Building State Government Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit

Version 1.0

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Executive Summary

States vary greatly in the work already undertaken on behalf of digital preservation, as well as in the resources available for the task. The degree and focus of leadership for digital preservation varies from state to state, as do the specific priorities for immediate preservation attention. This variation comes in part because there is currently no consensus view about how states (or other organizations) should go about doing digital preservation. The challenge is both so new and so large that everyone is still trying to determine the best methods. Many state governments are moving forward with digital preservation initiatives in this dynamic environment; some with specific initiatives, others with the development of enterprise digital preservation programs.

Regardless of the type and complexity, all these initiatives are made less difficult when participating organizations have high levels of digital preservation capability. Therefore, decisions to invest in digital preservation initiatives must be grounded in a full understanding of the ability of those involved to identify and fill the gaps between current and required capability.

This toolkit is designed for library, archives, records management, and information technology professionals to use when considering or planning for a digital preservation initiative. It provides a process for assessing where capability for digital preservation exists and where it must be developed in order to achieve the goal of preserving significant and at risk government information. Assessment results provide a basis for action planning to fill capability gaps both within and across organizations.

This is a self-assessment tool, based on the idea that the persons involved in a digital preservation initiative are best equipped, by their knowledge and experience, to make judgments and supply evidence about these capabilities. The toolkit was designed to facilitate discussion within individual organizations as well as across organizations involved in a digital preservation initiative. The toolkit guides assessment along nineteen dimensions of capability and guides analysis toward a collective understanding of how to increase the chances that a specific initiative will be successful. It produces results that:

- inform planning and design of digital preservation initiatives;
- identify both strengths and weaknesses;
- focus investments in specific capability-building efforts;
- help identify risk and risk mitigation strategies; and
- highlight what additional information is needed to make sound decisions.

The toolkit is presented in four chapters as well as a comprehensive set of worksheets and related materials as outlined below.

Chapter 1 sets the context for this toolkit by introducing the goals it supports, the definition of digital preservation as used in this toolkit, how states are considering digital preservation, and finally, the characteristics of a digital preservation program.

Chapter 2 introduces the concepts of capability and lays out a set of dimensions for digital preservation capability that form the heart of this toolkit.

Chapter 3 lays out a process for improving digital preservation capabilities. The activities described provide a framework within which digital preservation capability is assessed and in which assessment results are used to inform project planning and decision making.

Chapter 4 presents the implementation guide for conducting the digital preservation capability assessment and planning activities.

Worksheets used during the initiative description process along with a variety of related materials are provided in Appendices 1-4.

Appendix 8 includes the Dimension Worksheets. In addition to this document, the Dimension Worksheets are provided in a separate Microsoft Word document in order to enable the compiling of multiple capability assessment ratings electronically. The Microsoft Word version of Appendix 8 can be found at www.ctg.albany.edu/publications/guides/digital_preservation_partnerships.

Chapter 1. Preserving State Government Digital Information

The audience for this toolkit is state government practitioners responsible for the preservation of digital government records; primarily state librarians, state archivists, electronic records managers, and chief information officers. The toolkit guides a group through an assessment of their collective digital preservation capability and in the use of new knowledge about capability to enhance existing and create new capability for success. The toolkit supports three goals:

1. **Inform strategies for creating digital preservation capability.** The assessment process provides data about the likelihood of success if an initiative is undertaken with current capability. New knowledge is gained through open discussion about capability within partner agencies relative to achieving a specific preservation goal. This new knowledge might redirect a team to a more focused initiative; or it might redirect them to be more comprehensive or far-reaching. It might suggest that a program goal would be best met through a specific content initiative; it might suggest that a particular content goal cannot be met without investment in overall program capability.

2. **Increase success of digital preservation initiatives.** Improvement can be seen in terms of developing one capability in some specific manner, or in terms of improving multiple capabilities that cut across multiple organizations. Since states and often agencies within states differ in terms of priorities, resources, and digital preservation experience, the toolkit allows for a flexible approach in determining an appropriate strategy for improvement within a given and known set of capabilities and constraints.

3. **Create partnerships among state libraries, state archives, and other institutions with a stake in preserving significant state government information in digital form.** These institutions have evolved to meet different needs over the years, but all of them now face a similar challenge in managing an ever-growing body of digital material with enduring value. Given the urgency in addressing the challenge and the limited resources available, many organizations are seeking alternative approaches, such as resource and responsibility sharing through partnerships. This tool provides a process through which preservation partners can be identified and plans for coordinated action can be developed.

The remaining sections of this chapter provide an overview of how the term “digital preservation” is used throughout this toolkit, an introduction to two preservation program models that are particularly relevant to this toolkit and a brief look at how some states are responding to the challenges of digital preservation.

What is Digital Preservation?

For the purposes of the toolkit, the term "digital preservation" has the same broad meaning used by the United Kingdom's Digital Preservation Coalition in its introductory handbook:

> "The series of managed activities necessary to ensure continued access to digital materials for as long as necessary…Refers to all of the actions required to maintain access to digital materials beyond the limits of media failure or technological change. Those materials may be records created during the day-to-day business of an organization; "born-digital" materials created for a specific purpose; or the products of digitization projects."[1]

The handbook also draws a distinction between three levels of preservation:

- **Long-term preservation** – Continued access to digital materials, or at least to the information contained in them, indefinitely.

- **Medium-term preservation** – Continued access to digital materials beyond changes in technology for a defined period of time but not indefinitely.

- **Short-term preservation** – Access to digital materials for a defined period of time while use is predicted but which does not extend beyond the foreseeable future.

The Arizona State Library, Archives and Public Records offers a highly practical view of digital preservation:

> "This model does not address long-term problems of keeping bit streams alive or software obsolescence. Preservation, for the purposes of this model, means capturing documents so that they are within the control of the repository in hopes that, when those long-term problems are solved, there is current content that can be migrated into the future.[2]"

Digital Preservation Program Models

Organizations in all sectors are working to understand the implications of digital preservation requirements. Two models generated through these efforts provide particular insight in terms of capability of organizations to successfully pursue digital preservation goals.

The *Guidelines for the Preservation of Digital Heritage*, prepared by the National Library of Australia for the United Nations Educational, Scientific, and Cultural Organization, presents one way for organizations to think about digital preservation program requirements (See Table 1). Their model is useful for agencies as they seek to understand, create, and fund preservation programs.

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1 Chapter 1.3, *Preservation Management of Digital Materials: A Handbook* http://www.dpconline.org/graphics/handbook

2 *An Arizona Model for Web Access And Preservation* http://www.lib.az.us/about/pdf/2004/azmodel.pdf

Table 1. Optimal Digital Preservation Responsibilities and Characteristics[3]	
Optimal Responsibilities for Digital Preservation Programs	Negotiating for and accepting appropriate digital materials from producers.
	Controlling material sufficiently for long term preservation.
	Ensuring the material will remain understandable to a defined community of expected users.
	Ensuring the material is protected against all likely threats, and ensure its authenticity.
	Making the preserved material available to the designated community of users as appropriate.
	Advocating good practice in the creation of digital resources.
Optimal Characteristics of Digital Preservation Programs	A fundamental commitment to preservation of the digital materials.
	Organizational viability, including: • The prospect of an ongoing mandate. • Legal status as an organization that would support an ongoing preservation role. • Demonstrated ability to put together resources, infrastructure and work teams to manage the complexity of digital preservation.
	Financial sustainability: • A likely prospect of the organization being able to continue to provide the required resources well into the future. • A sustainable business model to support its digital preservation mandate.
	Technological and procedural suitability: the use of appropriate systems and procedures to do what is required to manage and preserve digital resources.
	System security of a very high order.
	Procedural accountability, with clear allocation of responsibilities and mechanisms for reporting and assessing performance.

Another model for understanding digital preservation capability is offered by the Cornell University Library. This model looks at the development of programs through five stages. It allows organizations to envision how digital preservation capability might evolve over time. Cornell's "Five Organizational Stages of Digital Preservation" model is presented in Table 2. (For more on the model and other related information, see Cornell's Digital Preservation Management Tutorial).[4]

[3] From Chapters 8.4 and 8.6, *Guidelines for the Preservation of Digital Heritage*

[4] Cornell's Digital Preservation Management Tutorial, http://www.library.cornell.edu/iris/tutorial/dpm

Table 2. Cornell's Five Organizational Stages of Digital Preservation				
Stage	Value	Key Indicators		
		Policy/Planning	Technology	Resources
Acknowledge: Digital preservation a local concern	1	Non-existent, implicit, very high level	Non-existent, heterogeneous, decentralized	Generally low, finite, ad hoc financial commitment
Act: Initiate Digital preservation projects	2	Implicit or general, increased evidence of commitment	Project-specific, reactive, ad hoc	Often project-based funding
Consolidate: Segue from projects to programs	3	Basic and essential policies	Assess technology investment, more pro-active	Some funding and support beyond projects, but limited
Institutionalize: Incorporate the larger environment	4	Consistent, systematic, comprehensive policy framework for planning	Anticipate needs, investments defined by management, implemented across the system	Sustainable funding identified for core program areas and enhancement
Externalize: Embrace collaboration and dependencies	5	Virtual organizations complement institutional ones; collaboration inherent in resource planning	Distributed and highly integrated Extra-organizational features/services	Varying levels of investment, but sustainable funding; possibly distributed financial management

Meeting the Digital Preservation Challenge

State and local governments are creating vast amounts of information solely in digital form, including land data, school records, official publications and court records. Much of this material is of permanent value, yet is at risk because of fragile media, technological obsolescence, or other hazards. State libraries and state archives typically have broad responsibility for preserving and providing public access to state and local government information of enduring value, but many other agencies also play critical roles in managing and preserving digital information. All these organizations face complex barriers in developing an effective strategy to meet this challenge including: limited resources, imperfect tools and technologies, lack of institutional and organizational support, and lack of consensus on approach.

> Preservation of, and permanent public access to, [state government] information is imperative; the state's historical, cultural, and intellectual record is at stake.[5]

Some states have already taken important steps in overcoming these barriers. As noted above, Arizona is taking a leading role in investigating preservation of web documents. Published in 2003, *North Carolina State Government Information: Realities and*

[5] *Managing and Sustaining a State Government Publications Program in California: A Report on the Existing Situation and Recommendations for Action, OCLC, 2004*, http://www.library.ca.gov/assets/acrobat/OCLCFIN.pdf

Possibilities, describes a pioneering collaboration between the state library, state data center, and state archives and records to "research digital information issues, gain a better understanding of current publishing practices in state agencies, and develop solutions for managing state information in digital formats.[6]"

The State of Washington has pushed ahead to build the first operational state digital archives, which provides solutions for:

- Simple, reliable, persistent methods to capture, identify, index, store and retrieve digital records for their statutory retention periods or permanently in the case of archival material.

- Cost-effective means to retain and maintain, through migration processes, the readability and accessibility of the historical record of government in the state.

- Public access to the collection(s) so that citizens, including students, have the ability to search and retrieve information and historical objects, such as photos and maps, to explain the role of government in Washington State, optimally via remote access.[7]

These efforts and others are generating new understanding about digital preservation responsibilities, characteristics, development stages, and existing and missing capabilities. This new knowledge can be used to increase overall capability for success and to inform leadership about the capabilities that organizations must create and maintain, and in some cases, share, in order to respond to the increasing volume and tenuous condition of our digital heritage.

6 http://statelibrary.dcr.state.nc.us/digidocs/Workgroup/WhitePaper.pdf

7 Section 2.1, Washington State Digital Archives Feasibility Study, http://www.digitalarchives.wa.gov/content/Feasibility%20Study.pdf

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Chapter 2. Understanding Digital Preservation Capabilities

The overall approach used in the toolkit balances two different notions of capability. One is that capability is composed of a set of generic dimensions that apply in practically any digital preservation situation. The other is that these dimensions may be applied or interpreted differently, depending on the nature of a particular initiative. Because each initiative has its own goals, resources, and capability issues, the toolkit provides a means to assess all the important dimensions of capability in a way that can be adapted to a wide range of situations
This approach is reflected in the following basic assumptions about digital preservation capability.

Capability is:

- **Multi-dimensional** – It is made up of several dimensions (in this framework there are nineteen), all of which contribute to overall digital preservation capability. See Appendices 5 and 6 for a list of the resources used to inform the capability dimensions for this toolkit.

- **Complementary** – High or low levels of capability can result from different combinations of factors, high capability in some dimensions can often compensate for lower levels in others.

- **Dynamic** – It can increase or diminish due to changes within an initiative or in its external environment.

- **Specific to its setting** – Some elements of capability apply to all settings, but capability for any particular initiative must be assessed relative to its specific objectives and environment.

Good partners and partnerships

Characteristics
- Commonality of interest
- Shared enthusiasm
- Commitment to action

Outcomes
- Effective information sharing
- Exploring new areas for action
- Risk taking
- Doing things not done before

This toolkit makes two additional assumptions about capability assessment. First, the success of a digital preservation initiative depends on the *combination of capabilities* that exist among the partners. Not all organizations need the same capability profile. Instead, the combination of capability profiles across a set of agencies involved in preserving digital information determines the effectiveness of the initiative. Collective capability therefore, is the focus of the assessment. Second, the *knowledge and experience* required for effective assessment can be found in the people and organizations participating in the partnership. Library and archive agencies are knowledgeable about information organization and digital preservation, while the other agencies of government are in the best position to understand the content they create and maintain. The

necessary combination of knowledge and experience will seldom exist in a single organization, but is likely to be available as a result of a joining of forces across organizations.

Enterprise Architecture: Enabling Preservation Collaborations

Information technology is now so pervasive and so necessary in our society that we must find ways to effectively manage its costs and its impacts across multiple organizations. The best way to do this is to forge partnerships based on a set of common requirements that individual organizations can refine to meet specific business needs and mission priorities. In terms of implementation, this can take the form of a distributed network where organizations can draw from shared knowledge and leverage a technical infrastructure while operating independently.

Governments at all levels now recognize that effective use of information technology requires a more unified approach. Gone, we hope, are the investments in new "stovepiped" approaches to managing information and information technology. Organizations and their partner organizations are seeking strategies that allow for "unity" among their systems. Unity requires organizations to use a common framework ("enterprise architecture" or "multi-enterprise architecture") that provides a design for business processes, related information flows, and enabling technologies.

The enterprise architecture approach outlines common high-level requirements that enable different organizations to share operational components, repeatable best practices, and, where appropriate, responsibility for data and information assets. Implementing enterprise architecture depends on cross-agency analysis to identify duplicative or missing services and pinpoint opportunities for collaboration, especially in terms of investments. Boiled down to its basic intent, enterprise architectures aim to encourage systematic evaluation of how organizations can meet business needs through adoption of a common framework for identifying requirements and deploying technology.

Partnerships for digital preservation should include information creators (i.e., operating agencies such as departments of health, transportation, criminal justice, and environmental protection), information policy makers (i.e., state Chief Information Officers and state records managers), along with information stewards/providers (i.e. state libraries and archives). All these agencies share responsibility for managing important digital information. A partnership among these entities will improve current practices and will strengthen the case for the resources needed to build a sustainable statewide digital preservation program.

Building the necessary institutional, organizational, and technical capabilities depends on working with many inter-related elements:

- **Institutional capability** – rests on appropriate legislation, statewide policies for managing digital information, and stable funding.
- **Organizational capability** –includes factors relating to staff, business rules, and work processes.
- **Technical capability** – relates to protocols, standards, and technical infrastructure.

To successfully grapple with all these elements, it is necessary to have a systematic means to assess different capabilities. The results of this evaluation can provide the basis for launching or improving statewide digital preservation programs.

Dimensions of Digital Preservation Capability

Nineteen dimensions of digital preservation capability are used in this toolkit (see Table 3). Taken together, these dimensions identify the organizational, institutional, and technical influences on the success of digital preservation programs. The dimensions are presented in two groups; the first is comprised of those dimensions considered to be "threshold". A threshold dimension is generally one that characterizes foundational capability for digital preservation in terms of institutional influences. Threshold dimensions represent a recommended starting point for assessment and planning efforts. The second group of dimensions includes those related to organizational and technical influences.

Table 3. Dimensions and Definitions of Digital Preservation Capability

Threshold Capabilities	
1. Obtaining Digital Material	Assessment of libraries, archives, and other related cultural institutions' experience with negotiating for and agreeing to accept digital materials from producers for ongoing management and preservation is critical to identify a strategy to form digital preservation partnerships and improve those capabilities needed to build the optimal digital preservation program.
2. Maintaining Comprehension & Authenticity	Assessment of libraries, archives, and other related cultural institutions' experience with managing digital materials to support ongoing comprehension and authenticity is critical to identify a strategy to form digital preservation partnerships and improve those capabilities needed to build the optimal digital preservation program.
3. Accessibility of Digital Material	Assessment of libraries, archives, and other related cultural institutions' experience with making preserved materials available as appropriate is critical to identify a strategy to form digital preservation partnerships and improve those capabilities needed to build the optimal digital preservation program.
4. Strategic Planning	Assessment of this dimension is based on the quality and comprehensiveness of strategic plans as well as on the characteristics of strategic planning processes, including resources and integration of strategic planning with other elements of governance and management.
5. Collaboration Readiness	Collaboration readiness is reflected in the relationships among information users; in resources supporting collaboration, such as staff, budget, training, and technology; and in prior successes or failures in collaborative activities.
6. Governance	This dimension deals with the mechanisms to set policy and direct and oversee the digital preservation initiatives that are planned or underway.
7. Information Policies	These policies deal with the collection, use, dissemination, and storage of information as well as with privacy, confidentiality, and security.
Additional Capabilities	
8. Digital Content	Planning a project to capture specific digital content requires that the organizations involved are able to assess the value and identify the key legal characteristics of that digital content.
9. Business Process Model & Architecture	A business process model and enterprise architecture description identifies the service and operational components of the enterprise as well as how they are connected to each other and what technologies are used to implement them. These descriptions may include detailed analyses of business processes.
10. Data Assets & Requirements	This dimension is reflected in formal policies for data collection, use, storage, and handling; in documentation of databases and record systems; and in data quality standards and dictionaries. It may include procedures for and results of data requirement analyses and data models and modeling techniques.
11. Leaders & Champions	Capability requires leaders who motivate, build commitment, guide activities, encourage creativity and innovation, and mobilize resources. They see the

Table 3. Dimensions and Definitions of Digital Preservation Capability	
	goal clearly and craft plans to achieve it. Champions communicate a clear and persuasive vision for an initiative, provide the authority and legitimacy for action, and build support in the environment.
12. Performance Evaluation	Performance evaluation consists of the skills, resources, and authority to observe, document, and measure: (1) how well the initiative itself is developed and implemented, (2) whether digital preservation goals are achieved, and (3) how the performance of the enterprise is improved.
13. Project Management	Project management includes methods for goal setting, scheduling development and production activities, analyses of resource needs, management of interdependencies among activities and goals, and provisions to anticipate and respond to contingencies.
14. Resource Management	Resource management consists of the effective use of financial, human, and technical resources through budgeting, strategic plans, financial analyses, and accepted financial management procedures and practices.
15. Secure Environment	This dimension addresses the degree to which appropriate security protocols for data, systems, applications, and networks as well as systems, policies, training, and management practices are in place.
16. Stakeholder Identification & Engagement	This dimension addresses awareness of and interaction with the persons or groups that have an interest in the digital preservation initiative and some capacity to influence it. This dimension is based on stakeholder analyses, staff experience and knowledge, records or reports of participants in making policy and decisions, and membership of advisory or constituent groups.
17. Technology Acceptance	Technology acceptance includes talk and actions expressing positive or negative attitudes toward workplace changes, trust of new tools and techniques, success or failure stories that are widely shared and believed, and enthusiasm for innovations.
18. Technology Compatibility	Technical compatibility can be found in agreed-upon standards, the extent of connectivity among the persons and organizations involved in the initiative and the experiences of staff with digital preservation activities.
19. Technology Knowledge	This dimension focuses on the levels of knowledge about current and emerging technology for digital preservation, including technical qualifications and experience of staff, records and documentation of technology assets, and the actions of staff in compiling, storing, and sharing such knowledge.

