizations was, for example, presented as difficult because they were not oriented to preservation. "We don't have to manage our information," joked one participant. "We just keep asking for more storage and server space, and it's done." Others expressed frustration that librarians, archivists, and records managers had trouble getting information out of the systems that information technology organizations develop: "The wrong people are managing data. It's like the guy who builds the filing cabinet is responsible for what's inside of it."

Others took an activist view and called for positive engagement with information technology organizations to build a common vocabulary and develop a shared perspective about digital preservation. One attendee recommended that librarians and archivists improve their understanding of information technology terms and concepts to promote better communication. Another observed that the major barriers between organizations are social: Focusing on systems and hardware would be fruitless until there was more collaboration among key players in state government. This was echoed by comments stressing the need to "build a culture of preservation," "get more people in government involved," "institutionalize procedures so they're absorbed into state agency work culture," and "educate other elements of state government." In this context, it is also worth noting that one participant focused attention on what could be a very slow pace of change in building preservation infrastructures in the states and potential problems keeping all the players engaged and motivated over years of work.

³² *Managing and Sustaining A State Government Publications Program in California*, Op Cit.

Breaking Silos: Communication, Collaboration, and Partnership

Workshop participants agreed that working across different institutional and professional communities was one of the most important issues facing digital preservation. The complexity of the technical, operational, and political issues involved call for sharing expertise and casting broadly for potential solutions. This approach is, however, different from the way many state libraries, archives, and related entities now operate. A participant pointed to multiple “silos” that now exist in states: narrowly defined agency activities that operate separately from and with little concern for the requirements of others. These situations lead to inhibited communication, higher costs, poor administration, duplicate infrastructure components, and “turf wars.”

A common problem mentioned during the workshops was that state agencies manage digital information in isolation from archives and libraries. While often this was traced as an issue to the agencies themselves, some attendees noted that archives and libraries often do not effectively market their services. Looking past fault, attendees offered a mix of ideas to break down silos. A common refrain was a perceived need for archives and libraries to be more innovative, particularly in demonstrating value and responsiveness to customers. Another suggestion involved bringing key stakeholders within state government together to define specific policies and relationships for an improved approach to digital preservation. To succeed, these stakeholders must agree to ongoing collaboration, ideally through multilateral projects.

There was general agreement that a first order of business was for libraries and archives to work more closely together. Most state libraries and archives share responsibility for both preserving significant information and for keeping it available for public use. In years gone by, each institution dealt with separate streams of hard copy information that fell into clear-cut categories. This is no longer true, as digital technology has enabled a broad convergence of state records, publications, and data. As a result, libraries and archives find themselves dealing with similar kinds of information and looking to implement overlapping solutions.

The workshops provided a unique opportunity for state librarians and archivists to share and discuss issues as a group as well as in individual state teams. There were several instances where a state’s librarian and archivist met for the first time. In one case, a newly acquainted librarian and archivist came to realize they were facing the same kinds of questions from local government agencies about digital preservation; they vowed to develop a joint approach. The degree to which librarians and archivists from the same state were familiar with each other tended to rest on administrative arrangements. In states where the library and archives were joined together in a single agency, there was greater awareness than in states where the two were split administratively. Much the same can also be said about state records managers: Where they were joined with an archives (or archives-library) they were more familiar with fellow information managers. The issue of familiarity is, of course, separate from collaboration, but mutual awareness is a step in the right direction.

As noted above, participants recognized a broad need to work better with state information technology organizations. In some cases, this took the form of criticism, usually along the lines that information technology organizations failed to understand or appreciate the roles of librarians, archivists, and records managers. Some of this concern focused on information

technology managerial issues, most particularly turnover, reorganization, and administrative centralization. But there was unabashed recognition too that libraries and archives have their own shortcomings in terms of establishing effective relationships. There was also broad acceptance that all players need to work together. This was especially true in workshop discussions that involved multiple information technology representatives, who expressed appreciation for learning more about needs connected with management and preservation of digital information. Librarians and archivists also hailed the value of meeting with information technology staff: A representative from the Texas State Library and Archives noted that they have an annual meeting with the state information technology organization that encourages a close working relationship.

Kansas also provides a model for bringing different elements of state government together to improve management of digital information. The Information Technology Advisory Board, under the state Chief Information Technology Officer, convened “a broad-based group comprised of representatives from all branches and levels of Kansas government,” in 2003. The group, known as the Kansas Web-based Records Management Task Force, drafted and secured the implementation of *Guidelines for Managing Records on Kansas Government Agency Web Sites*. The guidelines “assist Kansas state and local government agencies develop internal policies and procedures for creating, capturing, managing, and retaining web-based records for as long as those records have value.”³³

If libraries and archives have more work to do in aligning their activities with each other and with information technology organizations, they also have to do better in raising their profiles within state government overall. One participant offered a blunt assessment:

There’s confusion on the state level about what the state library, state archives, and records management do. Even if those agencies don’t talk to each other, they have to educate people beyond the policymakers and work together in a way that doesn’t generate confusion among those with no knowledge or background in library or archival roles.

This sentiment received support from others who called for state libraries and archives to do better in how they communicate with each other and with stakeholders, as well as undertaking more collaborative projects to achieve greater impact. For this to happen, a state must define integrated roles and responsibilities for the library, archives, information technology organization, content producers (i.e., agencies), and other entities that can help, such as universities. One model for these respective roles is outlined in *Managing and Sustaining A State Government Publications Program in California*, along with a proposed implementation plan covering a 9-15 year time frame.³⁴

There was a common view expressed during the workshops that states needed help catalyzing collaborative efforts and building a digital preservation community. It was in this regard that states often noted the potential role of NDIIPP and other national organizations. Nationally

³³ Electronic Records Committee and Internet Task Force, http://da.state.ks.us/itab/documents/ERC_Prop_Web_Guidelines.pdf

³⁴ *Managing and Sustaining A State Government Publications Program in California*, Op Cit.

recognized entities were seen as having the ability to both bring libraries and archives together and to boost their collective status within state governments. Part of this rests with formation of specific partnership initiatives. Participants cited the example of the NDIIPP project with the University of Illinois at Urbana-Champaign in partnership with OCLC and the state libraries of Arizona, Connecticut, Illinois, North Carolina, and Wisconsin.³⁵ Also mentioned was the role of NHPRC, which funded a multi-state collaboration to test and evaluate an architecture for preserving electronic records. The “Persistent Archives Testbed” project involved the Michigan Department of History, Arts and Libraries; Ohio Historical Society; Kentucky Department for Libraries and Archives; Minnesota Historical Society; California State Archives; and Kansas State Historical Society.³⁶

National organizations were given high value for spurring communication and collaboration by bringing together communities that do not often—if ever—have a chance to meet. Participants pointed to the workshops themselves as evidence, noting that this was the first opportunity for every state to have representatives from archives, libraries, and other communities meet. There was clear consensus that bringing communities together was perceived to be important. “Meetings like this are needed to discuss and share solutions,” stated one participant. “Digital preservation depends on collaboration. We can’t work alone and hope to have success.” Another person noted that “We should find ways to continue establishing the identity of this group. It’s a unique blend... it brings together synergy that’s very much needed.” When asked about successful efforts, a territorial representative who traveled over 7,000 miles said “being here is our success story,” noting that the workshop was the territory’s first chance to talk with other jurisdictions about digital preservation.

There were many efforts at collaborative outreach during the workshops. Some of these efforts began at home: more than one participant noted that the workshop invitation itself caused some intra-state organizations to talk among themselves for the first time about digital preservation issues. A number of states report that these efforts are continuing.

While there was overwhelming support for working together, some attendees expressed caution. “Collaboration overload” can sap energy and good intentions in situations where there are willing partners but no clear leader or consensus on approaches, projects, or priorities. A participant noted concern that partnerships exclusively between cultural heritage organizations might yield limited results, and urged more of a focus on getting private sector interest and support. Others suggested that a national coordinating entity could serve as a third party facilitator that could help forestall “collaboration overload” and stimulate collaboration with commercial entities.

Some participants noted long-standing problems getting the attention of decision makers in state government. This was tied to specific issues, such as turnover among state legislators and other elected officials. Often “lack of top management support” was presented as an enduring structural problem. But this issue can be turned around by putting the onus on libraries and archives to take action to gain support from stakeholders. Wisconsin, for example, recently held a state-wide Digital Library Conference with a stated objective of providing an “opportunity to

³⁵ The ECHO DEpository Project, Op Cit.

³⁶ Persistent Archives Testbed, <http://www.sdsc.edu/PAT/>

discuss methods for promoting broad public awareness of digital resources.”³⁷ The Oklahoma Department of Libraries is undertaking a program to “train library managers, board members, funding decision makers, and friends in skills to address community library needs and communicate the role of libraries in an Internet information world.”³⁸ Other avenues could also be explored; as one workshop participant noted: “Historians and genealogists have a lot of power that could be leveraged for digital preservation if they knew about the opportunities for digital assets.”