Chapter 3. Improving Digital Preservation Capabilities

In facing the daunting challenges of preservation responsibility, it is worthwhile to consider some pragmatic principles, such as:

- **Everyone does not have to do everything.** Responsibility can be shared; many tasks, such as deciding what should be preserved, might be best managed in partnership with others. If there is no one to share these responsibilities, organizations should make realistic judgments about the responsibilities they can carry alone.

- **Everything does not have to be done at once.** Developing all the components of a large-scale, comprehensive preservation program takes time. Some urgency is useful, but it should be managed to focus rather than dissipate attention. Getting started may involve looking for easily managed materials ("low hanging fruit" or "quick wins"). Some problems must be addressed without delay; some can be addressed in stages; and some can wait.

- **Responsibility does not have to be forever**. There is a place for time-limited contributions, so long as the time limits are explicitly understood.

- **Limited responsibility should not mean causing harm.** Preservation programs may need to work incrementally. Working on limited scope or content – but in doing so they must also try to minimize the risk of making later preservation efforts more difficult.

- **Someone must take a leading role.** Even when responsibility is shared, progress usually depends on at least one partner accepting the responsibility to lead.[8]

The toolkit outlines a process for establishing a collaborative digital preservation partnership and for assessing the capabilities of that partnership in terms of achieving its digital preservation objectives. It presents an approach also for using those assessment results to plan for enhancing existing capabilities and for creating new ones.

1. Choose to act;
2. Determine a collaborative structure;
3. Describe the initiative;
4. Assess capability for success and plan for enhancing capability; then
5. Act

These five activities are presented in a step-wise approach but generally will be implemented in the more iterative and reflective way shown in Figure 1. For example, the assessment of capability for a specific initiative may determine that an initiative must be reconceptualized before planning and action occurs. Further, an assessment may highlight the need for a new

[8] Chapter 9.5 of *Guidelines for the Preservation of Digital Heritage*

partner; at which point the team must revisit the previously developed collaborative structure and adjust it.

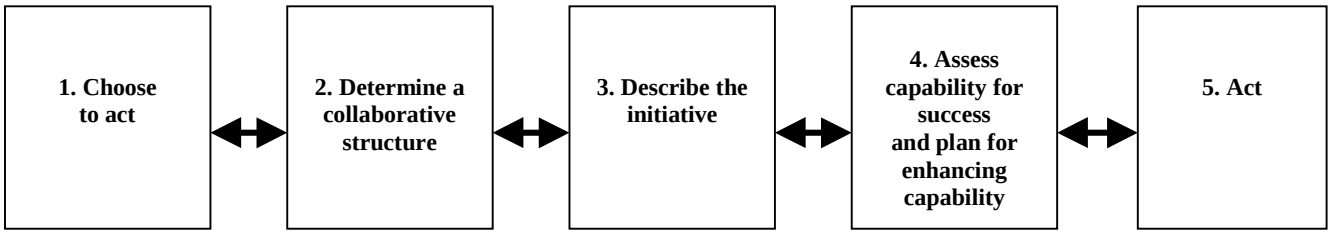

Figure 1. Five Activities for Improving Digital Preservation

1. Choose to Act

Choosing to act means that someone in an institution asserts interest in having that institution do better or learn more in terms of digital preservation. The scope of the project can be small or it can be big. It can be as simple as testing how to capture one web document or as complex as taking a "snapshot" of the entire web site of a large agency. Action, of course, does require commitment of at least some resources. In a resource-scarce environment this can be a barrier for even the most modest project; but without action the prospect for improvement is greatly reduced.

> The secret of getting ahead is getting started. The secret of getting started is to break out complex, overwhelming tasks into smaller, manageable tasks, and to start on the first one. *Mark Twain*

Choosing to act requires some preliminary thinking about where to focus resources. This early initiative conceptualization process is important for the development of a collaborative structure. It allows those leading the effort to seek out and invite potential partners to the table and to begin to formulate ideas on how best to organize the initiative.

2. Determine a Collaborative Structure

Digital preservation collaborations within a state can be seen to fit into one of four models, each offering different strengths and weaknesses.[9]

Centralized distributed

- Consists of one partner that leads on policy, sets directions and provides most of the infrastructure, working with a number of others who have clearly specified but limited roles, such as identifying material to be preserved and adding metadata, possibly with limited responsibility for long-term maintenance.
- Offers some cost sharing and creates a pool of ideas and perspectives.
- Allows economies of scale if functions like storage are centralized.
- May not encourage ownership of the program among the peripheral partners.
- Good model for beginning programs seeking to collaborate with large, advanced programs; also suitable where there is one program willing to take ongoing responsibility and others who can help but are not sure about their long-term commitment.

[9] Chapter 11.5.3, Guidelines for the Preservation of Digital Heritage

More equally distributed

- Consists of a number of partners with similar levels of commitment and responsibility.
- Offers cost sharing and the input of ideas, but may have the advantage of encouraging shared levels of ownership, without one partner having to bear the pressure of making decisions alone.
- May be difficult to establish effective leadership, and consultation and decision making may be time consuming.
- Economies of scale may be lost if large centralized systems are replaced by a number of small parallel systems.
- Such a model is probably suitable where there are a number of players willing to share responsibility but none wanting to lead.

Very highly distributed

- Consists of a large number of partners, each playing a very restricted role, perhaps limited to self-archiving.
- May be a useful starting point for raising awareness and allowing some steps to be taken.
- Unlikely to offer much long-term reliability without large investment in infrastructure.
- Can lead to high costs overall, although the model is attractive because of the low costs for each partner.
- Such a model may be indicated where there are a number of small sites capable of taking some limited responsibility, especially if there is one partner able to play a coordinating role.
- It may also work for material for which preservation is desirable rather than essential.

Standalone arrangements

- Contributes to later collaboration by allowing programs to develop expertise, strategies and systems before looking for suitable partners.
- Programs operating in an environment where there are no suitable potential partners can make good progress on their own, and look for collaborative opportunities as they arise.

3. Describe the Initiative

Once a general sense of the collaborative structure is developed, partners can begin to more fully describe the initiative. Through this description step participants will begin to become clearer about the initiative and as a result reflect on the collaborative structure and partners. The assessment and planning work that comes next requires a clear and shared understanding of the type of initiative being considered.

Two types of initiatives

Two types of initiatives are generally undertaken by those responsible for digital preservation; one is the development of an overall digital preservation program, another is the preservation of specific content of interest – often they are considered together. An investment in either goal supports the other, as well as the goal of developing overall digital preservation capability. However, it is important to think of them separately. Each requires different capabilities, raises different issues, and presents different challenges.

Some states may have experience in preserving specific digital information; but not have an overall preservation program. In other cases, a program may focus narrowly on a specific type of content, scope of preservation or program area, and organizers are seeking to expand that programs. It is critical that a team first describe their initiative and continue to test that description across all necessary stakeholders before proceeding. A well documented and vetted description is also necessary for the assessment and planning process to begin. The assessment of any particular initiative, even in the case where it is well described, will result in some shifting of the description; in some cases just refinements, in others full reconceptualization.

The following two sections present strategies for conceptualizing and describing an initiative; first in terms of building program capability and second in terms of capturing specific content. After teams have developed a shared description of their initiative they are ready to move forward to assessment and planning.

Describing a digital preservation program initiative

Describing the objectives of a digital preservation program clarifies the capabilities required to achieve those objectives. Creating a shared description requires bringing together the necessary individuals to identify the full range of content types and the scope of preservation that the program is to address. This process can lay the foundation for partnership formation and reformation processes; raising questions such as can the existing partners accommodate all content types of interest? What new partners must be sought if content requires a degree of care that is not possible with current partners? How might existing partners organize to create the necessary governance process?

This step focuses on identifying the differences that the initiative seeks to create between the current status of a program and the desired status of a program in terms of content types preserved and preservation scope. It allows a group to clearly and collectively determine how they would like to change the program that exists or the characteristics they seek in a new program they are creating.

Digital content of interest and scope of preservation can vary from a limited number of similar digital objects (such as a batch of digital photographs), preserved for a short period of time, and accessed only by library staff to a very large body of diverse material (such as state agency web sites), preserved permanently, and accessed by the public. Table 4 and Figure 2 list examples of content types and scopes of preservation (both are provided in Appendix 4 as full worksheets to be used by groups in describing initiatives).

Table 4. Examples of Digital Content Types and Policy Areas					
Potential Policy Areas	**Potential Content Types**				
	Electronic publications	**Electronic records**	**Datasets**	**Audio**	**Web Resources**
Public Health					
Criminal Justice					

Figure 2 illustrates how the preservation scope categories can be used to inform decisions for a digital preservation program.

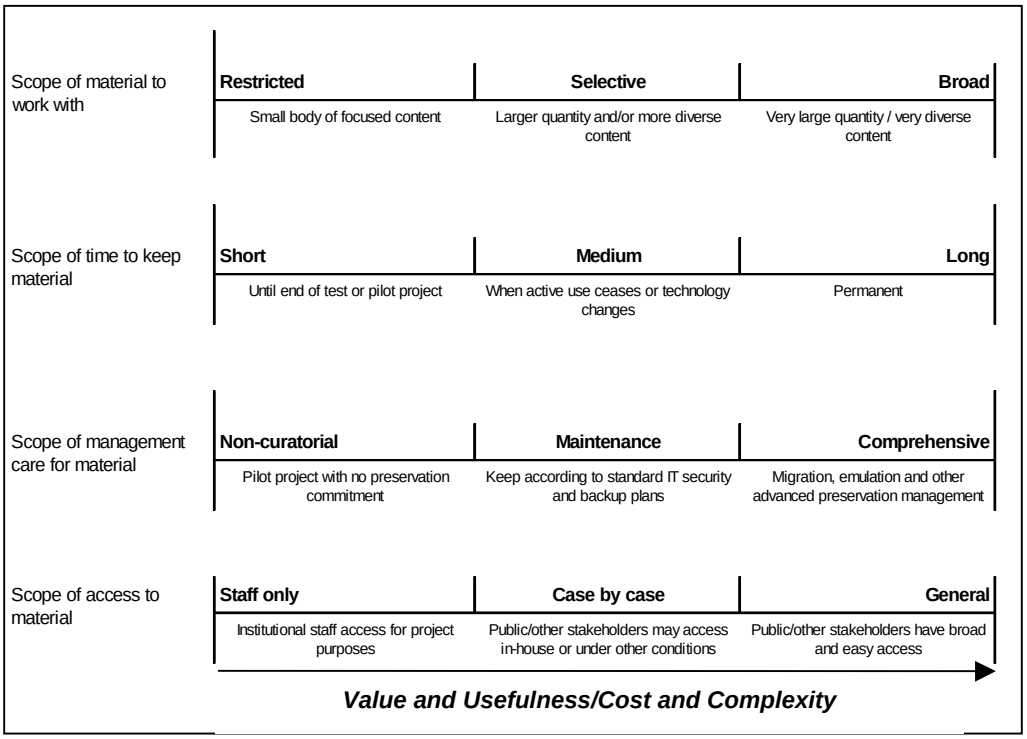

Figure 2. Preservation Scope Categories

Specifying the government policy areas of interest provides another way of establishing a shared understanding of a program. For example, criminal justice related web resources is an area that may have multiple content types and involve high complexity and cost to preserve. Whereas public health vital records, may include one content type and involve less complex and costly scope issues.

Building digital preservation capability is an ongoing process; each initiative increases capability in very specific ways. Digital preservation partnerships can be formulated and reformulated through many initiatives to build overall capability for success in preserving content types of interest – both in simple and low cost initiatives and in high complexity, high cost ones.

Describing a content specific digital preservation initiative
Often digital preservation efforts are focused on the capture of specific content rather than on program development directly. To assess capability for success participants must develop an explicit description of that initiative. This description can be produced through a series of discussions organized to ensure that participants in the project explore differences and similarities in their understanding of the initiative. This discussion allows staff from multiple units and agencies to test agreement on both the goals of the initiative and the characteristics of the initiative in terms of content types, specific program areas and preservation requirements. Table 5 presents a sample of questions that partners should be able to answer before launching an assessment of their digital preservation capability. These questions are designed to draw out some of the nuances of content that can significantly influence the capabilities necessary for success. The full set of questions is provided in worksheet form in Appendix 4. They provide a guide for discussions and can be used to test consensus about goals and initiative characteristics within the team and with necessary stakeholders before moving forward to assessment.

The product of these discussions is a focused and specific initiative description. This description becomes input for the capability assessment and planning process. Partners may want to move back and forth between description and assessment to refine or redirect the goals of their initiative based on assessment results.

Table 5. Identifying and Understanding Digital Content to be Preserved
Sample Questions ***(The full question set is provided in Appendix 4)*** 1. What specific set of content (e.g., which records, publications, or data sets) should be preserved? 2. Why is this content being captured or created today? 3. Who are the stakeholders of this content? 4. Are the main stakeholders involved in the preservation partnership? 5. What are the main types of information being captured or created today?

4. Assess Capability for Success and Plan for Enhancing Capability

A capability assessment uses open discussions about a specific preservation goal among a set of partners to generate new knowledge about the likelihood of success in achieving that goal. The facilitated discussions are designed to uncover new insights about the best places to invest effort given the current conditions and the gaps between the capability required and the capability available to digital preservation efforts. In some cases assessment results might redirect a team to a more modest initiative; in others it might redirect them to be more comprehensive. It might suggest that a program goal would be best met through a content

specific initiative; it might suggest that a particular content goal couldn't be met without investment in overall program capability.

The dimensions presented earlier are the foundation of this assessment effort. Assessments can use all of the dimensions or a selected subset. Assessing capability for the formation of a comprehensive preservation program, for example, may be best served by starting with an assessment of the threshold dimensions presented in Chapter 2 (see Table 3 and the capability dimension worksheets in Appendix 8). A team engaged in the development of a new partnership seeking to preserve specific content, may want to focus on threshold dimensions as well, as a starting point. An existing partnership with a clear and well described initiative description might undertake an assessment across all partner agencies using all dimensions. Another approach might have leadership in each partner agency use the threshold dimensions to identify key areas of concern, which could then guide a more comprehensive assessment done by the team.

A two-phase approach might be used with the first phase providing a sense of the program capability relative to particular types of content and scope of preservation, and with the second, providing a full understanding of capability in terms of institutional, organizational, and technical dimensions. Or, the first phase could address specific areas of concern such as governance, technical infrastructure and information policy, and the second could focus on the full set of dimensions with new knowledge about capabilities in the areas of concern.

The managers of the assessment process must make decisions about the best approach to use given the context within which the toolkit will be used. The implementation guide in Chapter 4 presents the decision points and provides a framework for designing the assessment and planning process in a way that is specific to the context of the initiative.

Table 6. What you need and where to find it

Dimension list and descriptions	Table 3 in Chapter 2
Dimension worksheets	Appendix 8 (also provided as a separate Microsoft Word document)
Implementation guide	Chapter 4
Workshop facilitation plan and exercises	Appendix 3

Using assessment results to plan actions

Capturing assessment results creates new knowledge about where capability must be created, enhanced, or found. These results must be considered within the context of a formal planning process. Many organizations have existing strategic planning processes. In other cases they are much less formal; in others, they don't exist at all.

For those organizations with formal planning processes, the assessment results can feed directly into planning activities. Involving staff from those planning units will facilitate the linkages between the initiative level planning and the overall strategic planing processes related to or that impact digital preservation initiatives.

Any planning process used by a digital preservation partnership must be framed by a set of principles and practices developed and agreed upon by all partners. Four key ideas to keep in mind in digital preservation planning are:

1. **Engage leaders** by aligning digital preservation activities with enterprise strategic goals.
2. **Ensure transparency** by developing a well-understood and supported process for priority-setting and resource allocation. This involves developing a set of criteria against which each possible action would be examined. That criteria is then used to decide upon the most appropriate actions given the current context for the initiative, current capabilities available across the partnership, resources available to the partnership, and digital preservation goals.
3. **Assess outcomes** by establishing a well-vetted and appropriate process for evaluation and accountability of past and current actions.
4. **Institutionalize planning** by establishing expectations for and commitments to continuous planning.

5. Act

The digital preservation initiatives that emerge from this process will vary. Regardless, the end result will consist of focused actions; no matter how small or large, that offer the prospect of improvement. Examples include initiatives that improve capability in the environment generally, and those that improve capability for preserving specific content.

Program initiative examples

- Develop a statewide plan for the preservation of state government digital information.
- Propose new state legislation to define state government digital publications and records and identify the roles and responsibilities of state agencies in preserving them.
- Form an interagency task force to identify and prioritize the most significant at-risk state government digital information.

Content specific initiative examples

- Conduct a pilot survey of the digital content created and maintained by a state agency.
- Test how to collect (or “harvest”) and store individual web documents.
- Export a small sample of e-mail to stand-alone files.
- Make available web pages from defunct government commissions or other bodies.
- Negotiate with an agency to store copies of important databases (and related documentation needed to understand the data) in a “dark archive” (secure storage without public access).
- Build a digital repository test bed and ingest different kinds of content.
- Study options for maintaining older versions of county geospatial data.

The five-step process; choose to act, determine a collaborative structure, describe the initiative, assess capability for success and plan for enhancing capability, and act can help a team produce a plan that is well understood, appropriate for the goal, and builds on and contributes to the strength of digital preservation partnerships. We wish you the best in your digital preservation efforts and we welcome your feedback on this toolkit.

Chapter 4. Implementing a Capability Assessment

Critical Success Factors

The elements of the toolkit all work together to support capability assessment and planning activities, but to be effective they should be used in an atmosphere of commitment, learning, and trust. Effective use of the toolkit therefore requires careful attention to the following critical success factors.

Critical Success Factors

- Trust and candor
- High levels of individual and organizational commitment
- The right mix of participants
- Willingness to repeat the assessment as needed

Trust and Candor

The success of the assessment will depend in large part on the willingness of users to make assessments and decisions based on solid evidence. Participants must be willing to freely share information about the capabilities of their own organizations and about the capabilities of their preservation partners. Such willingness helps build an accurate assessment of the initiative as a whole. It also helps identify gaps in capability and strategies for addressing them.

The information and judgments on which the assessments are based must be as accurate and honest as possible. Accurate assessment depends on letting the "warts and wrinkles" in operations show. Without candor, the assessments will not be a useful guide for improving digital preservation capability. Threats to accuracy and honesty, such as low quality information, unconscious bias, and distortion of the status quo, can lead to invalid or badly skewed capability assessments.

Biased information can come from many sources. Participants may inflate their own capability ratings to avoid embarrassment or sanction by management. Or, conversely, they may downgrade their own unit's ratings to make a stronger case for new resources or other organizational benefits. In either case, the value of the overall capability assessment is diminished. The risk of inflated capability assessments can be greatly reduced by explicit assurances from executives and accompanying actions demonstrating assessment results will not be used to penalize any individual or unit. These assurances must be credible to all participants and be reinforced by adequate trust relationships. If the necessary levels of trust and credibility do not exist, efforts to establish them should precede the capability assessment.

Individual and Organizational Commitment

Using the toolkit requires a high level of commitment from all participants and organizations to carry out a labor- and time-intensive endeavor. Considerable effort and time are needed to gather the necessary information, make capability judgments, participate in group discussions, resolve differences, reach decisions, and implement action plans. The endeavor also requires logistical support from participating organizations.

The Right Mix of Participants
Assessing digital preservation capability for a specific initiative requires specific knowledge and experience. The selection of participants for the assessment should result in teams with the right mix of knowledge for the situation at hand. It is not necessary (or possible) for every individual participant to be an expert on every aspect or dimension of capability. What matters is to get the right expertise by putting together the right team. This team should include records management specialists, archivists, librarians, IT specialists, operating agency data administrators, and agency leaders. Collectively, the participants must have knowledge of the digital information to be preserved, existing information technology, and possible future strategies and technologies. In addition, they will need to form accurate judgments about the capacity for change and about new investments of resources.

The team must bring to the task a solid institutional memory and innovative spirit as well as an appreciation for interdependencies. Diversity among participants helps ensure that differences both within and across organizations are considered. Broad involvement throughout the process helps assure that different perspectives about capability are made explicit and taken into account.

Willingness to Repeat the Assessment as Needed
The complexity of digital preservation initiatives and the changing nature of information needs and technologies suggest that assessments of capability should be repeated over the life of an initiative. Through repeated assessments emerging requirements can be taken into consideration, and new capabilities and problems can be identified. Likewise, action plans can be refined in light of new requirements and resources that come to light through repeated assessments.