Another role suggested for NDIIPP and other national organizations involved development of information profiles to provide details about each state’s capabilities, circumstances, and collaborative opportunities regarding digital preservation. Profiles could include information about preservation priorities, underlying legislative authority, resources, and other basic information. Attendees said that profiles could be an effective way for states to share information about potential models, standards, and best practices, as well as to facilitate greater communication. This mechanism was also seen as a potential “peer pressure tool” that could encourage decision makers to match the efforts of other states. The preferred way to disseminate the profiles, according to participants, was through use of a web-based information clearinghouse devoted to state digital preservation.

Resources: Funding, Personnel, Mandates

Resource constraints are a major problem for states. As detailed by workshop participants, many states have meager amounts of funding, staff expertise, and technical and organization capabilities needed to plan, implement, and evaluate digital preservation programs. The root cause of resource issues was frequently traced to the lack of legislative support, particularly an effective legislative mandate tied to adequate funding. This observation is supported elsewhere. The American Association of Law Libraries, after surveying the states in 2003, noted that “No state... comprehensively addresses the challenges of permanent public access to and preservation of electronic government information,” and that:

Laws responsible for funding and defining roles between state archives (whose responsibility is preserving ‘records’) and state libraries (whose responsibility is providing access to and preserving ‘publications’) are simply out of tune to ensure that either or both of those entities properly capture and make accessible Web government information.³⁹

During the workshops, states often referred to obsolete, inadequate, or absent legislative mandates for managing and preserving digital information. One attendee noted that legislation for their state archives dated from 1913 and that for the state library from 1976. Others claimed their legislatures had never addressed either state electronic records or electronic publications. A few attendees noted that they had difficulty making a case for digital preservation to legislatures, both because of their own limited advocacy skills as well as from a bureaucratic prohibition from contact. There was also a declaration that legislators cared about “bricks not clicks”—they

³⁷ The Wisconsin Digital Library Conference, <http://www.wils.wisc.edu/events/dgtdev/digit04/>

³⁸ LSTA 5-Year Plan 2003-2007, <http://www.odl.state.ok.us/fyi/lsta/LSTA2003-7.pdf>

³⁹ *State-By-State Report On Permanent Public Access To Electronic Government Information*, Op Cit.

prefer projects that generate tangible results over those that deal with intangible digital information.

Some states have managed to secure improved mandates and legislative support. Four states could serve as models for preserving digital publications and records based on legislative actions:⁴⁰

- Colorado: A 2003 statute directed state agencies to deposit electronic publications according to a specified format; it also empowered the state library to coordinate with state agencies and others to provide permanent public access.
- Illinois: A change to the state library law provided an incentive to agencies to deposit electronic publications by reducing the number of paper copies required for deposit.
- Georgia: In 2000, the legislature amended the statute covering state publications to require submission of electronic documents, which led to a 50 percent rise in compliance.
- Washington: The legislature in 2001 sponsored a digital archive repository in recognition of an immediate need to ensure preservation and access to state digital information.

Workshop participants offered other positive legislative and budgetary developments. Oregon and Nevada both mentioned new (or pending) legislation requiring state agencies to make electronic publications available to the state library. Representatives from Texas told how their state legislature provided that anyone convicted of an offense was assessed a fee to support court records management and preservation services. Nebraska noted its “records management cash fund” supported by fees for records management services provided to jurisdictions. Illinois said that although “digital preservation has not become part of the bureaucracy yet, we have gotten into the state budget as a line item.”

Perhaps the most impressive recent accomplishment regarding legislative support for state government information relates to the New Jersey Public Archives and Records Infrastructure Support (PARIS) and Records Disaster Recovery Triage (Records DIRECT) programs. Workshop participants from the state’s Division of Archives and Records Management described how a 2003 state law that established document filing and recording fees led to \$28 million for grants to support records management, preservation, and emergency records intervention needs of county and municipal governments. This unprecedented level of financial resources for a state records program will be used initially to support needs assessment and strategic planning services, as well as competitive grants-in-aid for electronic records management tools and systems, archival records preservation services; and needs assessment and strategic planning for municipalities having populations of 75,000 or more. In subsequent years, a wider variety of projects will be eligible for funding.⁴¹

Close behind New Jersey is Washington State, which is currently the most successful in terms of establishing a digital preservation infrastructure. A representative from the state Digital

⁴⁰Managing and Sustaining A State Government Publications Program in California, Op Cit.

⁴¹ PARIS Grants Program, <http://www.state.nj.us/state/darm/links/paris.html#PARIScestbon>

Archives cited strong support from the governor and legislature as critical factors in developing this advanced capability, which includes a new building to house staff and technical infrastructure components. In 2003, the Secretary of State for Washington issued a report that justified the \$10 million investment as follows:

Technology and the “electronic revolution” are having a substantial impact on the way governments conduct business and present challenges for capturing, preserving, managing, storing and making accessible electronic records. Significant amounts of critical electronic data have already been lost. The primary purpose of the Digital Archives is to preserve and provide access to records of enduring legal and historical significance.... Many are critical to the survival of Washington’s history and culture, captured in the day-to-day business of government.⁴²

Many states expressed appreciation for national grants programs, such as those administered by NHPRC and IMLS. There was also clear interest in any future grants program that would support preservation of state government information. On the other hand, one participant, while acknowledging the value of grants programs, encouraged states to seek multiple revenue streams from both public and private sources to support digital preservation work. Other attendees stressed that increasing and sustaining funding requires effective—and imaginative—justification. Advocates must be prepared to clearly identify the risks and costs associated with losing content, while explaining how digital preservation initiatives support critical government responsibilities, such as emergency services and economic development.

Several attendees had ideas about how states could re-think justifications for digital preservation work. “The library and archival community needs to realign missions to develop self-sustaining models of funding and governance similar what the Geographic Information Systems, justice, and homeland security communities have done,” noted one. “The irony is that the long-term management of the information generated by those communities is the responsibility of libraries and archives.” Another attendee said, “The cultural heritage community needs to generate new business cases that demonstrate the value of their work similar to Return on Investment,” with reference to the ROI process used to rationalize investment in information technology systems.

Building on the ROI concept, attendees called for compelling needs assessments that tell decision makers what is at risk of loss; demonstrate that information has financial or other value; and show that the cost of sustaining information must be included in the budget for creating information systems. Others pressed for a “reinvention of ROI” by defining value in terms beyond the economic by making it clear that information supports a wide variety of use, and that there were social and cultural costs if this use is blocked.

The most eloquent statement on this subject during the workshops urged a steady focus on what stakeholders care about:

⁴² *Washington State Digital Archives Project Feasibility Study*, <http://www.digitalarchives.wa.gov/content/Feasibility%20Study.pdf>

Technical solutions will come and go and aren't the major issue; economic sustainability is the most important. We need to identify the utility of information and meet user needs. There's been a technical revolution but not a comparable cultural revolution in making the value of the information translate into dollars and behaviors. People say they love history but that doesn't translate into dollars. We need to change that attitude by identifying customer's needs, then focus on how to meet them.

Participants also recognized that funding is only one of several resource challenges. In particular, many more technically skilled staff are needed. There is no easy path to meeting this need. Professional education and training can help, but there are limits based on existing opportunities and skill sets. "The more I learn the less I know," joked an avowed non-technical attendee. Necessary technical skills were widely viewed as missing on the part of most current librarians, archivists, and records managers. Beyond that, it was not clear exactly what those skills should be and how they could be sought. A skill that several participants did identify as necessary was advocacy: the ability to make an effective case to decision makers and stakeholders.

No uniform strategy emerged about how to address the staff resources issue. Several states encouraged national organizations to determine what training was needed and to offer instructional opportunities; other participants saw this as a state responsibility. Many participants urged establishment of an information clearinghouse to serve as a centralized and authoritative source of current details about standards and best practices. Others stressed the value of bringing librarians, archivists, information technology staff, and records managers together to learn from each other.

Information Gathered from Workshop Participants

The workshops were structured so that the Library could learn about issues relating to the preservation of state government digital information. A series of facilitated discussions and exercises were organized around the following topic areas:

1. Top Concerns Relating to Digital Preservation
2. Digital Preservation Successes
3. Topics for Discussion with Other States
4. At-Risk Digital Information and Preservation Priorities
5. Extending or Building Partnership Networks
6. Roles and Responsibilities

This section presents a synopsis of these discussions for all three workshops, including the results of participant votes to indicate priorities. Participant contributions have been clustered and consolidated for clarity.

Top Concerns Relating to Digital Preservation

Workshop participants were asked to outline the major issues confronting their institutions. Many state representatives noted insufficient funding for digital management and preservation and that this was exacerbated by unfunded mandates, inability to lobby for funding, and absence of diverse revenue streams, all of which made it difficult to undertake new projects and sustain existing efforts. Discussions took place around the difficulty of establishing successful collaborations with important digital preservation partners such as CIOs, information technology staffs, and agency records managers (see Table 1).

Table 1: Top Digital Preservation Concerns	
Categories	Examples
Mandates	<ul style="list-style-type: none"> • Few clear and effective mandates • Lack of top management support for establishing or enforcing mandates • Fragmented responsibilities among agencies
Communication	<ul style="list-style-type: none"> • Need to encourage information technology staff, librarians, and archivists to share perspectives • Information technology staff concerned with technical infrastructure rather than on the value of information • Educate all agencies on the need for digital preservation • Share best practices across states and territories, federal government, academic institutions, and private sector • Work with agency and public customers to generate energy for preservation
Resources – funding, staff	<ul style="list-style-type: none"> • Not enough skilled staff • Limited funding • Few effective tools and technologies now available • High costs associated with current digital preservation practices • Not clear where to get the right training
Strategies	<ul style="list-style-type: none"> • How to sustain preservation programs • What is digital preservation and how do we do it most effectively • ROI models focus on cost in dollars and not on cost in terms of loss of information • Digital preservation not factored into the total cost of ownership of information technology investments • Digital information developed for management, but it loses perceived value to managers over time • Hard to establish priorities for preservation
Technical issues	<ul style="list-style-type: none"> • Few established standards, best practices for digital preservation • Need successful models to learn from • Information technology is complex and getting more so

Digital Preservation Successes⁴³

Participants detailed successful efforts associated with digital preservation, both in deploying technology and in establishing improved relationships. Some of these efforts have potentially broad impact and are discussed elsewhere in this report. Other activities noted were short-term, narrowly focused, or otherwise limited. But whether the accomplishments were major or minor, all state representatives queried were able to describe some recent progress.

⁴³ This exercise was not conducted at the April 27th Workshop.

Topics for Discussion with Other States⁴⁴

Participants wanted to talk with other about a wide range of topics. A primary area of interest was collaboration; attendees also wanted to know how to plan and implement preservation projects, and how to learn generally about digital preservation. Other areas of interest included sharing tools, models, and best practices (see Table 2).

Table 2: Topics to Discuss with Other States and Territories	
Categories	Examples
Advocacy and facilitation	<ul style="list-style-type: none"> • How to get top management and legislative support • Turf conflicts • How to handle change from paper to digital processes • How to deal with agency cultures that resist change
Collaboration	<ul style="list-style-type: none"> • Whom to talk to in other states and territories • How to get agencies to work together • How to get buy-in from agencies • How to collaborate with information technology departments • How to extend existing collaborations • Establishing interstate collaborative networks • How do states deal with separate archives and libraries
Knowledge sharing	<ul style="list-style-type: none"> • Learn from other states and territories • How to get started • What does a good program look like • What are the successful models • Learn what's worked, not worked • How to develop a program and sustain it • How to appraise or select digital content • Templates for legislation, project management, business cases • Share best practices, tools, resources • Do not want to re-invent solutions
Policies	<ul style="list-style-type: none"> • Developing and implementing state-wide policies • Dealing with exemptions from local records law
Resources	<ul style="list-style-type: none"> • How to get, increase, and sustain funding • Training staff • Identifying needed skills
Technical	<ul style="list-style-type: none"> • Automated ingest • Data normalization • Repository development • Metadata application

⁴⁴ This exercise was not conducted at the April 27th Workshop.

At-Risk Digital Information and Preservation Priorities

Workshop participants identified a variety of information types as both at risk and significant, and then cast votes to indicate priorities for preservation (see Table 3).

Table 3: At-risk State Government Digital Information		
Categories	Examples	Total Votes
Records	<ul style="list-style-type: none"> • Legislative, court, policy, vital, and land records • Scanned copies of analog records • Historical territorial records • Records of elected officials 	244
Databases/data sets	<ul style="list-style-type: none"> • Geographic Information Systems (GIS) • Electronic filings and other E-government transactions 	145
Digital publications	<ul style="list-style-type: none"> • Government documents, • Web-based publications • Top-level state directories 	79
Websites	<ul style="list-style-type: none"> • Agency web sites overall • Subsets of web site content regarded as having special importance 	75
E-mail	<ul style="list-style-type: none"> • Agency e-mail overall • E-mail of significant individuals 	61
Audio and Video	<ul style="list-style-type: none"> • Digital photographs • Digital recordings government proceedings and public meetings • Government-sponsored television 	29
GIS/Maps	<ul style="list-style-type: none"> • State and local GIS data • Digitized copies of original maps 	10
Records with migration issues	<ul style="list-style-type: none"> • Proprietary legacy data • Obsolete formats and system applications 	9
Document conversion	<ul style="list-style-type: none"> • Scanned digital images of analog content 	4
Restricted information	<ul style="list-style-type: none"> • Documents restricted due to privacy other access requirements 	3
Cultural heritage documentation	<ul style="list-style-type: none"> • Documentation of indigenous cultures and languages 	2

Extending or Building Partnership Networks

Networks and Organizations with Potential Value for State Digital Preservation

Workshop participants identified a significant number of networks and organizations that have the potential to support state digital preservation efforts; these are listed in Appendix 3. Identified were a variety of consortia, professional associations, project-specific teams, fee-for-service organizations, and government entities.

Goals for Leveraging Networks

Participants cited a number of goals for leveraging networks in support of digital preservation (see Table 4).

Categories	Examples
Communication/ Knowledge sharing	<ul style="list-style-type: none"> • Communicate objectives across agencies within a state • Closer coordination between national associations with an interest in state government information • Clearinghouse to share best practices, contact information, partnership opportunities, lessons learned • Develop and share profiles on states and territories digital preservation efforts • Use profiles as a “peer pressure” tool to show state legislatures what others are doing
Education/Advocacy	<ul style="list-style-type: none"> • Support systems development projects that include full life cycle costs, including preservation • National training programs • Educate stakeholders, advocate for importance of digital preservation
Enhanced efforts	<ul style="list-style-type: none"> • Collaboratively select/collect content • Academic/state government partnerships • Homeland security partnerships • State librarians and archivists need to engage state CIOs • Coordinate investments within states and territories • Work with information technology vendors
Funding	<ul style="list-style-type: none"> • Grants from NHPRC, IMLS have been helpful for established programs • New grants could focus on states and territories in earlier stages of preservation • Funding to sustain programs and not “flashy” short-term projects • Get state to commit sustaining projects after initial grants end
Leadership	<ul style="list-style-type: none"> • Identify champions, connect them through networks • Budget-makers could convene information technology agencies • Coordinate draft policies and statutes • Identify “doers” who can share with others, lead by example

Barriers to Leveraging Networks

The barriers identified in connection with leveraging existing and potential future networks fell into the categories noted in Table 5.

Table 5: Barriers to Leveraging Networks	
Categories	Examples
Communication	<ul style="list-style-type: none"> • Collaboration is difficult and requires time and patience • “Collaboration overload” possible if partnerships are not well-managed • Some agencies want to protect turf, not collaborate • Too few cross-institutional project opportunities • Geographic distance between agencies can make it difficult to collaborate • Lack of clarity on what digital preservation means hinders communication
Culture	<ul style="list-style-type: none"> • Information technology community focused on current projects and not preserving information • Consolidation of information technology in states stymies collaboration • Information technology organizations has a very different work culture than libraries and archives • Language is a barrier – need shared semantics and vocabulary • Resistance to change is pervasive • Few incentives to be inventive; there are penalties for perceived failures • Too many stovepipes/silos – narrowly focused agency processes
Infrastructure	<ul style="list-style-type: none"> • Lack of standards and best practices • Hard to design, implement, maintain the “right” infrastructure • Vendors selling “solutions” that aren’t • Lack of understanding that preservation is necessary • Reluctance to make a mistake spending money on the “wrong” technology
Mandates, policies, administration	<ul style="list-style-type: none"> • Administrative placement of archives and libraries is not always optimal • Elected officials can have ideas about records that vary from best practice • Turnover of elected officials, legislators, makes it hard to establish relationships • Ownership, copyright issues can be barriers • Statutory authorities may be obsolete, inadequate, non-existent • Decision makers want tangible results: “bricks instead of clicks”
Resources – funding, staff	<ul style="list-style-type: none"> • Lack of staff and money to collaborate • Competing for resources among actual or potential intra-state partners • Lack of skills – trained as a librarian, not as a facilitator/coordinator • Easier to buy hardware than hire skilled people • Lack of knowledge about necessary skills and best practices • Training is a challenge for some: “The more I learn the less I know” • ROI needs refocusing on the risk of losing information • 18 month lead time to get, deploy grants • Lack of sustainable funding for preservation

Roles and Responsibilities

Potential Roles for the States

Participants shared many ideas for appropriate states roles and responsibilities voted for their preferences (see Table 6).