Using the Dimension Worksheets

For each dimension, we present descriptions that characterize the opposite (anchor) ends of a continuum. These anchor descriptions describe an organization with low capability and one with high capability in that dimension. Each dimension is then broken down into a set of attributes that we call sub-dimension statements. The capability in any dimension or sub-dimension is measured on a continuum. For example, an organization is not simply ready for collaboration or not; instead, it falls somewhere on a continuum from not at all ready to fully ready. To support the assessment of each sub-dimension, the process calls for a statement of factual evidence. And based on the evidence, each participant reports the level of confidence he or she has in the accuracy of that particular assessment rating. Strong evidence should support high confidence; conversely, weak or no evidence should result in lower levels of confidence.

The relationships among these different kinds of information are illustrated in Figure 3, which shows the dimension of Collaboration Readiness as it appears on the dimension worksheet in the toolkit. Figure 4 shows some of the sub-dimension statements to be assessed individually. Figures 5 and 6 illustrate the use of evidence statements and confidence levels.

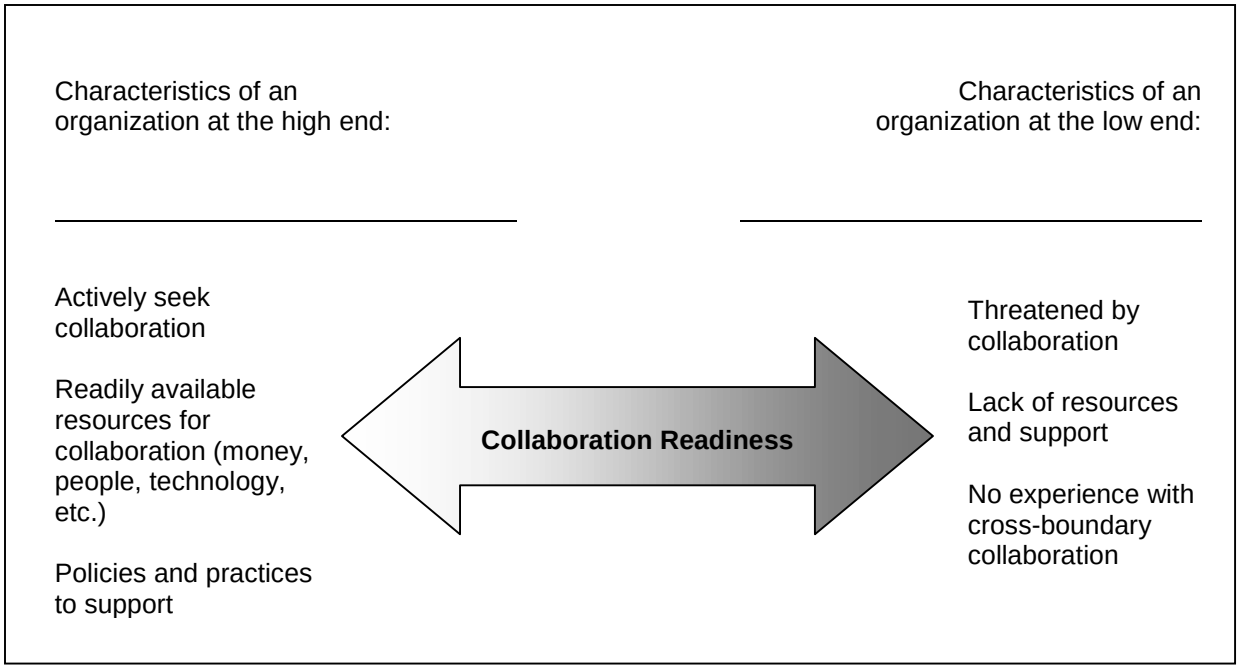

Figure 3. Collaboration Readiness Dimension Description

The assessment of where an organization falls along any major dimension rests on the ratings recorded for its associated sub-dimensions. To guide the rating process, each dimension worksheet presents statements about each sub-dimension and asks for a judgment or rating in terms of agreement or disagreement with the statement. Ratings range from strongly agree (SA) to strongly disagree (SD). A "neutral" response (N) is possible for those situations in which a person indicates about equal amounts of positive and negative experience. A "don't know" response (DK) is also allowed (Figure 4) for those situations in which a person has no knowledge on which to base an opinion.

	SUBDIMENSION STATEMENTS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	DON'T KNOW	EVIDENCE
		SA	A	N	D	SD	DK	
2.1	We actively seek opportunities for collaboration.							
2.2	We have a substantial record of successful collaboration across organizational boundaries.							
2.3	We have policies that effectively support collaboration.							
2.4	We have management practices that effectively support collaboration.							

Figure 4. Example of Sub-dimension Statements

Ratings of individual sub-dimensions are more than opinions. They must be supported by evidence. Accordingly, the person or group making the judgment is asked to provide evidence to support the rating of each sub-dimension (Figure 5).

	Sub-dimension Statements	Evidence
2.1	We actively seek opportunities for collaboration.	
2.2	We have a substantial record of successful collaboration across organizational boundaries.	Over the past 3 years our organization has worked with the State Department of Health on guidelines for the preservation of vital records in digital format.
2.3	We have policies that support collaboration effectively.	

Figure 5. Example of Sub-dimension Evidence Statement

The weight of the evidence leads to more or less confidence in the rating. Therefore, the response on each sub-dimension includes a confidence level for that rating. Using H for high confidence, M for medium confidence, and L for low confidence, provides the assessment team with information that can be used to guide additional information-gathering efforts, to weight responses, and to describe results (Figure 6).

Step 2 – To help analyze these answers it is useful to know how confident you are in your response. Please go back over each statement and mark your level of confidence in each answer, using **H** for high, **M** for medium, and **L** for low. Put the letter in the far right-hand box at the end of each row, as shown in the example below.

	SUBDIMENSION STATEMENTS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	DON'T KNOW	CONFIDENCE
2.1	We actively seek opportunities for collaboration.							**H**

Figure 6. Confidence Level

Collecting and Combining Data for Capability Assessment

The most complete assessment data come from a process that begins with individual organizational units assessing themselves and producing unit-specific results. These findings are then combined into results for each agency and then combined again for the entire initiative. A more detailed view of this part of the process is shown in Figure 7, which illustrates how this might work in a setting with three agencies, each having two subunits involved in the initiative. The assessment would occur first in the appropriate units within each agency, then be combined into agency-level results through discussions among the participants from that agency. Participants from all agencies would then use the method described in this

implementation guide to combine the results from individual agencies into a composite assessment and to develop action plans for their shared initiative. In addition, all participants build knowledge regarding their ability to contribute to digital preservation efforts.

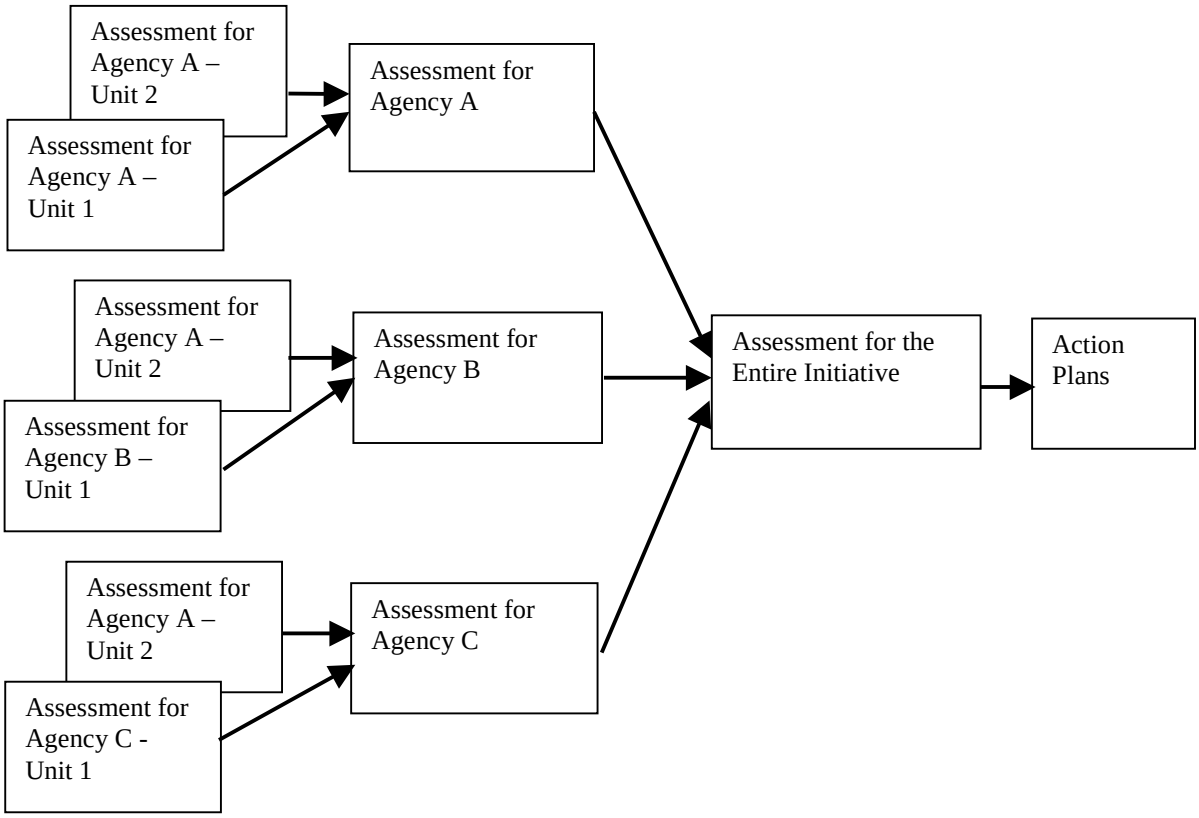

Figure 7. Assessment Capability Process

Implementation Phases

This section describes the five phases of work and identifies the decisions that planners need to make along the way to tailor the assessment to their particular setting. The five phases are presented in logical order, but in practice a group may move back and forth among them as information and analysis regarding their particular situation dictate. In most cases companion resources referenced in the text are provided in the appendix.

1. Preliminary planning
2. Authorizing the assessment
3. Operational planning
4. Conducting the assessment and combining ratings
5. Developing action plans

Phase One: Preliminary planning
A good start is necessary to make the capability assessment successful. It is important for the assessment team and the participants to understand what will be expected of them and what will be done with the results of their work. This requires deciding early on who will be involved in

rating discussions and decisions, and this in turn will influence the selection of processes and methods. Effective communication about these choices and their implications is critical to a successful assessment process. As a result, this first phase, which consists primarily of becoming familiar with the toolkit and creating an overall strategy for tailoring it to their unique conditions, is critical and should not be overlooked in the interest of getting "right to it". In most cases this phase will be completed by the core team of organizers and planners for the assessment. During this phase organizers learn about the components of the process, they plan a strategy for securing authorization and they begin to consider the details of operational planning. This group drafts goals for the assessment and identifies the expected benefits. Conducting the orientation workshop with the process organizers will help the planning team collectively develop an understanding of the process and engage in discussion about preferred strategies for implementing the process. (Appendix 3 contains materials to support the participant orientation workshop, but it may also be used to orient the planning team.) Planners might at this point lay the foundation for a process by which participating units report to each other and to organizers on the development and progress of assessment-based action plans, thereby establishing the cycle of cross-boundary assessment, planning, and acting.

Phase Two: Authorizing the assessment

The preliminary planning started in Phase One provides the basis for obtaining formal authorization to conduct the assessment. The results of Phase One are usually supplemented by other supporting material in presenting a convincing case for the assessment. Wherever appropriate, that presentation should take the form of a business case, that is, a description of the assessment's business goals, costs, benefits, and processes. The business case should name the members of a core assessment team or describe how the core team will be recruited and engaged. Some consideration of the operational plan must be presented to inform the determination of approach, costs, and benefits. Preparation of the business case should involve consultation with executives and policy makers to let them know what is being considered and to capture their perspectives in terms of the selected approach. Seeking involvement from executives early in the process of making a case for the assessment may ensure their long term support. A sample memorandum seeking leadership support for a capability assessment and planning process is provided in Appendix 2.

Phase Three: Operational planning

Once decision makers have approved the assessment effort, the core team can begin detailed operational planning. The sections below identify major decisions to be made and options to be considered at this point. As the assessment process unfolds, adjustments to specific or changing circumstances may be needed. Accordingly, as part of the plan the responsibility for monitoring progress and making adjustments should be assigned to one or more participants. Key checkpoints should be agreed upon and openly communicated to all participants.

Two key decisions that will shape the overall assessment must be made in this operational planning phase:

- Who should participate?
- How will dimensions be assigned?

Who should participate? – Participant decisions are a function of how the assessment process will be organized. Choices about the number and type of participants should balance two competing process concerns: the need for inclusion of important perspectives and interests versus the need to keep the overall assessment to a manageable size. Planners should

carefully consider these concerns as all options present advantages and disadvantages. If the initiative being assessed needs wide support among many stakeholders, then a process that accommodates a broadly representative group of participants from all affected agencies is needed. This option takes longer and needs more planning and communication, but it gathers more broadly-based information and is more likely to reveal the issues that need to be addressed. The level of detail and engagement in the process also helps build a knowledge base in the participating organizations that can support action planning. At the other end of the spectrum, an executive-only assessment process involves fewer people who have broader perspectives. This approach would proceed more quickly and keep the focus on high-level concerns, but the results would rest on less detailed information and more assumptions about street-level issues. Planners can also combine these strategies into a process that produces an effective balance of inclusion, detailed evidence, and leadership concerns. These three options for organizing the assessment process are discussed below.

1. **Successive capability ratings - Data gathered from individuals can be analyzed and summarized at each successive level of aggregation ranging from individual work units to the entire digital preservation initiative.** This option makes groups of participants at each level responsible for capturing individual ratings, analyzing them and combining them into summaries. To work in this way, all participants need to be oriented to the process and to understand how their work will be used by others. Individual ratings are based on each person's own judgment about capability in each of the nineteen dimensions. Ratings for organizational units are created by the raters in each unit working together to combine their individual ratings into a unit summary. This process continues through agency and interagency levels until it reaches the executive decision-making level. Participants on each level also summarize the implications of their ratings for the initiative. These implications include recommended actions and investments to enhance digital preservation capability. The detailed arrangements for these group activities must be carefully planned and clearly understood by the participants.[10] Appendix 3 contains a sample workshop plan for this option.

   The ratings and recommendations produced by this method are clearly group results. Executive involvement initially would be limited to directing and supporting the group process and would only later extend to participation in determining outcomes.

2. **Executive rating - Data gathered from individuals can be passed on directly to executive levels for analysis.** Creating reports of capability ratings can be limited to individual executives or executive groups. In this approach, the individual participants on the staff level simply complete the capability rating worksheets. The worksheets and related evidence and information are then submitted to an executive or executive group who is responsible for the analysis and for making overall capability ratings as well as for identifying the implications of those ratings and for making decisions accordingly.

[10] Refer to *Making Smart IT Choices: Understanding Value and Risk in Government IT Investments* by Sharon S. Dawes, Theresa A. Pardo, Stephanie Simon, Anthony M. Cresswell, Mark F. LaVigne, David F. Andersen, and Peter A. Bloniarz , for more information concerning the use of groups in decision making. http://www.ctg.albany.edu/publications/guides/smartit2

3. **Combined capability rating - Limited data analysis can be conducted at the group level before the data is submitted for executive-level decisions.** This approach combines executive decision making with some group-based summaries of the results. The point or points of aggregation could be set at any level that seems suited to the initiative at hand before being passed to the executive level for summary and decision making about investments in the initiative.

Each approach has benefits and limitations. The successive capability ratings approach provides for the widest variety of perspectives and the most fully informed discussions about capability. However, it can be time-consuming and expensive. The executive ratings approach with less group participation is more efficient but may generate less support for the results among the other participants unless accompanied by clear communication and some opportunity for discussion. A number of process variations can be successful as long as they preserve opportunities for substantial information sharing and deliberation.

How will dimensions be assigned? – Once participation has been decided on, the second decision required is how to assign the capability dimensions to participants with different roles in the initiative. It may be desirable to have some raters work with only a subset of the nineteen dimensions while others may work with all. In practice, that may mean matching the dimensions to the particular expertise and roles of various individuals. Doing so can help ensure an accurate and valid assessment because poorly informed or inexpert participants cannot be expected to produce valid ratings. For example, in most organizations, executive leaders would not be expected to have the knowledge to assess the technical compatibility of various systems. Similarly, technical staff might not be very knowledgeable about governance issues.

Phase Four: Conducting the assessment and combining ratings

Once the necessary decisions about approach have been made and the operational plan is prepared, the assessment can proceed. The preferred method for capturing and analyzing capability ratings is successive capability ratings using a visual summary method. As such, the sample workshop facilitation plans and exercises provided in Appendix 3 reflect this option. The sample plans and exercises can be modified to support alternative approaches as desired.

Conducting the assessment according to this design requires participants to engage in two types of workshops. The first workshop is designed to orient planners and participants to the toolkit and the implementation design options or decisions, the second is designed to capture and analyze ratings in a group setting through the use of the visual summary method. Both workshops use a group decision conference style with a facilitator.

Orientation workshop – The orientation workshop focuses on a presentation of the goals of the digital preservation initiative and on the role of the toolkit in assessing capability across the participating organizations (see Appendix 3). It gives participants the opportunity to discuss the goals, examine the capability assessment process, identify their roles in it, and engage in a mock discussion of the assessment and ratings using a selected dimension. The orientation workshop can be conducted as many times as necessary given the number of units and the size of the units involved.

Reviewing and combining ratings workshop – This workshop uses visual aids to capture and share individual ratings within a group and to guide discussion (See Appendix 3). The process should not be used to push a group toward consensus on a particular determination of capability, rather it should be used to identify different perspectives on capability so they may be

explored as part of the assessment and planning process. The process should enable groups to share perspectives on the capability necessary to achieve the goals of an initiative, and the capability available for that purpose. Differences and points of agreement can then be explored in terms of their implications for the initiative and for necessary investments. When all the dimensions have been discussed, recommendations and action plans can be developed.

The workshop materials provided in Appendix 3 describe a visual summary method to review and combine the capability assessment ratings. This method provides a low-tech visual representation of each unit's or organization's results. This visual representation provides a readily accessible way to make differences explicit and discuss them. This process has the benefit of building and fostering the kind of knowledge sharing that leads to sound strategic plans and recommendations (See Figure 8).

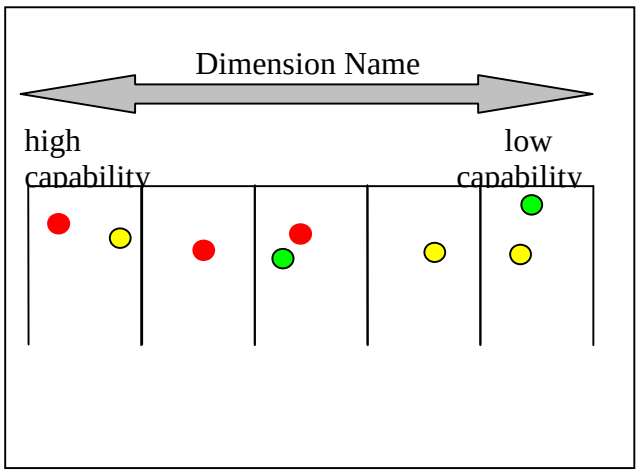

Figure 8. Example of Dimension Summary Display

Phase Five: Developing action plans

The assessment results yield detailed, well-grounded knowledge about capability that can be used to focus discussion on which capabilities are necessary, but lacking, and those strategies that make the most sense in terms of building capability. Once the results have been delivered to the participating groups and decision makers, action planning can proceed. At this point results from an assessment must be fully integrated into unit, agency, initiative and enterprise-level planning processes, if they exist, or used to launch them, if they don't. These planning discussions can now focus on the actions necessary to develop required capability, on how to revise current strategies due to new understanding about required and available capabilities. Groups can begin to consider complementary investments in separate agencies to ensure the development of necessary capability. Examination of results may highlight, for example, the need for new resource sharing models and support a business case for their development and use. Or it might suggest that investment by one agency in the development of capability required by another is necessary to ensure the success of a joint initiative. It may identify where effort must be focused, or it might be determined that the capabilities necessary are not within short term reach, but require long term infrastructure investments before the full benefits of digital preservation can be realized.