Table 6: Ideas for Potential State Digital Preservation Roles		
Roles and Responsibilities	Examples	Total Votes
Stewardship of state digital information	<ul style="list-style-type: none"> • Select/appraise content; determine preservation priorities • Collect and acquire content • Develop preservation infrastructure • Establish pilot and demonstration projects 	146
Communication/ Collaboration	<ul style="list-style-type: none"> • Ensure CIO, library, and archives work together effectively • Consult and reach out to agencies, officials, legislators • Develop networks and partnerships within/among states • Identify and convene stakeholders • Advocate for digital preservation 	76
Legislation/Policy	<ul style="list-style-type: none"> • Require records in orientation for all state officials • Resolve issues regarding who is responsible for long-term management, preservation, and access • Clarify records and publication laws • Establish and enforce policy guidelines for agencies 	82
Access	<ul style="list-style-type: none"> • Ensure ongoing access to information 	34
Funding	<ul style="list-style-type: none"> • Push for sustainable funding • Identify multiple funding sources. 	28
Training/Education	<ul style="list-style-type: none"> • Educate state agencies and staff • Commit to outreach through training, conferences, other means 	19
Standards	<ul style="list-style-type: none"> • Develop and administer standards and procedures • Identify and/or develop and promulgate standards 	14

Potential Roles for NDIIPP/Other National Programs in Association with the States

Participants also shared ideas about how national programs could work with the states and voted for their preferences (see Table 7).

Table 7: Potential Roles for NDIIPP/Other National Programs		
Roles and Responsibilities	Examples	Total Votes
Education, standards, and best practices	<ul style="list-style-type: none"> • Compile and distribute a basic profile for each state • Collect information about best practices, successful models, new technology • Take leadership in developing preservation partnerships • Work with standards organizations • Outreach via conferences, listservs, web 	154
Funding	<ul style="list-style-type: none"> • Grants for creating preservation frameworks, statewide models • Leverage matching dollars • Sponsor preservation research 	119
Coordination/ facilitation	<ul style="list-style-type: none"> • Federal agencies need to work closely among themselves • Facilitate communication and collaboration among states • Engage involve information technology companies • Facilitate inter-state partnerships 	60
Advocacy	<ul style="list-style-type: none"> • Help articulate the value of information • Spur public awareness 	15
Preservation services	<ul style="list-style-type: none"> • Support the capture (“harvest”) of state government websites • Help develop digital publication repositories 	9
Open-source software	<ul style="list-style-type: none"> • Support open-source file formats 	4

Potential Roles NDIIPP/Other National Programs Should Avoid

The last part of this exercise asked participants to provide ideas about areas that national programs should avoid (no votes were cast; see Table 8).

Table 8. Potential Roles NDIIPP/Other National Programs Should Avoid	
Category	Examples
Duplication of effort	<ul style="list-style-type: none"> • Be aware of existing projects and avoid duplication of effort • Federal agencies should not work at cross purposes • Seek practicality—avoid further academic studies of digital preservation
State policies and requirements	<ul style="list-style-type: none"> • Avoid involvement in state programs and politics • Let states form own policies, procedures, and priorities for preservation, but provide success measures • Avoid setting requirements without incentive options • Avoid unfunded mandates
“One size fits all” funding	<ul style="list-style-type: none"> • Enable diversity in approaches

Conclusion

States now confront a critical challenge in preserving significant digital information. Few states are effectively addressing this challenge. For most, the primary obstacle is knowledge about how to get started, although limited resources are also a major factor.

The workshops confirmed that many types of significant digital information documenting all aspects of state government are at risk of loss. Participants detailed an array of barriers that stand between this information and the efforts necessary to ensure its proper stewardship over time. On the other hand, workshop attendees were in general agreement about how to meet the challenge. There was strong endorsement of collaboration at all levels, from the national down to relationships between agencies within individual states. Participants also favored a comprehensive approach to digital preservation emphasizing attention to all stages in the life of digital information.

States clearly recognize strong stewardship responsibilities for their digital information, but want assistance in learning about preservation objectives and options. And while state libraries and archives have limited technical resources, they are for the most part eager to initiate—or, in some cases, extend—basic preservation policies, approaches, and tools. The states want to learn digital preservation by doing it, but are looking for help.

While several states have developed modest capabilities for digital preservation, many states face serious barriers to developing infrastructures. Overcoming these barriers depends, in part, on libraries and archives establishing effective relationships with state information technology organizations. Workshop participants observed that the path to better relationships requires librarians, archivists, and information technology staff to work more effectively together, particularly in developing a shared vocabulary and a common perspective. Nearly all states also need to improve their policies, practices, and organizational relationships to better support digital preservation. A promising vehicle for addressing multiple needs is the state Enterprise Architecture approach, but most state libraries and archives do not appear to have much awareness of this activity.

Enhancing communication, collaboration, and partnership across state government is critical to boost digital preservation efforts. Attendees expressed a strong desire for national help in building a digital preservation community through bringing related stakeholders together, initiating partnerships, and facilitating communication. But, as the workshops indicated, an excellent place to start is for state libraries and state archives to work more closely together. Libraries and archives also must be more effective in making their case for support from decision makers and stakeholders.

Limited resources are a fundamental impediment to digital preservation in many states. Workshop participants pointed to insufficient budgets, too few staff, and inadequate legal authorities as barriers to effective digital preservation programs. It is, however, worth noting that a few states have had notable success in gaining funds and improving laws for preservation. These successes provide models for others to consider and perhaps emulate.

The workshops were of great value in helping the Library learn about the complex issues faced by the states. Participants shared a bounty of facts about significant categories of digital information and helped identify some basic priorities. Attendees were enthusiastic, motivated, and keen to share ideas and experiences. They were also eager to establish or strengthen personal connections within the multiple communities represented, activities that continued after returning home in many cases. This commitment—and even passion—for improving digital preservation was remarkable. Despite the barriers, there was no shortage of earnest optimism and suggestions for potential collaboration. The Library is grateful for the willingness of so many to help contribute to the findings outlined in this report, which will inform NDIIPP as it moves forward.

Appendix 1

Workshop Participants

First Name	Last Name	State	Affiliation	Workshop Date
Daniel	Cornwall	AK	Alaska State Library	5/11/2005
Dean K.	Dawson	AK	Alaska State Archives	5/11/2005
Norman K.	Nail Jr.	AK	Alaska State Archives	5/11/2005
Tracey	Berezansky	AL	Alabama Department of Archives and History	5/25/2005
Sue O.	Medina	AL	Network of Alabama Academic Libraries	5/25/2005
Rebecca	Mitchell	AL	Alabama Public Library	5/25/2005
Mary	Brewer	AR	Arkansas State Library	5/11/2005
Lynn	Ewbank	AR	Arkansas History Commission	5/11/2005
Sally	Hawkes	AR	Arkansas State Library	5/11/2005
Vince	Iuli	AS	American Samoa Government	5/11/2005
Abraham	King	AS	Feleti Barstow Public Library	5/11/2005
Janet	Fisher	AZ	Arizona State Library, Archives and Public Records	5/11/2005
Richard	Pearce-Moses	AZ	Arizona State Library, Archives and Public Records	5/11/2005
Melanie	Sturgeon	AZ	Arizona State Library, Archives and Public Records	5/11/2005
Lucy	Barber	CA	California State Archives	5/25/2005
Janet	Coles	CA	California State Library	5/25/2005
Debbie	Newton	CA	California State Library	5/25/2005
Gene	Hainer	CO	Colorado State Library	4/27/2005
Terry	Ketelsen	CO	Colorado State Archives	4/27/2005
Deborah	Macleod	CO	Colorado State Library	4/27/2005
Eunice	DiBella	CT	Connecticut State Library	5/25/2005
Anne	MacLeod	CT	Connecticut Dept. of Information Technology	5/25/2005
Julie	Schwartz	CT	Connecticut State Library	5/25/2005
Stephen	Slovasky	CT	Connecticut State Library	5/25/2005
Karen	Blackman-Mills	DC	District of Columbia Public Library	4/27/2005
Bill	Branch	DC	Office of Public Records Management	4/27/2005
Clarence	Davis	DC	Office of Public Records Management	4/27/2005
Joanne	Mattern	DE	Delaware Public Archives	5/11/2005
Anne	Norman	DE	Delaware Division of Libraries/State Library	5/11/2005
Mark	Ritter	DE	Delaware Public Archives	5/11/2005
Jim	Berberich	FL	State Library and Archives of Florida	5/11/2005
Gerard	Clark	FL	State Library and Archives of Florida	5/11/2005
Mark	Flynn	FL	State Library and Archives of Florida	5/11/2005
David	Carmicheal	GA	Georgia Department of Archives and History	5/25/2005
Kimberly	Gordon	GA	State of Georgia	5/25/2005
Les	Nakamura	HI	Information and Communication Services Division	4/27/2005
Jo Ann	Schindler	HI	Hawaii State Public Library System	4/27/2005
Susan E.	Shaner	HI	Hawaii State Archives	4/27/2005
Barbara	Corson	IA	State Library of Iowa	5/25/2005
Paul	Ertz	IA	Iowa State University	5/25/2005
Gordon	Hendrickson	IA	State Archives of Iowa	5/25/2005
Jan	Cox	ID	State of Idaho	4/27/2005
Steve	Walker	ID	Idaho State Historical Society	4/27/2005
Richard A.	Wilson	ID	Idaho State Library	4/27/2005
Connie	Frankenfeld	IL	Illinois State Library	5/25/2005

Table 9: State Workshop Participants

First Name	Last Name	State	Affiliation	Workshop Date
Larry	Jackson	IL	University of Illinois	5/25/2005
Mark	Sorensen	IL	Illinois State Archives	5/25/2005
Patricia	Al-Wahaili	IN	Indiana State Library	5/25/2005
Roberta L.	Brooker	IN	Indiana State Library	5/25/2005
Deborah-Katherine	Stanley	IN	Indiana Commission on Public Records	5/25/2005
Marc	Galbraith	KS	Kansas State Library	5/11/2005
Patricia	Michaelis	KS	Kansas State Historical Society	5/11/2005
Matthew	Veatch	KS	Kansas State Historical Society	5/11/2005
Glen	McAninch	KY	Kentucky Department of Libraries and Archives	5/25/2005
Mary	Molinaro	KY	University of Kentucky	5/25/2005
Charles	Robb	KY	Commonwealth Office of Technology	5/25/2005
Diane	Brown	LA	State Library of Louisiana	5/11/2005
Carrie	Fager	LA	Louisiana State Archives	5/11/2005
Christy	Reeves	LA	State Library of Louisiana	5/11/2005
Susan	Edmonds	MA	State Library of Massachusetts	4/27/2005
Gregor	Trinkaus-Randall	MA	Massachusetts Board of Library Commissioners	4/27/2005
Christine E.	Alvey	MD	Maryland State Archives	5/25/2005
Irene	Padilla	MD	Maryland State Department of Education	5/25/2005
Jim	Henderson	ME	Maine State Archives	4/27/2005
Elaine C.	Stanley	ME	Maine State Library	4/27/2005
Ellen	Wood	ME	Maine State Library	4/27/2005
Ann Marie	Sanders	MI	Library of Michigan	4/27/2005
Caryn	Wojcik	MI	Michigan Historical Center	4/27/2005
Michael	Fox	MN	Minnesota Historical Society	4/27/2005
Robert	Horton	MN	Minnesota Historical Society	4/27/2005
Eileen	Quam	MN	Minnesota Office of Technology	4/27/2005
Linda	Harris	MO	Missouri State Library	4/27/2005
Gerald	Hirsch	MO	Missouri State Archives	4/27/2005
Greg	Schildmeyer	MO	Missouri Secretary of State	4/27/2005
Erlinda	Naputi	MP	Joeten-Kiyu Public Library (CNMI State Library)	4/27/2005
Elaine	Owens	MS	Mississippi Department of Archives and History	5/11/2005
David	Pilcher	MS	Mississippi Department of Archives and History	5/11/2005
Julia Marks	Young	MS	Mississippi Department of Archives and History	5/11/2005
Patti	Borsberry	MT	Montana Secretary of State	5/11/2005
Roberta	Gebhardt	MT	Montana State Library	5/11/2005
Molly	Kruckenber	MT	Montana Historical Society	5/11/2005
Kelly	Eubank	NC	North Carolina State Archives	5/25/2005
Grant	Pair	NC	State Library of North Carolina	5/25/2005
Jan	Reagan	NC	State Library of North Carolina	5/25/2005
Druscie	Simpson	NC	North Carolina State Archives	5/25/2005
Gerald G.	Newborg	ND	State Historical Society of North Dakota	5/25/2005
Doris	Ott	ND	North Dakota State Library	5/25/2005
Bill J.	Roach	ND	State Historical Society of North Dakota	5/25/2005
Shannon	Behrhorst	NE	Nebraska Library Commission	5/25/2005
Andrea I.	Faling	NE	Nebraska State Historical Society	5/25/2005
Beth	Goble	NE	Nebraska Library Commission	5/25/2005
Brian	Burford	NH	New Hampshire Division of Archives and Records Management	5/25/2005

Table 9: State Workshop Participants

First Name	Last Name	State	Affiliation	Workshop Date
Frank C.	Mevers	NH	New Hampshire Division of Archives and Records Management	5/25/2005
Michael	York	NH	New Hampshire State Library	5/25/2005
Susan	Kaplan	NJ	New Jersey State Library	5/11/2005
Joseph	Klett	NJ	New Jersey Division of Archives & Records Management	5/11/2005
Deborah	Mercer	NJ	New Jersey State Library	5/11/2005
Daniel W.	Noonan	NJ	New Jersey Division of Archives & Records Management	5/11/2005
Daphne	Arnaiz-DeLeon	NM	New Mexico State Records Center and Archives	5/11/2005
John	Chadwick	NM	New Mexico State Library	5/11/2005
Marcia F.	Smith	NM	New Mexico State Library	5/11/2005
Kathy	Edwards	NV	Nevada State Library and Archives	4/27/2005
Jeffrey M.	Kintop	NV	Nevada State Library and Archives	4/27/2005
Rick	Rasmussen	NV	Nevada State Library and Archives	4/27/2005
Prudence	Backman	NY	New York State Archives	5/11/2005
Robert	Dowd	NY	New York State Library	5/11/2005
Liza	Duncan	NY	New York State Education Department	5/11/2005
Nicole	Merriman	OH	State Library of Ohio	5/11/2005
Angela	O'Neal	OH	Ohio Historical Society	5/11/2005
Gretchen	Persohn	OH	State Library of Ohio	5/11/2005
Pari	Swift	OH	Ohio Historical Society	5/11/2005
Gary	Harrington	OK	Oklahoma Department of Libraries	5/11/2005
Michael	O'Hasson	OK	Oklahoma Department of Libraries	5/11/2005
Gary	Phillips	OK	Oklahoma Department of Libraries	5/11/2005
Robert	Hulshof-Schmidt	OR	Oregon State Library	5/11/2005
Layne	Sawyer	OR	Oregon State Archives	5/11/2005
Susan	Westin	OR	Oregon State Library	5/11/2005
Linda	Avetta	PA	Pennsylvania Historical and Museum Commission	4/27/2005
George	Friedline	PA	State Library of Pennsylvania	4/27/2005
David	Haury	PA	Pennsylvania Historical and Museum Commission	4/27/2005
Brien	Brothman	RI	Rhode Island State Archives Division	5/25/2005
Greg	Facincani	RI	Rhode Island State Library	5/25/2005
R. Gwenn	Stearn	RI	Rhode Island State Archives Division	5/25/2005
Donald	Chalfant	SC	South Carolina Department of Archives and History	4/27/2005
Elaine	Sandberg	SC	South Carolina State Library	4/27/2005
Troy	Travis	SC	Division of the State Chief Information Officer	4/27/2005
Dorothy	Liegl	SD	South Dakota State Library	5/11/2005
LaVera	Rose	SD	South Dakota State Library	5/11/2005
Chelle	Somsen	SD	South Dakota State Archives	5/11/2005
Donna	Bridges	TN	Department of General Services, Records Management Division	4/27/2005
Wayne	Moore	TN	Tennessee State Library and Archives	4/27/2005
Carol	Roberts	TN	Tennessee State Library and Archives	4/27/2005
Carolyn	Foster	TX	Texas State Library and Archives Commission	5/25/2005
Tim	Nolan	TX	Texas State Library and Archives Commission	5/25/2005
Regina	Rousseau	TX	State of Texas Department of Information Resources	5/25/2005
Terry	Ellis	UT	Salt Lake County Records Management and Archives	5/11/2005
Ray	Matthews	UT	Utah State Library	5/11/2005