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Appendix 1. Case Examples

1a. Developing a Statewide Strategic Plan for Preserving Spatial Data Sets

This case example is provided to help state teams conceptualize the implementation of a capability assessment. The scenario provided follows the five-activities outlined in Chapter 3 of the toolkit (See Figure 1).

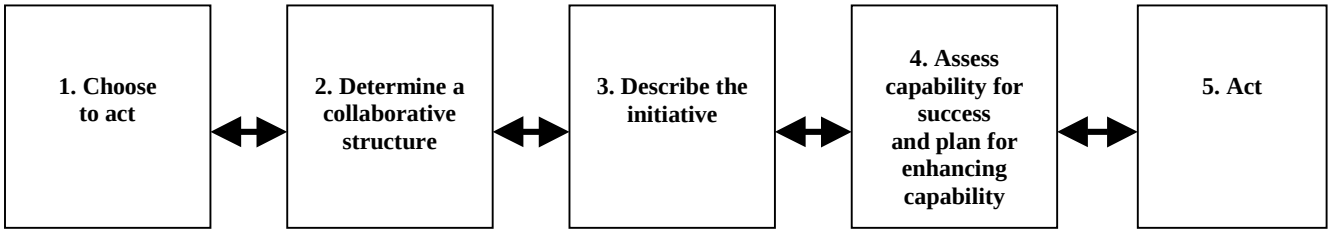


Figure 1. Five Activities for Improving Digital Preservation

Introduction
In one state, the state library and state archives both recognized the cultural heritage value of certain types of spatial data, which a number of state and local agencies were creating in digital form. State agencies such as the state police, state transportation department, and state environmental conservation department in close collaboration with a number of local government agencies increasingly were creating spatial data in digital form and using it for a wide variety of government services. Both the state library and archives, while agreeing on the cultural heritage value of this type of information, found it difficult to categorize the types of digital spatial data that existed throughout the state. In addition, both agencies were unsure of how the state and local agencies creating and using this spatial data were managing it and what happened to the information when it became outdated or the agencies no longer needed it.

1. Choose to act
The state librarian and the state archivist began informal discussions with the state chief information officer (CIO) to present their concerns about the risk of loss of the state's digital spatial data that was of significant cultural heritage value. The CIO explained that she recognized the operational value of the digital spatial data that state and local agencies created and supported statewide policies and standards for facilitating more effective and efficient sharing of such information across and between state and local government agencies. However, she was unsure of how much of the spatial data created in digital form should be preserved for cultural heritage purposes. After a series of several informal meetings the agency representatives agreed that they all had a shared goal of developing a strategy to enable both the cross-agency exchange and preservation of significant spatial data in digital form through more effective statewide policies and standards for the creation and management of such information. They also realized that a number of challenges stood in the way of achieving this goal. To better understand these challenges, they decided to employ a set of analytical tools designed to support joint efforts to specify, analyze, and plan for digital preservation initiatives across their organizational boundaries.

2. Determine a collaborative structure
The state librarian, state archivist, and state CIO identified a shared goal of determining what kinds of spatial data and in what formats state and local agencies were creating in digital form throughout the state. They then created a project planning committee composed of agency staff to begin more formal and regular discussions about this shared goal and how to achieve it. The committee consisted of representatives from the state library, state archives, and state office of the CIO. In addition, representatives from the state transportation and state environmental conservation departments were invited to join the committee also. These additional agencies were asked to participate due to the fact that they are two of the largest creators and users of spatial data in the state.

3. Describe the initiative
Representatives from the five state agencies began to participate in a series of meetings to develop a shared understanding of the problem and to mobilize support for the goal. These meetings revealed that the agencies had not fully grasped the complexity of this goal or its implications, such as the difficulties of working with a large and diverse set of digital spatial data content types; incompatible IT infrastructures used to collect, manage, and make accessible the spatial data; and conflicting stakeholder interests. Through these preliminary discussions the planning committee came to realize that any strategy to preserve such information must build on the strengths and experiences of all of the agencies involved. For example, the state transportation and environmental conservation departments both had broad and in-depth expertise on collecting, managing, and making accessible spatial data. The state CIO had extensive experience on the information technology currently used to collect, manage, and make accessible such information and other technologies that could enable improvements in both the use and preservation of spatial data throughout the state. Finally, both the state archives and library had the expertise on preserving government publications and records of significant cultural heritage value.

The planning committee decided it would be useful to work through a set of the threshold capability assessment dimension worksheets as both a group building exercise and to inform all participants about capabilities needed for digital preservation. The participants also worked with a set of worksheets that helped the state library, state archives, and state CIO understand the large and diverse, but not infinite, types of digital content in which spatial data was collected, managed, and made accessible by the state transportation and environmental conservation departments. Another worksheet helped the participants from the state transportation and environmental conservation departments and the state office of the CIO understand that digital preservation does not have to be defined as “preserve everything and make it available to everyone” and that the cost and complexity of any future efforts to preserve spatial data can be dealt with incrementally and based on the capabilities of those agencies involved. The meetings helped each participant understand what aspects of the problem and possible solutions were of most interest to each stakeholder.

After sharing and discussing the goals and interests at several meetings all participants came to realize how their agency-specific project goals were related to others, and all understood where their interests overlapped. Revised statements of the overall project goal and scope of the problem were drafted and shared with other staff members of the agencies as well as with all other relevant stakeholders. The planning team agreed that they wanted to work on an initiative that focused on developing a strategic plan to preserve one specific set of spatial data: road network data. Road network data, which is currently collected by the state department of transportation but also used extensively by the state department of environmental conservation,

represented a spatial data set of significant value to all the agencies involved in the initiative. The state library, state archives, and state CIO also agreed that focusing the initiative on this specific spatial data set would support their agencies' interests.

As a result of these meetings, the planning committee members agreed that one individual needed to be assigned the responsibility of coordinating this cross-agency initiative. They identified Ron Muller, a veteran archivist and IT manager in the state archives, as well qualified for this task and asked the state archivist to lend him to the project. The state archivist agreed and appointed Ron as the Interim Digital Preservation Coordinator.

4. Assess capability for success and plan for enhancing capability
After reviewing the results of the previous planning committee meetings, Ron Muller concluded that a more detailed analysis of capability was needed to support the development of the strategic plan. To develop support for a more complete capability assessment, he approached the director of the state department of transportation, who Ron considered a champion of the project. The director was the strongest advocate for the initiative and in a position to influence events in his own and the other agencies. Ron proposed that the partner agencies spend some time assessing current capabilities to best inform the development of a comprehensive and actionable strategic plan. With the help of the director of the state transportation department, Ron sought and received support from the state librarian, state archivist, state CIO, and the director of the state environmental conservation department.

The top executives in these five agencies then commissioned the planning committee to take responsibility for managing an assessment process. To conduct the assessment, the committee chose to engage each agency in the assessment process. Each agency would receive a subset of the assessment questions tailored to their responsibilities, experience, and expertise. The assessment would then be conducted at two levels: first within each agency and then the five agency results combined for an assessment of the entire initiative. Each agency would produce an agency level assessment. The planning committee would take those results and produce the overall initiative assessment report.

Based on these choices, the planning committee created a management plan for the assessment and obtained each agency's agreement to a list of steps to be followed. The plan identified the agency representatives to be involved, details of the assessment process, a timetable, and methods to review and summarize results. The assessment materials and plans were distributed to each of the agency representatives identified as participants. The committee held an orientation workshop for all participants to explain the process and clarify roles and responsibilities. During the orientation, the participants were given copies of the *Building State Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit, Version 1.0* along with the dimension worksheets relevant to their roles.

a. Assessing capability at the agency level – For this level, each agency designated representatives to make up an agency-level team. With the help of a process facilitator, each of the five agency-level teams held several workshops to conduct, discuss, and summarize their capability assessments. These teams reviewed and discussed each dimension in turn, exploring capability ratings and what each rating implied for the agency, and for the initiative.

b. Assessing capability at the initiative level – The next level of the assessment process brought the five agency-level teams into a combined workshop to create an overall set of ratings for the initiative as a whole. With the help of a facilitator, as in the preceding stage, they

continued the process of reviewing and summarizing the ratings. They presented the overall results from each agency and continued the iterative cycle of sharing, discussing, and summarizing.

c. Generate action plans – The agency-level and initiative-wide assessment activities resulted in a greatly enhanced understanding of the strengths and experience level of each of the participant agencies. They identified where high capability exists, where a single partner had low capability but was balanced by high capability elsewhere, and most importantly, where insufficient capability existed in all partners.

5. Act

The top executives in the five agencies then commissioned the planning committee to take responsibility for managing the development of the statewide strategic plan using the new knowledge generated through the assessment process to preserve road network spatial data.

1b. Maintaining Long-Term Access to Digital Information about One State's Response to West Nile Virus

This case example is provided to help state teams conceptualize the implementation of a capability assessment. The scenario provided follows the five-activities outlined in Chapter 3 of the toolkit (See Figure 1).

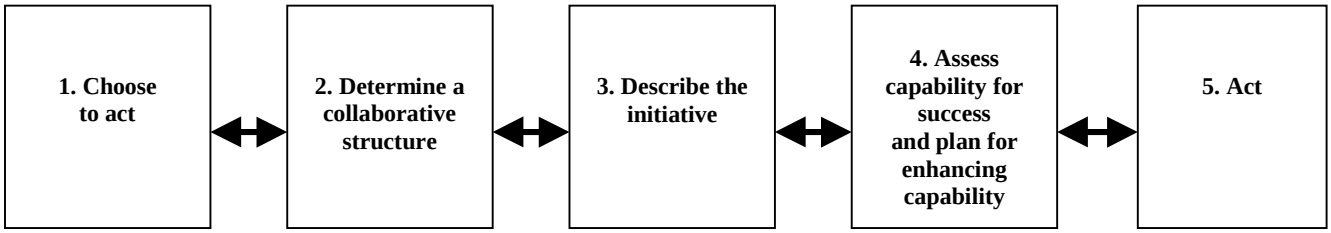


Figure 1. Five Activities for Improving Digital Preservation

Introduction
In one state, the state library and state archives both recognized the cultural heritage value of the information related to West Nile virus that the state department of health had been posting on its agency web site for the last six years since the first appearance of the virus in the state. Both the state library and archives, while agreeing on the cultural heritage value of the information, found it difficult to categorize the digital information as either government records or publications. This made it difficult for both agencies to determine where the information on the web site fell within each agency's scope of preservation responsibility. In addition, both agencies were unsure how the state health department was managing this digital information and what happened to it as the agency updated its web site in preparation for and response to the next year's West Nile virus season.

1. Choose to act
The state librarian along with the state archivist began informal discussions with the state health department chief information officer (CIO) to present their concerns about the risk of loss of the state's digital information related to its response to West Nile virus outbreaks. The CIO explained that the state health department recognized the operational value of the digital information it provided on its web site but that it was unsure of how much of the information, in what format, and for how long it should be preserved for cultural heritage purposes. After a series of several informal meetings the agency representatives agreed on a shared goal of preserving at least some of the digital information related to the state's response to West Nile virus outbreaks. They also realized that a number of challenges stand in the way of achieving this goal. To better understand these challenges, they decided to employ a set of analytical tools designed to support their partnership efforts to specify, analyze, and plan for digital preservation initiatives across their boundaries.

2. Determine a collaborative structure
Top administrators in the three agencies identified a shared goal of implementing improvements in digital preservation that would reduce the loss of digital information of high value. The administrators then created a project planning committee composed of agency staff to begin more formal and regular discussions about this shared goal and how to achieve it. The

committee consisted of representatives from the state library and state archives, and information technology (IT) and records managers from the state health department.

The planning committee began by identifying stakeholders in the process of collecting, exchanging, and disseminating digital information on cases of West Nile virus, including in their own agencies plus a wider range of interested parties. These included local health departments, the state office of the CIO, and the state environmental conservation department.

3. Describe the initiative

Representatives of the major stakeholder groups were invited to participate in a series of meetings to inform all the groups about the goal, to develop a shared understanding of the problem, and to mobilize support for the goal. These meetings revealed that the agencies had not fully grasped the complexity of this goal or its implications, such as the difficulties of working with a large and diverse set of digital content types; incompatible IT infrastructures used to create, manage, and make accessible digital records and publications; and conflicting stakeholder interests.

The planning committee decided it would be useful to work through a set of the threshold capability assessment dimension worksheets as both a group building exercise and to inform all participants about some of the high-level capabilities needed for digital preservation. The participants also worked with a set of worksheets that helped them understand the large and diverse, but not infinite, types of digital content made available on the state health department's West Nile virus web site. Another worksheet helped the participants understand the various scopes of digital preservation, and they soon became clear across the group about the choices they have in terms of the complexity of any initiative the team might undertake. The meetings helped each participant understand what aspects of the problem and possible solutions were of most interest to each stakeholder.

After sharing and discussing the goals and interests at several meetings all participants came to realize how their agency-specific project goals were related to others, and all understood where their interests overlapped. Revised statements of the overall project goal and scope of the problem were drafted and shared with other staff members of the agencies as well as with all other relevant stakeholders. The planning team agreed they wanted to work on an initiative that focused on improving digital preservation capabilities to conduct routine assessment and evaluation of the digital information located on the state health department's West Nile virus web site and the IT infrastructure currently used to create, manage, and make accessible this information.

As a result of these meetings, the planning committee members agreed that one individual needed to be assigned the responsibility of coordinating this cross-agency initiative. They saw that dealing with such a complex problem, and the number of issues and stakeholders involved, required a substantial planning and preparation effort. This would be facilitated by having a skilled administrator manage the coordination, logistics, and documentation tasks. They identified Ron Muller, a veteran archivist and IT manager in the state archives, as well qualified for this task and asked the state archivist to lend him to the project. The state archivist agreed and appointed Ron as the Interim Digital Preservation Coordinator, assigned to assist the planning committee to move the initiative forward by assessing existing and required capabilities and to begin planning for resource commitments.

4. Assess capability for success and plan for enhancing capability
After reviewing the results of the previous planning committee meetings, Ron Muller concluded that a more detailed analysis was needed. To develop support for a more complete capability assessment, he approached the state CIO, who Ron considered a champion of the project, the person who cared deeply about it and was able to mobilize wide support and resources for the effort. The CIO was the strongest advocate for the initiative and in a position to influence events in his own and the other agencies. Ron proposed that the partner agencies spend some time determining if they collectively had the capability to be successful in their efforts to achieve the stated goal. Though the agency heads had agreed that the goal was sound, they did not know whether they had the capability to implement the changes necessary to achieve the goal. That would require more work. With the help of the state archivist, Ron sought and received support from the top executives at the state health department, state library, and state CIO.

The top executives in these four agencies then commissioned the planning committee to take responsibility for managing an assessment process. They designated Frank Thorton, the representative from the state health department as chair, with Ron Muller as staff. To conduct the assessment, the committee chose to engage several units in each agency in the assessment process. Each unit would receive a subset of the assessment questions tailored to their responsibilities, experience, and expertise. The assessment would then be conducted at three levels: first within the selected units in each agency, then summarized for each agency, then the agency results combined for an assessment of the entire initiative. Each agency would have an executive-level assessment team tasked to combine their unit results and produce an agency level summary. The planning committee would take those results and produce the overall assessment report.

Based on these choices, the planning committee created a management plan for the assessment and obtained each agency's agreement to a list of steps to be followed. The plan identified the units to be involved, details of the assessment process, a timetable, and methods to review and summarize results. The assessment materials and plans were distributed to each of the agency units identified as participants. The committee held an orientation workshop for all participants to explain the process and clarify roles and responsibilities. During the orientation, the participants were given copies of the *Building State Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit, Version 1.0* along with the dimension worksheets relevant to their roles.

a. Assessing capability at the individual unit level – The individual units then began the assessment activities. Some units decided to have their members work individually on their worksheets, then come together for discussion and summary. Other units completed their worksheets as a group.

Some units found it necessary to reach out to include new participants in their unit meetings to draw on their expertise related to a particular dimension. For example, at one point, the state health department IT unit was trying to resolve assessment issues concerning content type, format, and confidentiality and authenticity of the West Nile virus information. They sought additional information and help from the planning committee. That request prompted the planning committee to revisit the initiative description and seek additional information from one key stakeholder, the state environmental conservation department, about their procedures for creating, managing, and disseminating WNV related digital information. This inquiry generated new insight into the changes needed in current data standards, policies, and procedures in the state departments of health and environmental conservation to enable long-term preservation of

and access to the digital information of interest, and this in turn required additional conversations in the unit about business model and architecture and data assets and requirements dimensions as well as the technology compatibility dimension.

Eventually the units in each of the partner agencies concluded their rating processes based on a shared understanding of their rating in each dimension. Each set of ratings included a confidence determination and a preliminary set of recommendations for short- and long-term strategies for enhancing that unit's capability. The results of each unit's ratings were then passed to Ron Muller, who combined them for the next level of work.

b. Assessing capability at the agency level – For this level, each agency designated representatives from each unit to make up an agency-level team. With the help of a process facilitator, each of the agency-level teams held several workshops to share, discuss, and summarize their capability assessments. These teams reviewed and discussed each dimension in turn, exploring capability ratings and what each rating implied for individual units and the agency as a whole. The teams attempted to identify ratings and areas where a high capability in one unit could possibly counterbalance a low capability rating in another.

In the course of these discussions, the agency teams in all of the partner agencies discovered some wide and puzzling inconsistencies in ratings on key dimensions. In the state archives team, for example, the three most divergent ratings came up in the business processes, data policies, and security dimensions. On further investigation, the team discovered that the separate units in the state archives had incomplete knowledge of practices in other units. As a result, they had distorted understandings of each other's capabilities. The IT unit, for example, did not fully understand how record managers exercise discretion in dealing with possible copyrights and authenticity issues. The record managers lacked technical knowledge about the security of their systems and infrastructure. These divergent assessment ratings were based on these incomplete understandings of existing practices. The state archives units met together to compare their understandings and agree on consistent process and capability descriptions and then adjusted the ratings accordingly. They continued to work in this way, exploring the dimensions, using the assessments to test understanding and interpretations of the environment, and establishing priorities for action. They completed this phase by creating overall ratings for their agency. Similar processes occurred in the other agencies.

c. Assessing capability at the initiative level – The final level of the assessment process brought the agency-level teams into a combined workshop to create an overall set of ratings for the initiative as a whole. With the help of a facilitator, as in the preceding stage, they continued the process of reviewing and summarizing the ratings. They presented the overall results from each agency and continued the iterative cycle of sharing, discussing, and summarizing.

The process was not a smooth one. There was considerable disagreement between the state health department team and the state CIO team in particular about ratings for the security infrastructure and the readiness for full-fledged collaboration. At this point, several of the agency team members began to question the value of creating an overall assessment for the initiative. As one frustrated participant said, "Why are we arguing over these scales? We're wasting our time. We have to go forward with this project anyway!" That remark led to a heated exchange about the relative value of the overall ratings, versus the detailed ratings and evidence coming from the lower level unit and agency work. The workshop was divided over how to proceed until Frank Thorton intervened. He said that while it was not up to them to decide the fate of the initiative, it was their responsibility to provide decision-makers with the best assessment of capability they could manage. They could choose to produce both an overall rating *and* detailed

reports and commentary. All would be useful in planning for and conducting the project. He then suggested that the workshop divide into two work groups: one to generate overall ratings and the other to identify and highlight the most important detailed ratings and evidence for use in project planning. The result was a capability assessment for the overall initiative based on a robust understanding of the capabilities of the individual units, each agency, and the multi-agency collaboration.

d. Generate action plans – Through the unit-level, agency-level, and initiative-wide assessment activities, the teams identified short-term actions and long-term strategies to enhance digital preservation capability. The state library had a long history of preserving government publications and investing in IT. However, the assessment results showed that their stakeholders had a low level of confidence in the robustness of the state library's IT infrastructure for handling digital information. They doubted its ability to provide an adequate network infrastructure and secure environment for this enterprise-wide initiative. The state library therefore undertook an effort to build confidence in their network by informing the state health department and state archives about its features, reliability, security, and availability for stakeholders' use.

The assessment also showed the need for the state CIO to modify its business processes for developing statewide policies and standards regarding IT procurement and use by state and local government agencies. The state CIO realized that a better understanding of state and local agencies' business models and architectures would lead to more effective and long-term participation by agencies in such policies and standards and, more specifically, support preservation of important state government digital information.

The assessment results also indicated compatibility problems with the technology and information policies of the state health department. However, they also showed that these deficiencies were balanced by the department's high level of capability in terms of collaboration readiness and project management. The state health department was highly capable in terms of openness and in seeking collaborative solutions and providing support for managing the project. Shortcomings in terms of infrastructure and policy were balanced by the capability to participate in and lead a collaborative activity.

Overall, combining results across units and agencies resulted in a greatly enhanced understanding of where high capability existed, where a single partner had low capability but was balanced by high capability elsewhere in the partnership, and most importantly, where insufficient capability existed in all partners. Concern about security in digital preservation, for example, was found to be based more on anecdote and perception than on detailed technical analysis. Evidence from technical analyses eliminated most of these concerns. However, low capability due to divergent business practices and readiness for collaboration among all partner agencies was confirmed. Both areas were identified as high priority for improvement. Project planning capabilities in the state archives were generally agreed to be low, but could be balanced by much higher capabilities in the other partner agencies. Discoveries in this last category were valuable for risk assessment and collective planning efforts focused on building the foundation for future initiatives.

5. Act

Each of the agencies involved in the process made at least two kinds of investments as a result of new information about itself and the other organizations that shared its goals. Often these

investments resulted from a reallocation of resources–money, people, and technology–while others resulted from a sharing of resources across organizational boundaries. Some investments required new budget allocations, and others needed to rely on grants from organizations interested in both digital preservation and capability enhancement.

The state library devoted considerable staff resources to reviewing and publicizing information about the robustness and security of their network. The planning team combined funding from all partner agencies to hire a consulting firm to work with all partner agencies to document and analyze the business processes that would be involved in the digital preservation initiative. The state archives invested in project management training for members of its IT and operations staff. The position of Interim Digital Preservation Coordinator was made permanent and located in the state archives pending the creation of an administrative structure to direct multi-agency preservation operations. Finally, the planning committee was funded for a year-long strategic planning effort to translate the results of the assessment and follow-on work into a broad strategic plan for statewide digital preservation. The strategic plan would include provision for preserving digital information of significant value related to the state's response to West Nile virus outbreaks as a first priority.

Appendix 2. Memos to Leaders and Participants

2a. Sample memorandum seeking leadership support

DATE: January 15, 2005
TO: Jane Doe, State Archivist
FROM: Ron Muller, Interim Digital Preservation Coordinator
SUBJECT: **Assessing capability for success of [*Name of Digital Preservation Initiative]***

As you know, I am in the process of developing the plan to implement the State's new [*Name of Digital Preservation Initiative].* To ensure success in this important initiative I would like to lead the appropriate agencies through an assessment of our collective capabilities. The purpose of this memorandum is to request approval to launch this assessment process, which will inform our plans and increase our overall likelihood of success.

The assessment process will be guided by a resource *Building State Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit, Version 1.0*, developed by the Center for Technology in Government, University at Albany for the Library of Congress. The toolkit, designed in consultation with state librarians and archivists and digital preservation experts, guides the review and discussion of digital preservation capabilities both within each agency and across agencies. The outcome of the process is a consensus-based plan outlining the actions necessary to enhance critical capabilities within and across agencies. Staff time is the only resource that will be required at this point. Selected preservation, records management, and information technology staff from the agencies involved in the initiative would participate in group meetings required to complete the assessments and to produce summary assessments and action plans.

Upon your approval, I will form an assessment team to assist me in organizing and carrying out this assessment and identify individuals from each agency to participate in the process. I expect this effort to take three months. Current planning for [*Name of Digital Preservation Initiative]* can continue while this assessment is conducted. The efforts can run in parallel and will inform each other.

Please let me know if you have any questions about the assessment process and how it fits in to our efforts to meet our digital preservation goals.

Thank you.

2b. Sample invitation to participants

DATE: April 15, 2005
TO: Joe Jones, CIO, Department of Environmental Conservation
FROM: Ron Muller, Interim Digital Preservation Coordinator
SUBJECT: **Assessing capability for success of [*Name of Digital Preservation Initiative]***

As you may know, our new [*Name of Digital Preservation Initiative]* is underway and its success depends largely on the capabilities within individual agencies and on the capabilities of agencies to work together across boundaries.

To that end, I invite you to participate in an assessment project designed to gauge our respective capabilities to preserve state government digital information. The assessment process has the full support of the *[agency leadership that has approved the assessment].*

The process will be guided by a resource called *Building State Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit, Version 1.0*, developed by the Center for Technology in Government, University at Albany for the Library of Congress. The toolkit, designed in consultation with state librarians and archivists and digital preservation experts, guides the review and discussion of digital preservation capabilities both within each agency and across agencies. The outcome of the process is a consensus-based plan outlining the actions necessary to enhance critical capabilities within and across agencies. Staff time is the only resource that will be required at this point. Selected preservation, records management, and information technology staff from the agencies involved in the initiative will participate in the group meetings required to complete the assessments and to produce summary assessments and action plans.

The capability assessment will require approximately three days of your time over the next three months. That time will be spent mainly in facilitated group meetings during which unit and agency assessments will be shared and discussed.

Please contact me if you have any questions. I will be in touch shortly to confirm your participation and look forward to working with you on this important endeavor.

Thank you.

Appendix 3. Capability Assessment Workshop Materials

3a. Two Types of Workshops

These workshop descriptions present methods to prepare a wide range of participants for the assessment. These materials and directions should be adapted as necessary to your initiative and your environment.

Workshop Type	Workshop Purpose
Orientation Workshop	• Build understanding of the capability assessment and planning process, its purpose, and the roles that individuals and organizations will play. • Build understanding of the capability assessment and planning toolkit and its purpose through presentations and facilitated exercises in support of preliminary and operational planning. • Prepare participants to gather the information required in the assessment process and to use the results.
Ratings Collection and Analysis Workshop	• Collect assessment results through presentations of individual participants' assessments and facilitated discussions of unit- or agency-level results. At the end of this workshop the group will have a collective assessment of capability that can be used for a next round of assessments and to develop action plans. • If this workshop is conducted at the initiative level, then participants will develop initiative-wide action plans or recommendations for moving forward.

3b. Orientation Workshop Sample Facilitation Plan

Orientation Workshop Facilitation Plan				
	Min.	***Description***	***Materials, Handouts and Notes***	***Speaker***
1	15	***Plenary session -*** Welcome and Overview **Purpose** – Provide an overview of the overall assessment process and this half-day workshop.	**Materials** • Slide show, laptop, and screen. **Notes** • Outline the goals of the workshop, of the assessment process, and the role of participants in each. • Share timeline as well as information about the sponsors of the effort and the resources supporting it.	*Initiative Champion and Assessment Process Manager*
2	60	***Plenary session –*** Visioning Exercise **Purpose** – To share hopes and fears about the assessment process or about the digital preservation initiative in general. Begin the process of group formation and create an atmosphere of open dialog.	**Materials** • Colored paper, markers, tape, wall space. **Note** • Instructions for facilitating this session presented in appendix 3c.	*Assessment Process Manager or designated facilitator*
3	45	***Plenary session –*** Introduction to the Toolkit **Purpose** – To orient participants to the concepts of digital preservation and capability as used in the toolkit and to the phases of the capability assessment and planning process.	**Handouts** • *Building State Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit, Version 1.0*. • Initiative and assessment process timelines. • A selected dimension worksheet. **Notes** • Suggested outline for the presentation: - Introduce organizing principles of the toolkit – digital preservation, capability, dimensionality, assessment, collaboration, group process. - Describe how the use of the toolkit contributes to the success of an initiative. - Outline the components of the toolkit. - Discuss how assessment results will be used in planning. - Describe the worksheets and the individual and group processes used to collect and summarize assessment ratings.	*Assessment Process Manager*

Orientation Workshop Facilitation Plan				
	Min.	***Description***	***Materials, Handouts and Notes***	***Speaker***
4	60	***Small Group Exercise –*** Learning to Use the Dimension Worksheets **Purpose** – Allow participants to become familiar with the use of the ratings worksheets to collect individual perspectives and to inform group discussions and decision making about capabilities of the team relative to the requirements of the initiative.	**Materials** • Flip-chart paper and sticky dots in red, yellow, and green for each small group. **Handouts** • "Collaboration Readiness" worksheet. • *Practice Round Participant Instructions* **Notes** • Each group should have a facilitator assigned to it and each facilitator should have opportunity to review the facilitation instructions prior to the workshop. • Instructions for the facilitators of this exercise are provided in appendix 3e. • Use 15 minutes of this time slot to introduce the exercise and to move participants into small groups. Use the remaining time for the exercise itself.	*Small groups – each with a facilitator.*
5	30	***Plenary session*** – Report out and discussion of small group work **Purpose** – Generate group understanding of how an assessment ratings process will be carried out. Encourage participants to discuss the process itself.	**Notes** • Facilitator should keep the focus of reports and discussion on the individual and group *use* of the worksheets – in particular on the sub-dimensions, the use of evidence, and the confidence level -- *not* the particulars of collaboration readiness per se.	*Assessment Process Manager or designated facilitator*
6	15	***Plenary session*** – Presentation on next steps **Purpose** – Keep participants informed and as appropriate, assign responsibilities for ongoing work.	**Notes** • Revisit the assessment process timeline. • If operational planning has been completed and participants can be provided with their assignments for the *Ratings Collection and Analysis Workshop* – then distribute those assignments together with the worksheets for completion by the Ratings Workshop. • If operational planning is not complete, then share information about when it will be and when the actual capability assessment activities will begin.	*Assessment Process Manager*

3c. Orientation Workshop – Facilitator Instructions – Hopes and Fears Visioning Exercise

This exercise allows participants to develop a shared vision of both the digital preservation initiative and the capability assessment process. The physical product of the exercise is a number of named "clusters" of ideas shared by the participants and posted to a wall for viewing by all. The desired outcome of the exercise is a shared understanding of the barriers and benefits of an initiative. This shared understanding can become the focus of future discussions about capability. If barriers are recognized generally then discussions can focus on collective capability required to overcome them. If benefits are recognized generally they can be used to focus incentive discussions and to make a case for continued investment in assessing capability and in investing in the development of capability itself.

Exercise Summary
Participants are taken through what is called an "affinity clustering" exercise. They are asked to respond to an elicitation question and responses that are similar are clustered together visually on a wall or space visible to all participants. This response sharing and clustering process generates discussion and is a valuable way to discover similarities and differences in perspectives about initiatives and the capability available to succeed in a particular initiative.

Each participant is asked in two successive rounds of the exercise to think, first of the hopes they have for the initiative under discussion, and second, the fears they have about it. Each participant then writes that hope or fear, one per sheet, on the paper provided. Using a round robin collection method, the facilitator asks each person to read their item out loud to the group. After the participant reads the item to the group, the facilitator takes the item from the participant and posts it on the wall. As this process continues the facilitator is also making decisions about which items "cluster" with other items. Like items should be posted in proximity to one another. As new ideas emerge, the facilitator may need to move items due to space limitations or to create new clusters. As more items are posted and as time allows, the facilitator may ask participants where an item should be placed. Once all items are posted, then the facilitator should ask the participants if the clusters, as they appear, "work" for them – do the items seem similar, in what ways, etc. Adjustments can be made accordingly as long as time allows. The final step in the process is labeling clusters. This is useful for reporting purposes and for future discussions. Three approaches can work here – the first is that the facilitator suggests labels for each cluster and asks for reactions from the group – this is the faster approach, the second is that the facilitator asks the group to generate cluster labels and then moderates a discussion until a consensus on a cluster label emerges - may generate more interesting discussion – but time consuming. The third approach is a combined one. The facilitator labels the clusters that are "obvious", then asks the group to suggest labels for those that are less so. This process typically generates discussion about the items and what they mean to people. This can be useful information for the assessment process manager.

Supplies
Paper (at least four colors – one for hopes, one for fears, and a different one for cluster labels), markers (one per participant), masking tape.

Room Requirements
Meeting room must have at least one wall large enough to display many single sheets of paper individually and in clusters, accessible to facilitators for posting items. Be sure to check the wall surface ahead of time - tape doesn't always stick.

Steps

In the Large Group

1. Review the exercise instructions and the time allotted for this exercise.

2. Be sure that all participants can see the wall you will use to post items and are seated in way that is conducive to group discussions.

3. Distribute several sheets of paper of one color and a marker to each participant.

4. Ask participants to spend 5 minutes considering the following question:

   "What are your hopes for this digital preservation initiative?

   Be prepared to respond to participants regarding the specific focus of their hopes – often participants are uncomfortable with the vagueness of the question and want to know specifically what you are looking for. Encourage them to think broadly about the initiative – but expect to get some responses that are about the process itself.

5. Ask each person to write down at least two hopes - one per sheet of paper.

6. In a round-robin fashion ask each participant to introduce him or herself and read one item aloud. Encourage participants to present their "favorite" or "most important" item first – often they will have more items than you have time to post.

7. After the participant has read their item, post it on the wall, clustering similar items together; consulting on placement with the group as desired and time allows. This is a time for the facilitator to ask for clarification about or expansion of an idea.

8. Throughout the exercise encourage discussion of the implications of the hopes for the digital preservation initiative and the capability assessment process.

9. Continue until each participant has provided at least two items. (This may continue for more than 2 items – this is your decision as facilitator – take into account – group size, time available, and value of additional items)

10. After collection is complete begin labeling the clusters. Three approaches work here and may be considered in terms of group size, time available etc.

    - The first has you as the facilitator suggesting a label for each cluster and asking the group to react. Select a different color paper than the one used for the items in the cluster. Write your suggested label on that sheet and tape it to the cluster – you can place in near the cluster – or literally on top of the clustered items. Either is fine. Then confirm with the group that this label accurately captures the essence of the cluster. If so, move to the next. If not, then ask for suggestions and then modify the sheet or create a new one.
    - The second has you moderating a discussion seeking suggestions for and then consensus on labels suggested by the participants. Ask participants to suggest labels – this is basically a moderated discussion with you as facilitator generating discussion around proposed cluster labels and trying to work the group toward agreement. Keep in mind in this exercise – the outcome – labeled clusters, has value, but the greater value

is in the discussion – so allow the group to compromise on labels – allow a cluster to be labeled without complete consensus by using multiple labels for example.

- The third is a combination of the first two. For those obvious clusters – you suggest the label, for those less obvious you moderate a discussion until a general consensus has been reached.

11. The exercise is repeated for fears using a different color paper, clustering them separately from the hopes. Some rooms may have limited wall space so you may need to remove the hopes clusters before beginning the fears.

12. At the end of the meeting the sheets grouped by cluster should be collected and included in the report of the workshop.

13. Soon after the meeting, results should be summarized and shared with participants and others involved in the digital preservation initiative and the capability assessment process.

3d. Orientation Workshop – Facilitator Instructions – A Capability Assessment Toolkit Practice Round

This exercise introduces participants to the assessment process used in the Toolkit. In this practice round the main purpose is gaining familiarity with the assessment process. In the exercise participants complete an assessment of their unit's capability on one dimension for the initiative being considered, then engage in a group discussion of the results. When they participate in the actual assessment workshop, they will assess capability first by unit, then by organization, and where needed across organizations. In those workshops discussions will focus on the ratings, evidence used, and levels of confidence in the ratings. The Capability Assessment Process Manager may choose to debrief facilitators following the Orientation Workshops as an additional input into the final design and implementation of the assessment.

Practice Round Summary
This exercise requires a facilitator and reporter for each small group. Participants will divide into small groups, ideally 4-5 persons per group, and use the *Collaboration Readiness* worksheet to engage in a practice assessment of their organization's readiness to collaborate. Following the small group activity the groups will report back to the large group, focusing on the assessment process itself. Each small group must have easy access to a flip chart with a mock-up of the collaboration readiness dimension. Meeting organizers may prepare this ahead of time or each facilitator can draw it on the flip chart while the group members are doing their individual assessment work.

The purpose in this round is not to have a completed assessment but to give participants practice completing some subdimensions, posting their responses, and engaging in discussion. In an actual workshop to collect and analyze ratings, the subdimensions should be completed before participants arrive. For the practice round workshop, participants complete this work as part of the exercise.

To begin, ask participants to complete their individual assessments on the worksheets provided. Check group progress as they work on the ratings and after approximately 10 minutes ask the group to see how much more time they will need. Limit the overall rating time to 15 minutes.

At this point begin to elicit rating results from each participant. For the first few times, you may want to suggest where the rating, based on the participant's remarks, should fall on the dimension and the level of confidence in that rating. Record the rating on the flip chart by placing a colored dot in the appropriate space (see the chart below); the dot color indicates the confidence level: green = high; yellow = medium; red = low. After a few rounds the group will become more familiar with the process and begin sharing their rating in terms of the color of the dot and where it should be placed on the dimension arrow. Encourage this as it will save time, but don't require it, some participants may be uncomfortable reporting their rating as a dot color and location. Throughout this process encourage brief discussions of rationale and evidence, balanced with discussions about process.

This process continues until all ratings are collected or until there are 10 minutes left in the session. Use that time to ensure that all observations about process are collected and that the reporter is ready to speak for the group about their experience with the Toolkit.

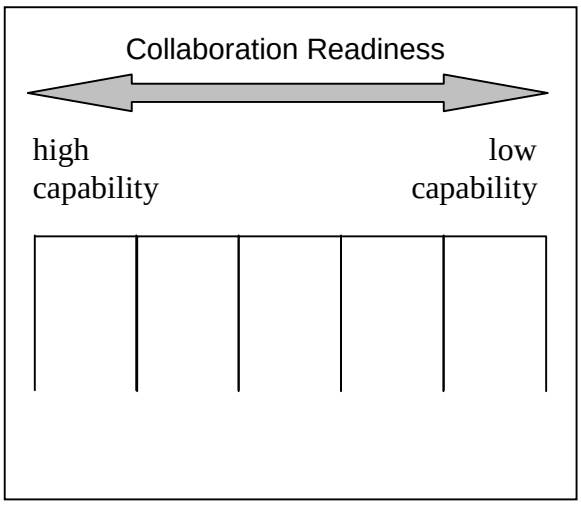
Supplies
Flip-chart paper (36" X 48"), easel or wall that allows for taping the flip chart, markers, a "Collaboration Readiness" dimension worksheet for each participant, and a large "Collaboration Readiness" summary worksheet for each small group.

Room Requirements
Each small group must have a space that is separate from the other small groups. This space must accommodate a group discussion as well as use of a flip chart.

Steps
Prior to the workshop

1. Make refinements to the agenda and room arrangements based on the size of the full group, on the number of and sizes of small groups. Aside from additional space, a larger number of small groups may require more time for group reports.

2. Prepare a separate flip chart labeled for collaboration readiness, a dimension arrow, and other content as shown below for each small group.



In the Large Group

3. Distribute the practice round participant instructions provided in appendix 3e and review them with the participants. Remind participants that the focus of the small group exercise and report is process, not rating results. Restate the expected time limit for the small group session and for each group report.

4. Divide the participants into small work groups of 4-5 people each. Have each group move to a corner of the room or to a separate breakout room. If using separate rooms, be sure to factor travel time from room to room your plan.

In the Small Group

5. Each small group should start the exercise session by identifying a discussion recorder and someone to report back to the large group; it may be the same person.

6. Allow 10 minutes for each person to complete the “Collaboration Readiness” dimension worksheet. Suggest that they begin by reviewing the dimension description before responding to the subdimension statements.

7. After 10 minutes check on the progress of your group. If necessary give them five more minutes. Remind them that the purpose of this exercise is not a completed assessment but gaining and sharing experience with the toolkit. After 15 minutes, begin the small group sharing of results.

8. In a round-robin fashion, ask each participant to share his or her rating, evidence and confidence level on the dimension. Participants can change their ratings if desired, based on the discussion.