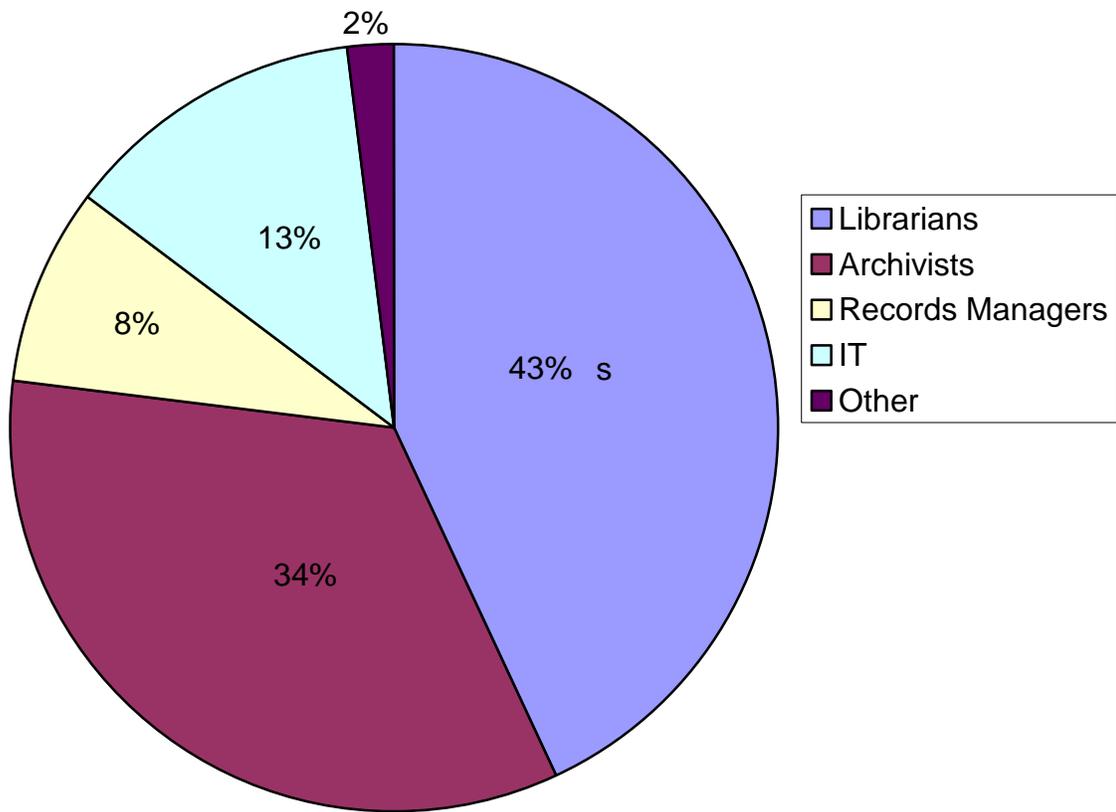
Table 9: State Workshop Participants				
First Name	Last Name	State	Affiliation	Workshop Date
Patricia	Smith-Mansfield	UT	Utah State Archives and Records Services	5/11/2005
Conley	Edwards	VA	The Library of Virginia	5/25/2005
Robert	Nawrocki	VA	The Library of Virginia	5/25/2005
Christian	Douté	VI	Virgin Islands Territorial Library System	5/25/2005
Judith	Rogers	VI	University of the Virgin Islands	5/25/2005
Paul	Donovan	VT	State of Vermont Department of Libraries	5/11/2005
Tanya	Marshall	VT	Vermont State Archives	5/11/2005
Gerald	Handfield	WA	Washington State Archives	4/27/2005
Adam	Jansen	WA	Washington State Digital Archives	4/27/2005
Marlys	Rudeen	WA	Washington State Library	4/27/2005
Jan	Walsh	WA	Washington State Library	4/27/2005
Doug	Bingenheimer	WI	Wisconsin Department of Administration	4/27/2005
Sally	Drew	WI	Wisconsin Reference and Loan Library	4/27/2005
Virginia	Fritzsch	WI	Wisconsin Historical Society	4/27/2005
Fredrick H.	Armstrong	WV	West Virginia Archives and History	5/11/2005
Lesley	Boughton	WY	Wyoming State Library	4/27/2005
Denise	Farrell	WY	State of Wyoming	4/27/2005
Rich	Wilson	WY	Department of State Parks and Cultural Resources	4/27/2005

Table 10: Federal Agency, Other Workshop Representatives			
First Name	Last Name	Agency	Workshop Date
Martha	Anderson	Library of Congress	All
Mary Alice	Baish	American Association of Law Libraries	5/25/2005
Frances	Bufalo	Library of Congress	5/25/2005
Richard	Cameron	National Archives and Records Administration	5/25/2005
John	Chin	Library of Congress	5/25/2005
Mary	Chute	Institute of Museum and Library Services	5/25/2005
Beth	Dulabahn	Library of Congress	All
Max	Evans	National Archives and Records Administration	5/25/2005
Heather	Gottry	Institute of Museum and Library Services	5/25/2005
Howard	Lowell	National Archives and Records Administration	All
Michael	Meier	National Archives and Records Administration	4/27/2005
Joyce	Ray	Institute of Museum and Library Services	5/11/2005
Judy	Russell	Government Printing Officer	5/25/2005
George	Smith	Institute of Museum and Library Services	5/25/2005
Victoria	Walch	Council of State Archives	5/25/2005
Christine	Dulaney	Library of Congress	5/25/2005

Table 11: Participating States and Territories		
April 27	May 11	May 25
Colorado	Alaska	Alabama
District of Columbia	Arkansas	California
Hawaii	Arizona	Connecticut
Idaho	Delaware	Georgia
Massachusetts	Florida	Iowa
Maine	Kansas	Illinois
Michigan	Louisiana	Indiana
Minnesota	Mississippi	Kentucky
Missouri	Montana	Maryland
Nevada	New Jersey	North Carolina
Pennsylvania	New Mexico	North Dakota
South Carolina	New York	Nebraska
Tennessee	Ohio	New Hampshire
Washington	Oklahoma	Rhode Island
Wisconsin	Oregon	Texas
Wyoming	South Dakota	Virginia
Northern Mariana Islands	Utah	Virgin Islands
Total: 17	Vermont	Total: 17
	West Virginia	
	American Samoa	
	Total: 20	

Workshop Date	Librarian	Archivist	Records Manager	information technology	Other	Total
April 27	18	17	6	7	1	49
May 11	25	24	5	3	1	58
May 25	24	12	2	10	1	49
Totals	67	53	13	20	3	156

Figure 2: Workshop Participants by Profession



Appendix 2

Workshop Agenda

Agenda for Library of Congress Consultation Workshop with States

- 8:00-8:15 Welcome
- 8:15-8:45 Introductions, Plan for the Day
- 8:45-9:15 NDIIPP, states initiative and listening/learning
- 9:15-10:15 Round robin for each state to mention their: ⁴⁵
- 1) Top concern relating to digital preservation
 - 2) Major success story
 - 3) Chief area of interest to discuss with other states
- 10:15-10:30 Q&A
- 10:30-10:45 Break
- 10:45-11:00 Outline of small group work; background for group exercise 1
- 11:00-12:00 Small group discussion of state government digital information (exercise 1)
- What kinds of state government digital information are at-risk and what are the priorities for preservation?
- 12:00-1:00 Lunch
- 1:00-1:15 Outline of small group work; background for group exercises 2 and 3

⁴⁵ Agenda items for major success story and chief area of interest to discuss with other states were added after the 4/25/2005 workshop.

- 1:15-2:00 Small group discussion of partnership networks (exercise 2)
- What networks do you know of that support partnerships for digital preservation?
 - Within your state?
 - Between your state and other state(s)?
 - Between your state and the private sector, including information technology companies?
 - Between your state and the federal government?
 - How do you think these partnerships could be leveraged or enhanced for improved digital preservation in your state?
 - What are the barriers to creating new partnerships and enhancing existing ones for digital preservation in your state?
- 2:00-2:05 Break
- 2:05-2:50 Small group discussion of roles and responsibilities (exercise 3)
- What preservation-related roles and responsibilities do states need to fill?
 - What preservation-related roles and responsibilities does LC need to fill?
 - What areas should LC *not* get involved with?
- 2:50-3:00 Break
- 3:00-4:00 Group report-outs on previous exercises
- 4:00-4:15 CTG toolkit
- 4:15-4:30 Wrap-up

Appendix 3

Workshop Methodology

The Center for Technology in Government (CTG) works with government to develop information strategies that foster innovation and enhance the quality and coordination of public services. CTG carries out this mission through applied research and partnership projects that address the policy, management, and technology dimensions of information use in the public sector. CTG staff use subject matter expertise, project management skills, and a variety of data collection and problem analysis techniques when working with partners to achieve project goals. In this project the workshops were designed to achieve two specific goals:

1. To capture information related to the status of efforts within the states and territories to preserve digital government information, and
2. To help build a shared understanding and collaborative environment among a diverse group of stakeholders brought together to explore specific problems.

For more information on CTG's approach to applied research and partnership projects see the CTG publication entitled *Making Smart IT Choices*.⁴⁶

The section below provides specific descriptions of how group facilitation techniques were applied in the workshops with states.

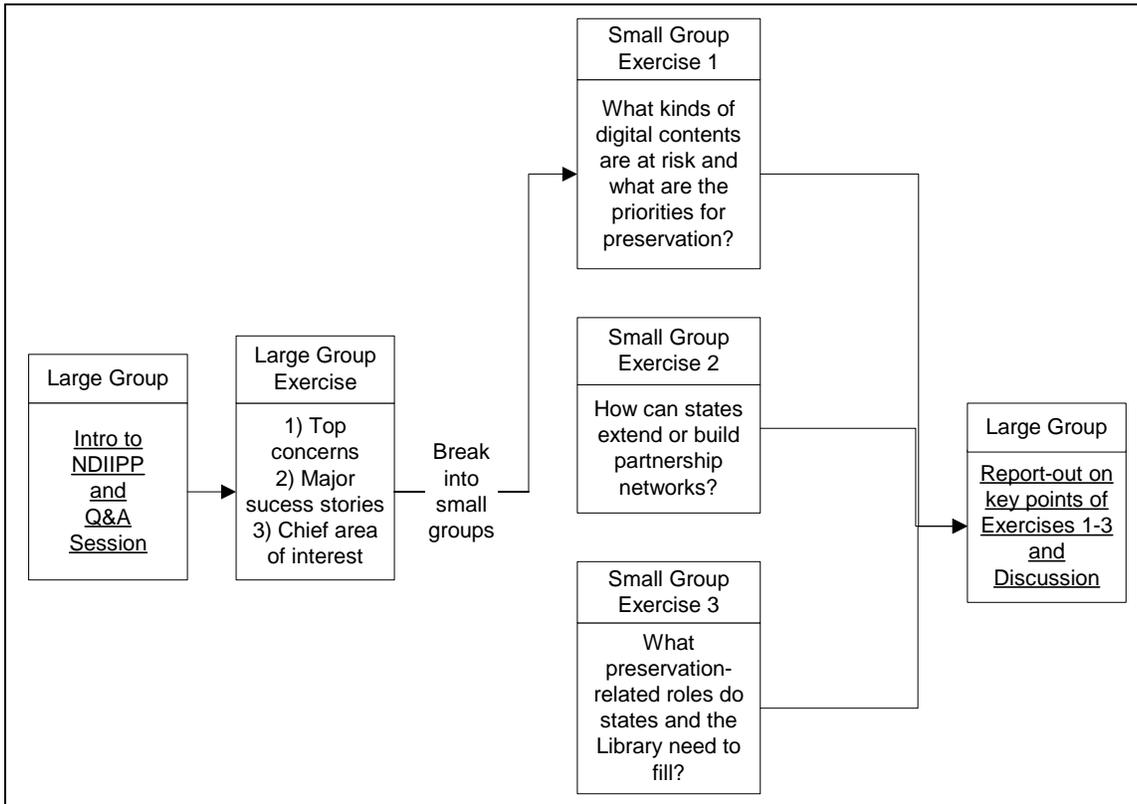
Overview of the Workshop Facilitation Plan

The workshop was designed to maximize discussion time among participants as well as to gather feedback on the specific questions of interest to LC and CTG. The design included a series of large and small group facilitated discussions and exercises.

The topics of each of the large and small group facilitated sessions and the questions asked of the workshop participants, were developed by CTG in close collaboration with LC staff prior to the first workshop. Using these topic areas and initial set of questions CTG staff developed a group facilitation plan along with detailed instructions and associated worksheets for the workshop participants (see Figure 1).

⁴⁶ <http://www.ctg.albany.edu/publications/guides/smartit2>

Figure 1. Flow of Large and Small Group Exercises During the Workshops



Based on the first workshop and feedback from the participants, CTG and LC staff slightly modified the first large group exercise to improve on the information and feedback they were able to collect from the library, archives, records management, and information technology experts in attendance.

Opportunities for Information Gathering

Large Group Exercises

Each workshop started with a large group exercise involving all state and territorial participants. A CTG staff member facilitated a “round robin” capture of responses from each state while a second CTG facilitator captured each state’s responses on a flip chart. In addition, several LC staff were responsible for taking notes on this discussion. These notes later were used to clarify and enhance the information captured on the flip charts. The large group exercises closed with a discussion of responses.

April 27th Workshop

In the April 27th large group exercise the representatives for each state was asked to briefly describe their number one concern regarding the management and preservation of government digital information. Although participants had been provided with the question ahead of time

they were given several minutes to consult among their state team to revisit previous discussions or in some cases to decide on their response.

May 11th and 25th Workshops

For the May 11th and 25th workshops two additional questions were added to this exercise. In addition to being asked their top concern, representatives from each state were asked to describe their major success story and to identify a chief area of interest to discuss with other states during the meetings. Participants in these two workshops had received an expanded list of questions prior to their attendance.

Small Group Exercises

Three small group sessions were held to focus attention on three separate digital preservation issues relating to content, partnerships and roles and responsibilities. Each team was assigned to one of four small groups. Each of the four small groups comprised four to six states, a CTG facilitator, and LC staff member. Each small group spent 60 minutes on each of the following three questions:

Exercise 1: What kinds of digital content are at-risk and what are the priorities for preservation?

Exercise 2: How can states extend or build partnership networks?

Exercise 3: What preservation-related roles do the states and NDIIPP need to fill?

Each participant was provided with exercise instructions as well as a worksheet to capture individual responses. The CTG facilitator captured all shared responses and discussions during the three exercises so that they were viewable by participants; LC staff members took notes of key points.

At the conclusion of the small group exercises, participants reconvened as a large group to “report-out” the small group results. Reporters were members of the group, selected by the group. Key themes and ideas that emerged during large group discussions of the small group exercise results were captured on flip charts and notes were again taken.

Additional Opportunities for Information Gathering

During each workshop, participants were given two additional opportunities to share their thoughts and ideas about preservation of state government digital information. A question and answer session was held following the opening presentation on NDIIPP and the meeting wrap-up discussion at the end of the day was organized as a discussion, reflection and question and answer session. All questions and comments were captured on flip charts and in discussion notes.

Post-Workshop Data Organization and Analysis

After each of the workshops, all information collected was combined into a single workshop summary. This workshop summary included both lists of responses as well as narrative descriptions and interpretations of workshop discussions. These workshop summaries formed the foundation of this report.

Appendix 4

Networks and Organizations of Potential Help with Digital Preservation

Workshop participants identified a number of networks and organizations that either are already providing digital preservation-related assistance or that might provide such assistance in the future (see Table 13).

Table 13: Identified Networks and Organizations of Potential Help for Digital Preservation

Acronym	Name	Web site
AIIM	Association for Information and Image Management	http://www.aiim.org/
ALA	American Library Association	http://www.ala.org/
Amigos	Amigos Library Services, Inc.	http://www.amigos.org/
ARL	Association of Research Libraries	http://www.arl.org/
ARMA	Association of Record Managers and Administrators	http://www.arma.org/
ASERL	Association of Southeastern Research Libraries	http://www.aserl.org/
BCR	Bibliographic Center for Research	http://www.bcr.org/
BLC	Boston Library Consortium	http://www.blc.org/
CEP	Capturing E-publications of public documents	http://www.cyberdriveillinois.com/departments/library/who_we_are/cep.html
CERIS	Committee on Electronic Records and Information Systems	http://www.nagara.org/members/committees/ceris/ceris_intro.html [membership required for access]
CDL	California Digital Library	http://www.cdlib.org/
CDP	Collaborative Digitization Program	http://www.cdphheritage.org/
CNMI Museum	Commonwealth of the Northern Mariana Islands museum	http://www2.cnmimuseum.org
COSA	Council of State Archivists	http://www.statearchivists.org
COSLA	Chief Officers of State Library Agencies	http://www.cosla.org/
COSLINE	Council of State Library Agencies in the Northeast	http://www.lori.ri.gov/loripro/resources/cosline.php
CRIARL	Consortium of Rhode Island Academic Research Libraries	http://www.criarl.org/
DCI	Dublin Core Initiative	http://dublincore.org/
DSpace Federation	Open-source digital repository system (user community)	http://dspace.org/index.html
EPSCoR	Experimental Program to Stimulate Competitive Research	http://www.epscorfoundation.org/

Table 13: Identified Networks and Organizations of Potential Help for Digital Preservation

Acronym	Name	Web site
ERECS-L	Management & Preservation of Electronic Records (listserv)	http://listserv.albany.edu:8080/archives/erecs-l.html
FCLA	Florida Center for Library Automation	http://www.fcla.edu/
FGDC	Federal Geographic Data Committee	http://www.fgdc.gov/
FLA	Florida Library Association	http://www.flalib.org/
FLNC	Florida Library Network Council	http://www.flelibrary.org/about/about_index.htm
FRMA	Florida Records Management Association	http://www.frma.org/
GDMA	Georgia Document Management Association	http://gdma.webexone.com
GILS	Government Information Locator Service	http://www.access.gpo.gov/su_docs/gils/
GPO	Government Printing Office	http://www.gpo.gov/
IA	Internet Archive	http://www.archive.org/
ICONN	Connecticut Digital Library	http://www.iconn.org/
ICUF	Independent Colleges & Universities of Florida Consortia	http://www.icuf.org/
IMLS	Institute of Museum and Library Services	http://www.imls.gov/
INA	Information Network of Arkansas	www.dina.org
InforME	Information Resource of Maine	http://www.maine.gov/informe
KLNB	Kansas Library Network Board	http://www.skyways.org/KSL/KLNB/
KSPACE	Kansas State Publications Archival Collection	http://www.kspace.org/
LALINC	Louisiana Academic Library Information Network Consortium	http://appl006.lsu.edu/ocsweb/louishome.nsf/index
LAMA	Louisiana Archives and Manuscripts Association	http://nutrias.org/~nopl/lama/lama.htm
LBRI	Library Board of Rhode Island	http://www.lori.ri.gov/aboutus/libboard.php
LLA	Louisiana Library Association	http://www.llaonline.org/
LOCKSS	Lots Of Copies Keep Stuff Safe (open-source preservation software)	http://www.lockss.org
LOUIS	Louisiana Library Network	http://appl006.lsu.edu/ocsweb/louishome.nsf/index
LSTA	Library Services and Technology Act (NC)	http://statelibrary.dcr.state.nc.us/lsta/lsta.htm
	Maine Memory Network	http://www.mainememory.net/
MAC	Midwest Archives Conference	http://www.midwestarchives.org
NAAL	Network of Alabama Academic Libraries	http://www.ache.state.al.us/NAAL/

Table 13: Identified Networks and Organizations of Potential Help for Digital Preservation