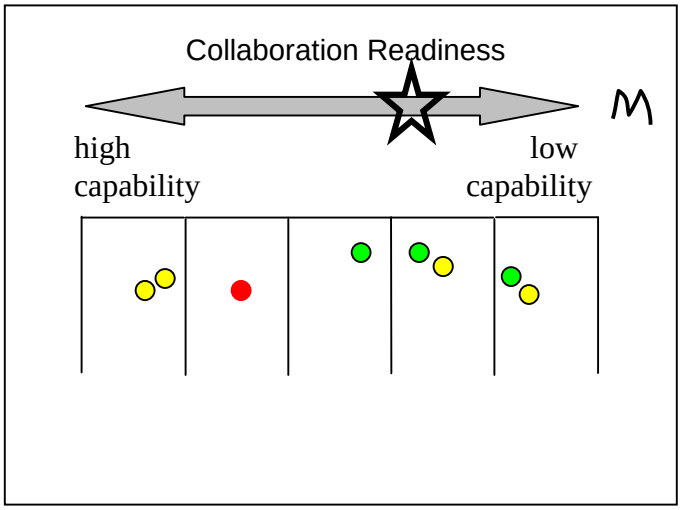
9. When the discussion is finished, direct each participant to decide on his or her own overall rating for collaboration readiness. The facilitator then asks each person for his or her rating and places a colored dot on the display representing the rating. The color of the dot represents the confidence level (green = high; yellow = medium; red = low).

10. Ask the group to discuss each rating as it is posted and then proceed to the next person until all individual ratings are on the display. An alternative procedure is to post the dots for all participants without discussion and then discuss the whole pattern. When completed, the flip chart will contain a compilation of the group’s ratings (see below).

11. As ratings are being posted ask the group for observations about differences in ratings, confidence levels, and evidence supporting. After sufficient discussion, the group is asked to decide on an overall rating and confidence level, to be marked on the flip chart as shown below.

    Of primary interest for this orientation workshop, however are observations about the process of capturing ratings. Key process points generated by discussion should be recorded on flip chart. Remind participants that during the actual workshops they will be asked to focus their discussions on ratings rather than on the process.

12. When completed, the flip chart will represent a summary of the group’s ratings on one dimension, similar to the figure below. Each dot will represent one person’s overall rating and confidence level, with the star as the overall group rating.



13. Use the last 10 minutes to review the observations list and to summarize those observations for use by the person reporting to the larger group.

In the Large Group

14. The large group facilitator asks each group reporter in turn to share the results of their group's work. Remind each reporter of the time limit and how the large group facilitator will signal "time's up." As the reports are given, the large group facilitator should make a list on flip chart paper of concerns and tips for later distribution to the participants.

3e. Orientation Workshop – Participant Instructions – Practice Round

Start the exercise by identifying one person to record key issues in the discussion and one person to report results back to the large group.

1. Working individually, complete the subdimension ratings for the selected dimension and use those ratings to choose your overall rating for that dimension.

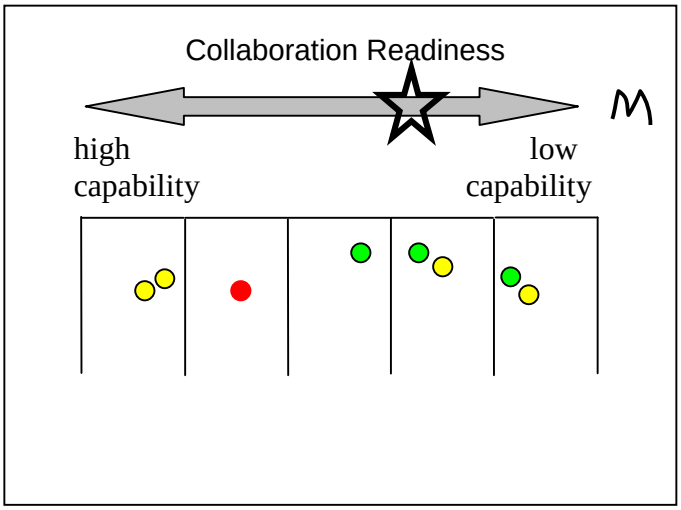
2. In a round-robin fashion, each member of the group will be asked by the facilitator to share:
   - Their rating for the selected dimension on the scale from high to low.
   - A brief description of the evidence used, including subdimension ratings.
   - A confidence level for the selected dimension rating.

3. The facilitator will place a colored dot on the flip chart to represent rating, as shown in the figure below.

4. This process continues until all participants have shared their dimension ratings, discussed then in detail, and each member's rating is represented by a dot on the flip chart.

5. The group will then be asked to give an overall group rating on this dimension and a confidence level for that rating. That overall rating and confidence level can be marked on the flip chart, as shown by the star and letter "M" (for medium) below.

6. When completed, the flip chart will represent a summary of the group's ratings on one dimension, similar to the figure below. Each dot will represent one person's overall rating and confidence level, with the star as the overall group rating.



Notes

- You may change your ratings at any time.
- The recorder should use a separate flip chart sheet to keep track of key points of agreement or disagreement, unique insights, and indications of where new information is required before ratings discussions can continue. The notes should be part of the report and discussion in the large group.

3f. Ratings Collection and Analysis Workshop – Sample Facilitation Plan

Ratings Collection and Analysis Workshop Facilitation Plan				
	Min.	***Description***	***Materials, Handouts and Notes***	***Speaker***
1	15	***Plenary session*** – Welcome and Overview **Purpose** – Ensure participants understand the purpose of and the plan for the day ahead of them.	**Materials** • Slide show, laptop, and screen **Notes** • Outline the goals of the workshop as part of the overall capability assessment process • Share timeline as well as information about the sponsors of the effort and the resources supporting it • Describe the roles and responsibilities of workshop participants.	*Initiative Champion and Assessment Process Manager*
2		***Plenary session –*** Sharing Ratings on Capability **Purpose** – To collect and discuss the capability assessment ratings for each dimension and select the summary rating for each dimension.	**Materials** Flip charts, markers, sticky dots **Notes** • This is Exercise 1.	
3		***Plenary session*** – Creating a Capability Summary Rating for the Initiative **Purpose** – To review summary ratings for all dimensions collectively and discuss implications.	**Materials** Flip charts, markers, sticky dots **Notes** • This is Exercise 2.	
4	60	***Plenary Session –*** Action Planning **Purpose** – Identify, prioritize, and assign responsibility for specific actions to address capability gaps identified through the assessment process.	**Notes** • This is Exercise 3.	

NOTE: This facilitation plan can be used to combine individual ratings into unit ratings, unit ratings into agency-level ratings, and agency-level ratings into initiative-wide results.

3g. Ratings Collection and Analysis Workshop – Workshop Planning Notes

This workshop has three exercises:

1. Collect, compare and discuss the detailed thinking underlying each dimension in order to produce a summary rating for each of the dimensions being assessed.
2. Discuss the summary ratings across all the dimensions to produce a rating for the initiative as a whole.
3. Review the key ideas, issues, and opportunities for future actions that emerge from the discussion. This third exercise is critical to capturing the insights generated through the rating collection process and providing input to action planning.

This workshop can be repeated as many times as necessary based on the method selected to review and combine ratings.

- If the successive capability ratings approach is used, the number of workshops depends on the number of units and how many organizations involved. One workshop may be enough for each unit, a few more times at the agency level, depending on the number of units, and then at least one at the cross-agency, or initiative level.

- If the executive ratings approach is used, you may only need a few workshops, possibly only one.

- If a combined approach is used, the number of workshops is best decided through a consideration of the number of units and organizations who will provide ratings as input to an executive ratings process. If the initiative includes many units and organizations, it may take more than one workshop for the executive review and summarization of those ratings.

- Be sure to identify anyone who has not attended the orientation workshop prior to the day of the Ratings Collection and Analysis workshop so that you may orient them offline before the workshop date. At the very least, communicate with them via phone to be sure they have reviewed the toolkit and understand the role that they are playing in the activity of the workshop. Be sure they understand they must arrive with the ratings work complete.

3h. Ratings Collection and Analysis Workshop – Facilitator Instructions

This exercise is the foundation of the capability assessment and planning process. It takes participants through the group activity of sharing and discussing ratings on the capability of a unit, an organization, or multiple organizations to be successful in the digital preservation initiative under discussion.

In this exercise participants share their ratings of capability and discuss the implications, similarities and differences among ratings, the evidence offered to justify the ratings, and the confidence levels. Discussions should be moderated to identify concerns, goals, issues, opportunities, and priorities for action planning.

Exercise Summary

This exercise requires a facilitator and at least one reporter. Ideally, the group should be no larger than 8-10 persons, or in the case of an organization or initiative level workshop, 8-10 units or agencies. A flip chart with a mock-up of each of the dimensions must be prepared ahead of time. Participants are expected to arrive at the workshop with a completed set of worksheets.

The facilitator begins to collect each participant's overall rating on each dimension and represents that rating on the flip chart by placing a colored dot in the appropriate location. The facilitator should make a determination about color of and position of the dot along the dimension; the color of the dot represents the rater's level of confidence (green=high, yellow=medium, red=low). Each workshop will be different in terms the group's comfort with this exercise. For the first few dimensions, this will take longer. After a few rounds, the group will become more familiar with the process and begin sharing ratings in terms of the color of the dot and its placement on the dimension arrow. Each workshop may have some participants who have done this exercise several times already; for others, this may be their first time since the Orientation Workshop. Encourage participants to give you their rating by color and location - this will save the whole group time, but don't require this - some participants may not be as comfortable transforming their rating into dot color and location. Throughout this exercise encourage discussions of evidence and confidence. Keep track of observations that speak to where capability is high, what is possible because of it, where it is low or missing, and what might be done to ensure success. Discussions might include:

- Where capability is low or missing and how it might be balanced by capability elsewhere
- Where low or missing capability is a widespread problem and must be created across some or all agencies involved in the initiative
- Where resources must be invested to create or increase capability for the enterprise
- Where resources must be invested to create or increase specific capability for this initiative
- Where differences about available or necessary capability exist and must be explored for future planning purposes.

This process continues until all ratings are collected and differences and points of agreement are explored in terms of their implications for the initiative. The final discussion is conducted to determine a summary rating for that dimension. The summary rating does not need to reflect consensus; it can be used to report differences of opinion on capability.

Continue this process until all dimensions assigned to the group have been covered.

Supplies
Flip-chart paper (36" X 48"), easel or wall that allows for taping the flip chart, markers, and a large mock-up summary worksheet for each dimension.

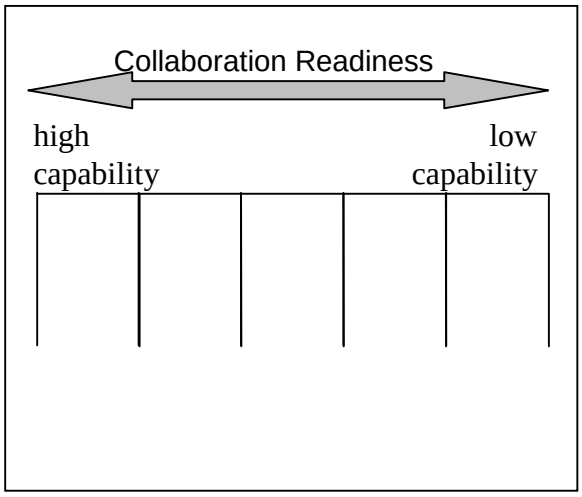
Room requirements
All participants must be able to see the posted flip charts. The wall space should allow for posting of multiple flip charts (ideally, for all of the relevant dimensions being assessed) on a visible wall. The room should accommodate a U-shaped seating arrangement – either at tables or simply in chairs in front of the wall.

Steps
Prior to the workshop

1. A critical preplanning point is determining the order in which dimensions will be covered and how many dimensions can be completed in any block of time. This in part depends on the group size. Assuming that the process will be slower at first, and then pick up speed, you might expect to complete three dimensions with fewer subdimensions in the first hour. As the group becomes more familiar with the process it will move more quickly. However, be sure to allow for productive discussions to continue as appropriate.

2. Make refinements to the agenda based on the size of the full group, facilities, and other logistics. For example, less wall space may require you to take more time between dimensions. The size of the group will determine the amount of time spent collecting ratings from each person so that discussion time can be maximized. Check on the orientation of all participants.

3. Prepare a separate flip chart labeled for each dimension, a dimension arrow, and other content as shown below.



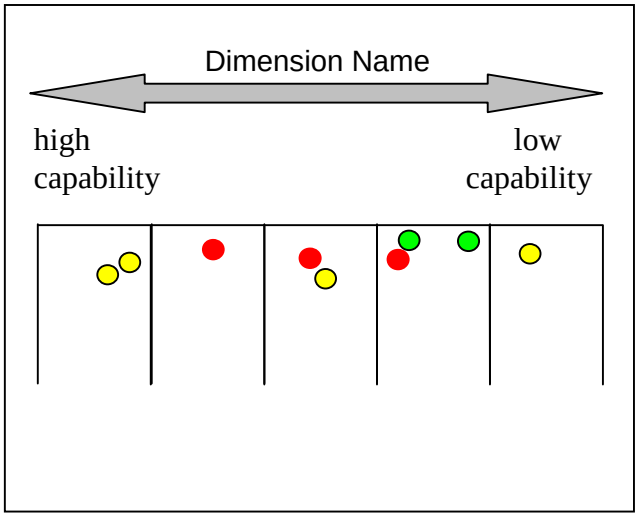
4. Prepare a separate flip chart size version of the Dimension Summary sheet in the workbook. This will be used to record the summary rating at the end of each dimension discussion.

At the Workshop

5. ***Exercise 1*** – Carry out steps 6-10 for each dimension.

6. In a round-robin fashion, ask each participant to share his or her overall rating, on the dimension and confidence level. Each participant may also describe the evidence and subdimensions that influenced the overall rating. The facilitator then places a colored dot on the display representing each person's rating. The color of the dot represents the confidence level (green = high; yellow = medium; red = low).

7. Brief discussions after each posting are okay but its best to sequentially post the dots for all participants for a dimension without discussion and then discuss the whole pattern rather than each individual's rating. When completed, the flip chart will contain a compilation of the group's ratings (see below).



8. After ratings are posted, seek reactions to differences in ratings, confidence levels, and supporting evidence.

9. Collect comments from the discussion on flip charts for use in the final exercise of the day.

10. The final topic for each dimension discussion is the determination of the group's summary rating for that dimension. Use the flip chart sheets to guide this discussion. If the group has reached consensus on a rating for a particular dimension, then indicate that on the dimension arrow. If there are different opinions, note those as well. It is not necessary to achieve consensus – but to identify where differences of opinion or perspective exist so they can be explored.

11. ***Exercise 2 –*** Carry out steps 12 through 16 once, taking into account all dimensions.

12. After all dimension ratings have been collected, discussed, and summarized on the dimension flip charts, it is time for the group to focus on the summary ratings for all completed dimensions. Use the flip chart with a mock-up of the Dimension Summary worksheet.

13. Read the rating for each dimension to the group. Moderate a discussion regarding the rating. If the group would like to change it based on new understanding or ideas that have emerged since they assigned that rating, let them change it.

14. Once the group comes to a conclusion on the summary – either a consensus on one summary rating, or agreement to disagree, mark the summary worksheet flip chart as such. Do this for each of the dimensions assessed. Work to have the group react to some extent with the ratings as they are transferred, but manage the discussion so that issues are noted, recorded, but don't try to resolve them. This exercise is designed to generate statements about actions that need to occur to resolve these issues. Have a flip chart available to collect these ideas, but encourage the group to focus on the generation of these ideas, not their development. That comes next.

15. ***Exercise 3 –*** Carry out steps 17 through 22 once, using the summary ratings sheet.

16. After all the summary ratings have been collected on the summary worksheet and ideas about actions to take to address issues have been recorded, ask the group to take 5 minutes as individuals to reflect on this information.

17. Using a round robin approach, ask each participant to identify an action that must be taken, for example, to address a low or missing capability or to take advantage of high capability. Ask them to share their highest priority actions first. Collect these ideas on flip chart. Go around the room at least two times. Encourage short discussions about these items to help the group understand what is being suggested, who might be involved, and what the benefit of that action would be.

18. After the list is collected and discussed have the participants take 5 minutes to review the list for those items they consider to be of the highest priority. The group may need to spend some time at this point discussing the criteria that should be considered in assessing priority. This criteria discussion should be carried through to more focused planning sessions.

19. Moderate a discussion to identify if consensus exists within the group regarding highest priority actions, or if there are differences of opinion regarding priority and criteria. This discussion might identify that for different actions, there are different groups who should have this action as their highest priority, for example.

20. For those items considered of the highest priority, ask the participants to identify who from among the interorganizational team should be responsible for developing the specific plan for this action and the steps to be followed in that development. Discussions may determine, for example, that multiple actions can occur in parallel thereby reducing the timeline to completion. The outcome might be the assumption of responsibility for these parallel actions by different partners with an agreement to coordinate their efforts.

21. The products of this exercise include the summary rating worksheet, the nature of actions to be taken, their priority, the identification of responsible parties, and the ideas, concerns, and observations recorded on flip chart. This information should be documented and forwarded on to the next level of the assessment activity for use as input to the ratings process and to executive decision making and planning.

3i. Ratings Collection and Analysis Workshop – Participant Instructions

This exercise is based on the assumption that all participants have individually completed their assessment worksheets prior to the workshop.

1. In a round-robin fashion, each member of the group reads aloud his or her assessment rating for the first assigned dimension, including a brief statement of the supporting evidence, and confidence level.

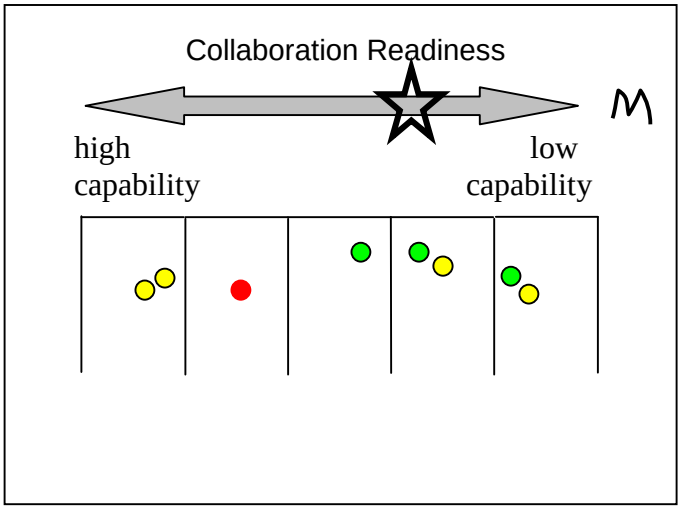
2. As each participant is sharing their rating the facilitator will mark that participant's overall rating and confidence level on the flip chart by using different colored dots – each color representing a different confidence level: green = high; yellow = medium; red = low. For example, a high capability rating with medium confidence should result in a yellow dot placed in the far-left section of the figure. When completed, the chart will contain a summary of the group's ratings similar to the figure below.

3. The recorder should take note of key points of agreement or disagreement, unique insights, and indications of where new information is required before ratings discussions can continue.

4. This process continues until all participants have shared their dimension ratings and each member's rating is represented by a dot on the flip chart.