Acronym	Name	Web site
NAGARA	National Association of Government Administrators and Records Administrators	http://www.nagara.org/
NARA	National Archives and Records Administration	http://www.archives.gov/
NASCIO	National Association of State Chief Information Officers	https://www.nascio.org/
NASS	National Association of Secretaries of State	http://www.nass.org/
NCECHO	North Carolina Exploring Cultural Heritage Online	http://www.ncecho.org/
NCLIS	National Commission on Libraries and Information Science	http://www.nclis.gov/index.cfm
NEA	New England Archivists	http://www.newenglandarchivists.org
NECCC	National Electronic Commerce Coordinating Committee	http://www.ec3.org/
NEDCC	Northeast Document Conservation Center	http://www.nedcc.org/
NEFLIN	Northeast Florida Library Information Network	http://www.neflin.org/
NEH	National Endowment for the Humanities	http://www.neh.gov/
NELA	New England Library Association	http://www.nelib.org/
NELINET	New England Library Information Network	http://www.nelinet.net/
NGA	National Governors Association	http://www.nga.org/
NHAIS	New Hampshire Automated Information System	http://www.state.nh.us/nhsl/nhais/
NHLA	New Hampshire Library Association	http://www.state.nh.us/nhla/
NHPRC	National Historical Publications and Records Commission	http://www.archives.gov/nhprc
NISO	National Information Standards Organization	http://www.niso.org/
NSDI	National Spatial Data Infrastructure	http://www.fgdc.gov/nsdi/nsdi.html
NSF	National Science Foundation	http://www.nsf.gov/
NSL	National Sporting Library	http://www.nsl.org/
NWA	Northwest Archivists	http://www.lib.washington.edu/nwa/
OCLC	Online Computer Library Center	http://www.oclc.org/
PAT Project	Persistent Archives Testbed (MI, OH, KY, MN)	http://www.sdsc.edu/PAT/
RLG	Research Libraries Group	http://www.rlg.org/
RMICC	Records Management Interagency Coordinating Council (TX)	http://www.tsl.state.tx.us/slrm/state/rmicc.html

Table 13: Identified Networks and Organizations of Potential Help for Digital Preservation

Acronym	Name	Web site
RMOA	Rocky Mountain Online Archive	http://www.cdpheritage.org/project/rmoa/rmoaAbout.cfm
SAA	Society of American Archivists	http://www.archivists.org/
SAC	Southern Archivists Conference (AL, LA, MS, TN)	www.geocities.com/tennarchivists/BylawsNew.htm [Bylaws only]
SARC	Southeastern Archives and Records Conference	No Web site found.
SDSC	San Diego Supercomputer Center	http://www.sdsc.edu
SFA	Society of Florida Archivists	http://www.florida-archivists.org/
SHRAB	State Historical Records Advisory Boards	In most states
SMA	Society of Mississippi Archivists	http://www.lib.usm.edu/~smainfo/
SoDaK LIVE	South Dakota Land of Infinite Variety Electronically	http://sodaklive.com
SOLINET	Southeastern Library Network	http://www.solinet.net/
SPCAC	State Publications Clearinghouse (RI)	http://www.sec.state.ri.us/library/clearinghouse/stateclearinghouse
TARO	Texas Archival Resources Online	http://www.lib.utexas.edu/taro/
THDI	Texas Heritage Digitization Initiative	http://www.library.unt.edu/digitalprojects/texdig/thdi.htm
Urbans-1	Urban Public Library Consortium (listserv, NH)	http://maillist.nh.gov/mailman/listinfo/urbans-1
VILINET	Virgin Islands Library Network	No Web site found.
VIVA	Virtual Library of Virginia	http://www.vivalib.org
VLA	Virginia Library Association	http://www.vla.org/
W3C	World Wide Web Consortium	http://www.w3.org/
WHO	Wisconsin Heritage Online	http://www.wils.wisc.edu/widigital/
WJ	WebJunction (OCLC, NH, CT, UT, AZ)	http://www.webjunction.org/do/Home

Appendix 5

Selective Resource List

Based on the requests of participants at the first workshop, all attendees were provided this selective listing of recent web publications and other resources that focus on issues directly related to the management and preservation of U.S. state and local government digital information. The intent was to provide participants with some references to explore what other states are doing and to learn more about preservation issues. Reference is made to a web page in cases where multiple resources are available.

There are many other sources of information from the U.S. and around the world with value to understanding current approaches to managing and preserving digital information. To locate these sources, attendees were referred to a more comprehensive bibliographic listing: the National Library of Australia's Preserving Access to Digital Information (PADI) located at www.nla.gov.au/padi.

Table 14: Management and Preservation of State Government Digital Information: A Selective Resource List

Resource	Web Address (URL)
Arizona State Library, Archives and Public Records; Arizona Model for Web Access and Preservation	http://www.lib.az.us/about/pdf/2004/azmodel.pdf
California Digital Library; Web-Based Government Information: Evaluating Solutions for Capture, Curation, and Preservation	http://www.cdlib.org/programs/Web-based_archiving_mellon_Final_corrected.pdf
Chief Officers of State Library Agencies (COSLA)	http://www.cosla.org
Council of State Archives (COSA)	http://www.coshrc.org
Delaware Public Archives; Three States Project	http://www.state.de.us/sos/dpa/govsvcs/tsp
Enterprise Resources, Wisconsin Department of Administration; What's New in Electronic Records	http://enterprise.state.wi.us/home/erecords
Government Printing Office; GPO's Digitization and Preservation Initiatives	http://www.gpoaccess.gov/legacy/index.html
Government Records Branch of North Carolina, North Carolina Office of Archives and History; Electronic Records	http://www.ah.dcr.state.nc.us/records/e_records
Government Relations Committee and Washington Affairs Office, American Association of Law Libraries; State-by-State Report on Permanent Public Access to Electronic Government Information	http://www.ll.georgetown.edu/aallwash/State_PPAreport.htm
Illinois State Library; Preserving Electronic Publications (PEP)	www.cyberdriveillinois.com/departments/library/who_we_are/pep.html
Kansas State Historical Society; Electronic Records Management	http://www.kshs.org/government/records/electronic
Library of Congress; Digital Formats for Library of Congress Collections	http://www.digitalpreservation.gov/formats/index.shtml
Library of Congress; It's About Time: Research Challenges in Digital Archiving and Long-term Preservation	http://www.digitalpreservation.gov/index.php?nav=3&subnav=11

Table 14: Management and Preservation of State Government Digital Information: A Selective Resource List

Resource	Web Address (URL)
Library of Congress; Library of Congress-NDIIPP Cooperative Partnership Agreements	http://www.digitalpreservation.gov/index.php?nav=4
Library of Congress; Plan for the National Digital Information Infrastructure and Preservation Program	http://www.digitalpreservation.gov/index.php?nav=3&subnav=1
Maine State Archives; GeoArchives	http://www.maine.gov/geoarch
Michigan Department of History, Arts and Libraries; Records Management Application Pilot Project	http://www.michigan.gov/hal/0,1607,7-160-17445_19273_21738-74194--,00.html
Minnesota State Archives, Minnesota Historical Society; Trustworthy Information Systems Handbook, Electronic Records Management Guidelines, and other resources	http://www.mnhs.org/preserve/records/index.html
Mississippi Department of Archives and History; Electronic Records Draft Guidelines	http://www.mdah.state.ms.us/arlib/erglnav.html
National Association of Government Archives and Records Administrators (NAGARA)	http://www.nagara.org
National Association of State Chief Information Officers (NASCIO)	http://www.nascio.org
Nevada State Library and Archives; Guidance for Electronic Record Keeping	http://dmla.clan.lib.nv.us/docs/nsla/nerc/guidance.htm
New Jersey Department of Archives and Records; Circular Letter 03-10-ST: Managing Electronic Mail: Guidelines & Best Practices	http://www.state.nj.us/state/darm/links/circular-letter-03-10-st.html
North Carolina State Library; Access to State Government Information Initiative	http://statelibrary.dcr.state.nc.us/digidocs
OCLC; Managing and Sustaining a State Government Publications Program in California: A Report on the Existing Situation and Recommendations for Action	http://www.library.ca.gov/assets/acrobat/OCLCFIN.pdf
Ohio State Archives, Ohio Historical Society; Local Government Records (LGR) Program	http://www.ohiohistory.org/resource/lgr/erpublications.html
Oregon State Library; Oregon Documents Depository ORS Revision and Electronic Archiving	http://www.osl.state.or.us/home/techserv/archiving.html
San Diego Supercomputer Center; PERM Project, Preserving the Electronic Records Stored in a RMA	http://www.sdsc.edu/PERM
South Carolina Department of Archives and History; Trustworthy Information Systems Handbook	http://www.state.sc.us/scdah/erg/tis.htm
State Library of Ohio; Preserving State of Ohio Electronic Publications	http://winslo.state.oh.us/govinfo/pep/index.html
University of Wisconsin School of Library and Information Studies; Government Web Pages and Information Management Research Project	http://slisweb.lis.wisc.edu/~kreschen/stateweb/
Utah State Archives; Electronic Records [Includes extensive information about what other states are doing in connection with electronic recordkeeping]	http://archives.utah.gov/recmanag/electronic.htm
Washington State Digital Archives; Washington Secretary of State; Digital Archives Background and History	http://www.digitalarchives.wa.gov