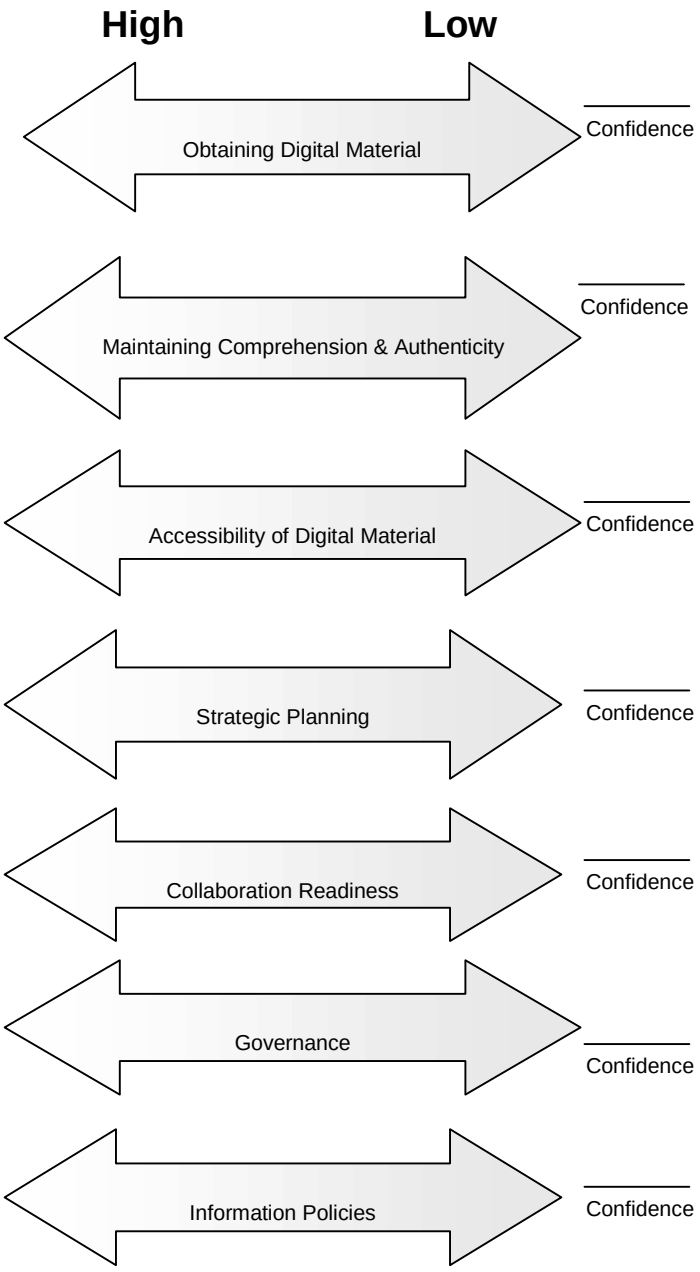
5. The group will then be asked to give an overall group rating on this dimension and a confidence level for that rating. That overall rating and confidence level can be marked on the flip chart, as shown by the star and letter "M" (for medium) below.

6. When completed, the flip chart will represent a summary of the group's ratings on one dimension, similar to the figure below. Each dot will represent one person's overall rating and confidence level, with the star as the overall group rating.



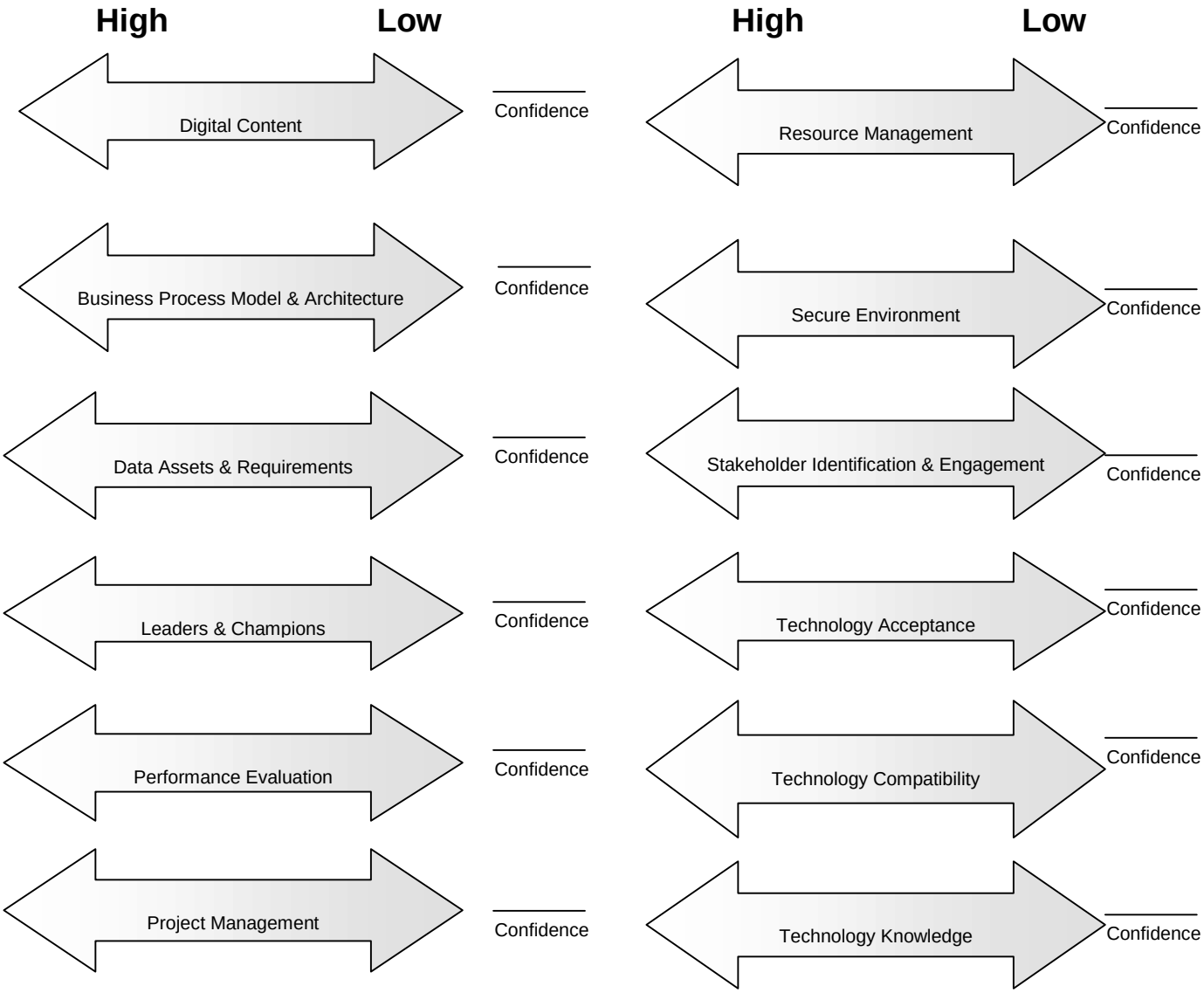
3j. Summary Sheets – Threshold Dimensions

Name or Organization: _____



3k. Summary Sheets* - Additional Dimensions

Name or Organization: _____



* This sheet can be used to record overall ratings for each individual or organization to share with other participants and to use in developing an overall initiative rating.

Appendix 4. Describing Initiatives Worksheets

4a. Digital Content Types and Policy Areas Worksheet

Potential Policy Areas	Potential Content Types					
	Electronic publications	Electronic records	Datasets	Audio & Video	Web resources	Others
Public Health						
Transportation						
Environmental Protection						
Education						
Criminal Justice						
Others						

4b. Preservation Scope Categories Worksheet*

Scope of material to work with	**Restricted** Small body of focused content	**Selective** Larger quantity and/or more diverse content	**Broad** Very large quantity/very diverse content
Scope of time to keep material	**Short** Until end of test or pilot project	**Medium** When active use ceases or technology changes	**Long** Permanent
Scope of management care for material	**Non-curatorial** Pilot project with no preservation commitment	**Maintenance** Keep according to standard IT security and backup plans	**Comprehensive** Migration, emulation and other advanced preservation management
Scope of access to material	**Staff only** Institutional staff access for project purposes	**Case by case** Public/other stakeholders may access in-house or under other conditions	**General** Public/other stakeholders have broad and easy access

Value and Usefulness/Cost and Complexity

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*Based on chapter 9.3, *Guidelines for the Preservation of Digital Heritage*

4c. Indentifying and Understanding Digital Content to be Preserved Worksheet

The following set of questions can be used by an organization or group of organizations working on content specific initiatives.
1. What specific set of content (e.g., which records, publications, or data sets) should be preserved?
2. Why is this content being captured or created today?
3. Who are the stakeholders of this content?
4. Are the main stakeholders involved in the preservation partnership?
5. What are the main types of information being captured or created today?
6. What portion of the content, and which types, have long term value?
7. How long is the information likely to be useful?
8. Who are the current users?
9. Who would be the likely future users?
10. What uses are made of the content today?
11. What will be the likely future uses?
12. Who are the information suppliers today and how do they collect their information?
13. What technology is used today to gather, manage, and use the information?
14. What is the likely longevity of that technology?
15. What laws, regulations or court decisions govern the use of the information?
16. What staff skills are needed to preserve the information?
17. What resources are already dedicated to preserving the information?
18. What does past experience tell us?

Appendix 5. Glossary

Term	Definition
Access	The OAIS entity that contains the services and functions which make the archival information holdings and related services visible to consumers. To make available (in accordance with all applicable restrictions) records, copies of records or information about records through activities such as reference services, providing reproductions, and producing exhibitions and public programs.
Archive (n)	An organization, the function of which is the preservation of resources, either for a specific community of users, or for the general good.
Archive (v)	See Preserve.
Authenticity	The authenticity of a digital object refers to the degree of confidence a user can have that the object is the same as that expected based on a prior reference or that it is what it purports to be. The property of a record that it is what it purports to be and has not been corrupted.
Business process	A collection of related, structured activities--a chain of events--that produce a specific service, product or business result, either within a single organization or across several organizations.
Business process model	A description of all of the business processes used to create, manage, and make accessible digital information.
Capture	The process of lodging a document into a recordkeeping system and assigning metadata to describe the record and place it in context, thus allowing the appropriate management of the record over time.
Champions	Individuals who communicate a clear and persuasive vision for an initiative, provide the authority and legitimacy for action, and build support in the environment.
Charter	A formal, written, statement of authority for an information sharing initiative.
Collection	The entire holdings of a library or the works by one author or items on a particular subject. Gathering of documents assembled on the basis of some common characteristic, without regard to their provenance.
Consumer	The role played by those persons, or client systems, who interact with OAIS services to find preserved information of interest and to access that information in detail.
Content	Generic term for data and metadata stored in the repository, individually or collectively described.

Term	Definition
Cultural heritage	Something that is inherited or passed down because it is appreciated and cherished. Categories of cultural heritage include; built structures and their surrounds, gardens, trees; cultural landscapes; sites; areas; precincts; cemeteries; ruins and archaeological sites; shipwrecks; sites of important events; commemorative sites; contents of buildings and significant relics, objects artifacts and collections of objects.
Data	Information of any kind represented in computer storage A reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing.
Data management	The OAIS entity that contains the services and functions for populating, maintaining, and accessing a wide variety of information. Some examples of this information are catalogs and inventories on what may be retrieved from Archival Storage, processing algorithms that may be run on retrieved data, Consumer access statistics, Consumer billing, Event Based Orders, security controls, and OAIS schedules, policies, and procedures.
Database	A set of data structured to facilitate retrieval and further processing.
Designated community	An identified group of potential users of the archive's contents who should be able to understand a particular set of information. The designated community may be composed of multiple user communities.
Digital archive	A collection of digital objects stored for preservation purposes.
Digital heritage	Those digital materials which are valued sufficiently to be retained for future access and use
Digital material/resources	A broad term encompassing digital surrogates created as a result of converting analogue materials to digital form (digitization), and "born digital" for which there has never been and is never intended to be an analogue equivalent, and digital records.
Digital preservation	The processes of maintaining accessibility of digital objects over time. The series of managed activities necessary to ensure continued access to digital materials for as long as necessary. Refers to all of the actions required to maintain access to digital materials beyond the limits of media failure or technological change. Those materials may be records created during the day-to-day business of an organization; "born-digital" materials created for a specific purpose; or the products of digitization projects.

Term	Definition
Digital repository	The facilities, personnel, processes, systems, and media used to store, manage, and provide access to digital objects.
Dimensions	Interdependent factors that reflect how organizations operate, the policies that govern their behavior, and the technology investments that shape their current and future work.
Electronic publications	A document disseminated in machine-readable form. It includes off-line (physical format) publications such as CD-ROMs and computer disks, and online publications stored using digital technology. Some electronic publications are 'born digital' (i.e. are created in digital form) and some are created originally in another form e.g. print on paper, photograph, LP and have subsequently been digitized.
Electronic records	Records created digitally in the day-to-day business of the organization and assigned formal status by the organization. They may include for example, word processing documents, emails, databases, or intranet web pages
Enterprise	All the organizations that participate in the services and business processes in which the information sharing takes place.
Enterprise architecture	Formal description of the service and operational components of the enterprise along with how they are connected to each other and the technologies used to implement them.
Facilitation plan	An action plan to guide a facilitator in managing a group process.
Facilitator	A person knowledgeable in process improvement, problem solving and group dynamics who assists groups in exploring issues and reaching decisions.
Governance	Formal roles and mechanisms to set policy and direct and oversee information-sharing initiatives.
Government information	Information created, collected, processed, disseminated, or disposed of by or for the government
Government publication	Informational matter which is published as an individual document at Government expense, or as required by law.
Group decision conferences	A process in which a group familiar with a particular issue or problem works collaboratively, with a facilitator, to develop a decision, process model, or action plan.
Information policies	Rules and regulations that govern the collection, use, access, dissemination, and storage of information, including access, privacy, confidentiality, and security.
Digital preservation initiative	The collection of organizations, activities, and participants involved in digital preservation capability assessments and improvements. Two types of initiatives are generally considered by those responsible for digital preservation;

Term	Definition
	one is the development of an overall digital preservation program, another is the preservation of specific content of interest.
Infrastructure	The computer and communication hardware, software, databases, people, and policies supporting the enterprise's information management functions.
Ingest	The OAIS entity that contains the services and functions that accept Submission Information Packages from Producers, prepares Archival Information Packages for storage, and ensures that Archival Information Packages and their supporting Descriptive Information become established within the OAIS. Process of bringing digital objects and their associated documentation into safe storage.
Intellectual property rights	The World Intellectual Property Organization (WIPO) defines intellectual property as consisting of the two main branches of industrial property and copyright. Industrial property "deals principally with the protection of inventions, marks (trademarks and service marks) and industrial designs, and the repression of unfair competition". Copyright is applied to "creations in the fields of literature and arts", with such works able to be expressed as "words, symbols, music, pictures, three-dimensional objects, or combinations thereof (as in the case of an opera or a motion picture)."
Interoperability	The ability of systems or organizations to exchange information and to provide services to one another in a way that allows them to integrate their activities.
Long term	A period long enough to raise concern about the effect of changing technologies, including support for new media and data formats, and of a changing user community.
Long-term preservation	The act of preserving information, in a form which can be made understandable to users over the long term. The act of maintaining correct and independently understandable information over the long term. Continued access to digital materials, or at least to the information contained in them, indefinitely.
Medium-term preservation	Continued access to digital materials beyond changes in technology for a defined period of time but not indefinitely.
Metadata	Information describing the characteristics of data and systems, or “information about information.”
Open Archival Information System (OAIS)	An archive, consisting of an organization of people and systems, that has accepted the responsibility to preserve information and make it available for a Designated

Term	Definition
	Community.
Organizational culture	A set of shared values, assumptions, beliefs and practices defines the nature of the workplace and leads to common work habits and interaction patterns.
Preserve	Maintain information, in a correct and usable form over the long term. Also referred to as "archiving" or long term preservation.
Preservation	Refers to the management of electronic materials so that they remain accessible as technology changes. Processes and operations involved in ensuring the technical and intellectual survival of authentic records through time.
Preservation program	The set of arrangements, and those responsible for them, that are put in place to manage digital materials for ongoing accessibility.
Producer/Creator	The person or corporate body with the financial and/or administrative responsibility for the physical processes whereby an electronic resource is brought into existence. Specific responsibilities may relate in varying degrees to the creative and technical aspects of a particular work, including collecting data into a computerized form.
Publisher	A person or organization responsible for the publication of documents.
Record	A unit of recorded information of any type that is made or received in the course of activity and is kept because it provides evidence of the activity, is required by law or regulation, or contains valuable information. Recorded information, regardless of format, made or received pursuant to law or ordinance or in connection with the transaction of official business. All books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the information value of data in them.
Repository	An organization that intends to maintain information for access and use.
Rights	Legally enforceable entitlements associated with digital materials, such as copyright, privacy, confidentiality, and

Term	Definition
	national or organizational security restrictions.
Risk assessment	The process of identifying, the threats to success and assessing the probabilities and potential costs of the threats materializing.
Risk management	Process of identifying and assessing risks presented by threats, and if appropriate, taking steps to bring the level of risk down to an acceptable level.
Short-term preservation	Access to digital materials either for a defined period of time while use is predicted but which does not extend beyond the foreseeable future.
Stakeholder	Persons or groups that have an interest in the outcomes of an information-sharing initiative and some capacity to influence it.
Standards	Agreed specifications or practices for achieving given objectives. Some standards are formally prepared, agreed, endorsed and published by standards-setting bodies, while others become de facto standards by common adoption and use. Some standards, such as many file formats, are developed and patented by intellectual property owners who may or may not make their specifications public.
Strategic planning	The process by which an enterprise or organization envisions its future and determines the strategies, investments, and action plans to achieve it.
Tactical planning	The process of determining the shorter-term goals and actions that will move and organization toward its strategic vision.
Trusted digital repository	A digital repository whose mission is to provide reliable, long-term access to managed digital resources to its designated community, now and in the future.

Appendix 6. Selected Publications

CCSDS 650.0-B-1: Reference Model for and Open Archival Information System. Blue Book. Issue 1, by Consultative Committee for Space Data Systems. U.S. National Aeronautics and Space Administration, 2002.
http://ssdoo.gsfc.nasa.gov/nost/isoas/ref_model.html

Guidelines for the Preservation of Digital Heritage, by Colin Webb. United Nations Educational, Scientific and Cultural Organization, March 2003.
http://unesdoc.unesco.org/images/0013/001300/130071e.pdf

Electronic Records Management Guidelines for State Government: Ensuring the Security, Authenticity, Integrity, and Accessibility of Electronic Records, by National Electronic Commerce Coordinating Council. December 2001. (Exposure Draft)
http://www.dir.state.tx.us/standards/NEC3-Records_Mgmt_ED.pdf

Managing and Sustaining a State Government Publications Program in California: A Report on the Existing Situation and Recommendations for Action, by Judith Cobb and Gayle Palmer. OCLC Digital Collection and Metadata Services Division, August 2004.
http://www.library.ca.gov/assets/acrobat/OCLCFIN.pdf

Making Smart IT Choices: Understanding Value and Risk in Government IT Investments, by Sharon S. Dawes, Theresa A. Pardo, Stephanie Simon, Anthony M. Cresswell, Mark F. LaVigne, David F. Andersen, and Peter A. Bloniarz. Center for Technology in Government, University at Albany, SUNY, April 2004.
http://www.ctg.albany.edu/publications/guides/smartit2

NASCIO Enterprise Architecture Development Tool-Kit, by National Association of State Chief Information Officers, October 2004 (Version 3.0).
https://www.nascio.org/nascioCommittees/ea/toolkitDownload.cfm

North Carolina State Government Information: Realities and Possibilities, by Kristin Martin and Jan Reagan. State Library of North Carolina, North Carolina Department of Cultural Resources, November 2003.
http://statelibrary.dcr.state.nc.us/digidocs/Workgroup/WhitePaper.pdf

Opening Gateways: A Practical Guide for Designing Electronic Records Access Programs, by Theresa A. Pardo, Sharon S. Dawes, and Anthony M. Cresswell. Center For Technology in Government, University at Albany, SUNY, January 2002.
http://www.ctg.albany.edu/publications/guides/gateways/gateways.pdf

Preserving Our Digital Heritage: Plan for the National Digital Information Infrastructure and Preservation Program, by U.S. Library of Congress, October 2002.
http://www.digitalpreservation.gov/repor/ndiipp_plan.pdf

Sharing Justice Information: A Capability Assessment Toolkit, by Anthony M. Cresswell, Theresa A. Pardo, Donna S. Canestraro, Dubravka Juraga, and Sharon S. Dawes. Center For Technology in Government, University at Albany, SUNY, 2005.

Trusted Digital Repositories: Attributes and Responsibilities, by RLG/OCLC Working group. Research Libraries Group, May 2002.
http://www.rlg.org/longterm/repositories.pdf

Appendix 7. Related Web Sites

American Library Association (ALA), Digital Rights Management and Libraries
http://www.ala.org/ala/washoff/WOissues/copyrightb/digitalrights/digitalrightsmanagement.htm#intro

The American Library Association is the oldest and largest library association in the world, with more than 64,000 members. Its mission is to promote the highest quality library and information services and public access to information.

Association of Research Libraries (ARL) Digital Initiatives Database
http://www.arl.org/did

The ARL Digital Initiatives Database is a collaboration between the University of Illinois at Chicago and ARL. The ARL Digital Initiatives Database is a Web-based registry for descriptions of digital initiatives in or involving libraries. The goal of the effort is to capture basic information for a wide range of digital initiatives.

Association of Records Managers and Administrators (ARMA)
http://www.arma.org/about/index.cfm

ARMA is a not-for-profit association and the leading authority on managing records and information – paper and electronic. The association was established in 1956. Its 10,000-plus members include records managers, archivists, corporate librarians, imaging specialists, legal professionals, IT managers, consultants, and educators, all of whom work in a wide variety of industries. The association also develops and publishes standards and guidelines related to records management. It was a key contributor to the international records management standard, ISO-15489.

Chief Officers of State Library Agencies (COSLA)
http://www.cosla.org

COSLA is an independent organization of the chief officers of state and territorial agencies designated as the state library administrative agency and responsible for statewide library development. Its purpose is to identify and address issues of common concern and national interest; to further state library agency relationships with federal government and national organizations; and to initiate cooperative action for the improvement of library services to the people of the United States.

Collaborative Digitization Projects in the United States
http://www.mtsu.edu/~kmiddlet/stateportals.html

Ken Middleton, Associate Professor and User Services Librarian at Middle Tennessee State University has a website on Collaborative Digitization Projects in the United States. The website provides links to ongoing collaborative digitization projects that focus on cultural heritage materials. Articles and documents about specific projects are also noted.

Cornell University Library, Digital Preservation Management Workshop
http://www.library.cornell.edu/iris/dpworkshop/index.html

Cornell University Library has an ongoing digital preservation training program funded by the National Endowment for the Humanities. The program consists of an online tutorial and a series of one-week workshops. The primary goal of the program is to enable effective decision making for administrators who will be responsible for the longevity of digital objects in an age of technological uncertainty. The *Digital Preservation Management* workshop series is intended for those who are contemplating or implementing digital preservation programs in libraries, archives, and other cultural institutions. The goals of this initiative are to foster critical thinking in a technological realm and to provide the means for exercising practical and responsible stewardship of digital assets.

Council of State Historical Records Coordinators (COSHRC)
http://www.coshrc.org./about.htm

The Council of State Historical Records Coordinators (COSHRC) is a national organization comprising the individuals who serve as State Historical Records Coordinators and their deputies. The Coordinators chair State Historical Records Advisory Boards (SHRABs) in each of the 50 states, five territories, and the District of Columbia. The Council of State Historical Records Coordinators works to ensure that our nation's historical records are valued, preserved, and widely used.

Council of State Historical Records Coordinators (COSHRC), Directory of State Archives and Records Programs
http://www.coshrc.org./arc/states.htm

COSHRC's provides a directory of state archives and records programs for all the fifty states and District of Columbia.

Council on Library and Information Resources (CLIR)
http://www.clir.org/about/about.html

CLIR is an independent, nonprofit organization. Through publications, projects, and programs, CLIR works to maintain and improve access to information. In partnership with other institutions, CLIR helps create services that expand the concept of "library" and supports the providers and preservers of information. CLIR pursues three primary goals: (1) To foster new approaches to the management of digital and non-digital information resources so that they will be available in the future; (2) To expand leadership capacity in the information professions; and (3) To analyze changes in the information landscape and help practitioners prepare for them.

Digital Preservation Coalition
http://www.dpconline.org/graphics/index.html

The Digital Preservation Coalition (DPC) was established in 2001 to foster joint action to address the urgent challenges of securing the preservation of digital resources in the UK and to work with others internationally to secure our global digital memory and knowledge base.

The Federal Enterprise Architecture
http://www.whitehouse.gov/omb/egov/a-1-fea.html

To facilitate efforts to transform the Federal Government to one that is citizen-centered, results-oriented, and market-based, the Office of Management and Budget (OMB) is developing the Federal Enterprise Architecture (FEA), a business-based framework for Government-wide improvement. The FEA is being constructed through a collection of interrelated "reference models" designed to facilitate cross-agency analysis and the identification of duplicative investments, gaps, and opportunities for collaboration within and across Federal Agencies.

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

Illinois State Library and the Graduate School of Library and Information Science at the University of Illinois Urbana/Champaign received a National Leadership Grant funded by the Institute of Museum and Library Services to provide critical leadership in the preservation of state online documents. The goal of this project is to demonstrate a national model and provide the tools for online state document capture and preservation. The objectives are (1) to deploy the Illinois software used in states across the nation; (2) to develop a version 2 of the PEP software to provide upgrades; and (3) to create access to state electronic documents through MARC records.

Institute of Museum and Library Services' (IMLS) Digital Corner
http://www.imls.gov/digitalcorner/index.htm

IMLS developed Digital Corner web site section to highlight IMLS activities in the area of digital preservation. The Digital Corner provides information on different digital projects conducted funded by IMLS, as well as information on different publication, conferences and grant programs.

Institute of Museum and Library Services' NLG Project Planning: A Tutorial
http://e-services.imls.gov/project_planning/

This tutorial is designed for museums, libraries, and related organizations that are applying for National Leadership Grants (NLG). The purpose is to provide you with skills, knowledge, and tools to develop a good project plan.

Library of Congress, National Digital Information Infrastructure and Preservation Program
http://www.digitalpreservation.gov

In 1998 the Library of Congress began to develop a digital strategy with a group of senior managers who were charged with assessing the roles and responsibilities of the Library in the digital environment. This oversight group was headed by the Associate Librarian for Strategic Initiatives, the Associate Librarian for Library Services and the Register of Copyrights. This group has held several planning meetings to assess the current state of digital archiving and preservation. The Library has also assembled a National Digital Strategy Advisory Board to guide the Library and its partners as they work to develop a strategy and plan, subject to approval by Congress.

National Association of Government Archives and Records Administrators (NAGARA)
http://www.nagara.org

NAGARA is dedicated to the improvement of federal, state, and local government records and information management. NAGARA is a professional organization dedicated to the effective use and management of government information and publicly recognizing their efforts and accomplishments. NAGARA's core purpose is to promote the availability of documentary legacy by improving the quality of records and information management at all levels of government.

National Association of State Chief Information Officers (NASCIO)
https://www.nascio.org

NASCIO represents state chief information officers and information resource executives and managers from the 50 states, six U. S. territories, and the District of Columbia. NASCIO's mission is to foster government excellence through quality business practices, information management, and technology policy.

National Historical Publications and Records Commission (NHPRC)
http://www.archives.gov/grants/about_nhprc/about_nhprc.html

NHPRC is the grant-making affiliate of the National Archives and Records Administration (NARA). NARA protects *Federal* records of historical value. The NHPRC helps non-Federal institutions preserve and make broadly accessible other records of historical value through grants to archival institutions, manuscript repositories, and publications in multiple formats. NHPRC grants help locate, preserve, and provide public access to documents, photographs, maps, and other historical materials. The grants go to state and local archives, colleges and universities, libraries and historical societies, and other non-profit organizations.

National Library of Australia, Preserving Access to Digital Information (PADI)
http://www.nla.gov.au/padi

The National Library of Australia's PADI initiative aims to provide mechanisms that will help to ensure that information in digital form is managed with appropriate consideration for preservation and future access. Its objectives are (1) to facilitate the development of strategies and guidelines for the preservation of access to digital information; (2) to develop and maintain a web site for information and promotion purposes; (3) to actively identify and promote relevant

activities; and (4) to provide a forum for cross-sectoral cooperation on activities promoting the preservation of access to digital information.

The PADI web site is a subject gateway to digital preservation resources. It has an associated discussion list padiforum-l for the exchange of news and ideas about digital preservation issues.

National Preservation Office
http://www.bl.uk/npo

The National Preservation Office (NPO) provides an independent focus for the preservation of and continuing accessibility to cultural heritage materials held in libraries, archives and museums in the United Kingdom and Ireland.

Online Computer Library Center (OCLC) Digitization and Preservation Online Resource Center
http://digitalcooperative.oclc.org

Founded in 1967, OCLC Online Computer Library Center is a nonprofit, membership, computer library service and research organization dedicated to the public purposes of furthering access to the world's information and reducing information costs. More than 50,540 libraries in 84 countries and territories around the world use OCLC services to locate, acquire, catalog, lend and preserve library materials.

Research Libraries Group (RLG)
http://www.rlg.org

RLG is a not-for-profit organization of over 150 research libraries, archives, museums, and other cultural memory institutions. RLG designs and delivers innovative information discovery services, organizes collaborative programs, and takes an active role in creating and promoting relevant standards and practices. RLG's goal is to increase online discovery and delivery of research resources, enable global resource sharing, and foster digital preservation for long-term access.

Society of American Archivists (SAA)
http://www.archivists.org

Society of American Archivists is North America's oldest and largest national archival professional association. SAA's mission is to serve the educational and informational needs of more than 4,000 individual and institutional members and to provide leadership to ensure the identification, preservation, and use of records of historical value.

U.S. National Archives and Records Administration (NARA)
http://www.archives.gov

NARA enables people to inspect for themselves the record of what government has done, and enables officials and agencies to review their actions and help citizens hold them accountable.

The Joint Information Systems Committee (JISC), Digital Curation Center (DCC)
http://www.jisc.ac.uk/index.cfm?name=programme_preservation

The Digital Curation Center (DCC) is jointly funded by the JISC and the e-Science Core Program. The DCC supports expertise and practice in data curation and preservation, prompting collaboration between the Universities and the Research Councils to ensure that there is continuing access to data of scholarly interest. The initial is on research data, but the policy intention is to also address the preservation needs of e-learning and scholarly communication.

Building State Government Digital Preservation Partnerships: A Capability Assessment and Planning Toolkit, Version 1.0

Appendix 8. Dimension Worksheets

Name _____
Committee _____
Department/Organization _____

This material is based upon work supported by the U.S. Library of Congress under the National Science Foundation grant # ITR-0205152. Any opinions, findings, conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the U.S. Library of Congress or the National Science Foundation.

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Dimensions and Definitions of Digital Preservation Capability

Threshold Capabilities		Pages
1. Obtaining Digital Material	Assessment of libraries, archives, and other related cultural institutions' experience with negotiating for and agreeing to accept digital materials from producers for ongoing management and preservation is critical to identify a strategy to form digital preservation partnerships and improve those capabilities needed to build the optimal digital preservation program.	4-5
2. Maintaining Comprehension & Authenticity	Assessment of libraries, archives, and other related cultural institutions' experience with managing digital materials to support ongoing comprehension and authenticity is critical to identify a strategy to form digital preservation partnerships and improve those capabilities needed to build the optimal digital preservation program.	6-7
3. Accessibility of Digital Material	Assessment of libraries, archives, and other related cultural institutions' experience with making preserved materials available as appropriate is critical to identify a strategy to form digital preservation partnerships and improve those capabilities needed to build the optimal digital preservation program.	8-9
4. Strategic Planning	Assessment of this dimension is based on the quality and comprehensiveness of strategic plans as well as on the characteristics of strategic planning processes, including resources and integration of strategic planning with other elements of governance and management.	10-11
5. Collaboration Readiness	Collaboration readiness is reflected in the relationships among information users; in resources supporting collaboration, such as staff, budget, training, and technology; and in prior successes or failures in collaborative activities.	12-14
6. Governance	This dimension deals with the mechanisms to set policy and direct and oversee the digital preservation initiatives that are planned or underway.	16-17
7. Information Policies	These policies deal with the collection, use, dissemination, and storage of information as well as with privacy, confidentiality, and security.	18-21

Dimensions and Definitions of Digital Preservation Capability

Additional Capabilities		Pages
8. Digital Content	Planning a project to capture specific digital content requires that the organizations involved are able to assess the value and identify the key legal characteristics of that digital content.	22-25
9. Business Process Model & Architecture	A business process model and enterprise architecture description identifies the service and operational components of the enterprise as well as how they are connected to each other and what technologies are used to implement them. These descriptions may include detailed analyses of business processes.	26-29
10. Data Assets & Requirements	This dimension is reflected in formal policies for data collection, use, storage, and handling; in documentation of databases and record systems; and in data quality standards and dictionaries. It may include procedures for and results of data requirement analyses and data models and modeling techniques.	30-33
11. Leaders & Champions	Capability requires leaders who motivate, build commitment, guide activities, encourage creativity and innovation, and mobilize resources. They see the goal clearly and craft plans to achieve it. Champions communicate a clear and persuasive vision for an initiative, provide the authority and legitimacy for action, and build support in the environment.	34-35
12. Performance Evaluation	Performance evaluation consists of the skills, resources, and authority to observe, document, and measure: (1) how well the initiative itself is developed and implemented, (2) whether digital preservation goals are achieved, and (3) how the performance of the enterprise is improved.	36-39
13. Project Management	Project management includes methods for goal setting, scheduling development and production activities, analyses of resource needs, management of interdependencies among activities and goals, and provisions to anticipate and respond to contingencies.	40-43
14. Resource Management	Resource management consists of the effective use of financial, human, and technical resources through budgeting, strategic plans, financial analyses, and accepted financial management procedures and practices.	44-47

Dimensions and Definitions of Digital Preservation Capability

Additional Capabilities		Pages
15. Secure Environment	This dimension addresses the degree to which appropriate security protocols for data, systems, applications, and networks as well as systems, policies, training, and management practices are in place.	48-51
16. Stakeholder Identification & Engagement	This dimension addresses awareness of and interaction with the persons or groups that have an interest in the digital preservation initiative and some capacity to influence it. This dimension is based on stakeholder analyses, staff experience and knowledge, records or reports of participants in making policy and decisions, and membership of advisory or constituent groups.	52-55
17. Technology Acceptance	Technology acceptance includes talk and actions expressing positive or negative attitudes toward workplace changes, trust of new tools and techniques, success or failure stories that are widely shared and believed, and enthusiasm for innovations.	56-59
18. Technology Compatibility	Technical compatibility can be found in agreed-upon standards, the extent of connectivity among the persons and organizations involved in the initiative, and the experiences of staff with digital preservation activities.	60-63
19. Technology Knowledge	This dimension focuses on the levels of knowledge about current and emerging technology for digital preservation, including technical qualifications and experience of staff, records and documentation of technology assets, and the actions of staff in compiling, storing, and sharing such knowledge.	64-68

1. Obtaining Digital Material

The dimension deals with the extent to which libraries, archives, and other related cultural institutions' are prepared to obtain digital materials from producers for preservation. Evidence of the level of preparation can be found in the organizations' knowledge about the digital content within government agencies throughout the state, their experience with making agreements with other organizations to obtain digital content for preservation, and their experience in actually collecting such content. Other evidence of preparation would be found in descriptions of information technology (IT) infrastructure to support content acquisition and in knowledge of other digital preservation capabilities needed to support digital preservation programs within the state.

Settings with high capability on this dimension have a comprehensive knowledge of the digital content that government organizations in their state are producing. They have identified content of significant value for preservation. These organizations have extensive experience negotiating agreements with other government organizations to collect digital content. They also have the IT infrastructure in place to collect such materials for future preservation.

Setting with low capability on this dimension lack awareness of the digital materials that exist within government organizations throughout the state that might be of significant cultural value for preservation. Such organizations have little or no experience negotiating agreements with other government organizations for collecting such materials. In addition, there is a lack of adequate IT infrastructure in place to collect digital materials for future preservation.

Broad awareness of potential material to acquire

Much experience negotiating and completing agreements to obtain materials

Adequate IT infrastructure in place for collecting digital materials

No knowledge of state digital content

No experience making agreements

No experience obtaining digital material for preservation

Inadequate IT infrastructure in place for collecting digital materials

Please follow the instructions on the next page.

Instructions:

Step 1 – For each statement below, please check the box that best represents how much you agree or disagree. As you think about each statement, please use the space next to that statement to describe the evidence or experience that supports your response.

Step 2 – To help analyze these answers it is useful to know how confident you are in your response. Please go back over each statement and mark your level of confidence in each answer, using H for high, M for medium, and L for low. Put the letter in the far right-hand box at the end of each row, in the confidence box.

	DIMENSIONS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	DON'T KNOW	EVIDENCE	CONFIDENCE
		SA	A	N	D	SD	DK		H, M, L
1.1	We have comprehensive knowledge of potential digital material that could be acquired for preservation.								
1.2	We know how to select/appraise different kinds of digital material.								
1.3	Our responsibility for acquiring digital material for ongoing preservation is widely understood among our stakeholders.								
1.4	We have an IT infrastructure that is adequate to meet existing needs for obtaining materials.								
1.5	We have much experience in negotiating for materials to acquire.								
1.6	We have broad experience in making agreements to acquire materials.								
1.7	We have substantial experience in acquiring significant amounts or varieties of digital material.								

2. Maintaining Comprehension & Authenticity

This dimension deals with the expertise and resources in libraries, archives, and other related cultural institutions for maintaining digital material comprehension and authenticity. Evidence of this expertise and resources would be found in Evidence of this expertise can be found in staff experience with systems and documentation ensuring ongoing comprehension. Evidence would include descriptions of systems, protocols, and management methods to guarantee the authenticity of digital materials by mitigating the threat of tampering or other threats to authenticity.

Settings with high capability on this dimension have a record of substantial experience and sophisticated management methods for maintaining both the comprehension and authenticity of digital materials. Adequate IT infrastructure and security systems are in place to manage the digital materials and provide a secure environment to maintain comprehension and authenticity.

Settings with low capability on this dimension have little or no previous experience keeping digital materials. They lack effective management and control mechanisms to maintain documentation and data integrity. They lack the IT infrastructure to provide a secure environment in which they can ensure continued comprehension by and authenticity for those that might access such information.

Substantial management experience and resources for maintaining the understandability and authenticity of material

Adequate IT infrastructure in place to manage the preserved materials

No management resources or experience for keeping digital materials understandable and secure

No IT infrastructure in place to manage the preserved materials

Please follow the instructions on the next page.

Instructions:

Step 1 – For each statement below, please check the box that best represents how much you agree or disagree. As you think about each statement, please use the space next to that statement to describe the evidence or experience that supports your response.

Step 2 – To help analyze these answers it is useful to know how confident you are in your response. Please go back over each statement and mark your level of confidence in each answer, using H for high, M for medium, and L for low. Put the letter in the far right-hand box at the end of each row, in the confidence box.

	DIMENSIONS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	DON'T KNOW	EVIDENCE	CONFIDENCE
		SA	A	N	D	SD	DK		H, M, L
2.1	We have much experience in the ongoing management of digital material.								
2.2	We have extensive experience keeping digital material understandable to potential users.								
2.3	We have adequate systems in place to ensure the ongoing understandability of preserved digital material								
2.4	We have an IT infrastructure that is adequate to meet existing needs for managing digital material.								
2.5	We know how to ensure that digital material is securely managed against various threats.								
2.6	We have good awareness about how to safeguard the authenticity of digital materials.								
2.7	We have adequate systems in place to ensure the ongoing authenticity of preserved digital material								

3. Accessibility of Digital Material

The dimension deals with the degree to which libraries, archives, and other related cultural institutions' are able to provide appropriate access to digital materials. Evidence of this capacity would be found in the organizations' experience with making digital materials accessible to the public or other relevant stakeholders. Evidence would include descriptions and documentation of an adequate IT infrastructure capable of making such materials accessible and of stakeholder needs and interests regarding access to the information. Evidence of this capability also includes awareness of and provisions for handling of copyright and privacy related issues.

Settings with high capability on this dimension have experience analyzing the access needs and interests of stakeholders. They also have extensive knowledge of legal and security restrictions on access to preserved materials. High capability includes adequate IT infrastructure to ensure continued accessibility by current and future users.

Settings with low capability on this dimension have very limited experience providing access to digital materials. They have not analyzed stakeholders interests with respect to access. Little is know about existing restrictions on accessing the preserved materials and there is little to no IT infrastructure in place to provide access.

Extensive experience providing stakeholder access to digital material

Broad knowledge of potential access restrictions

Broad awareness of stakeholder interest in access to digital material

Adequate IT infrastructure to make digital materials accessible

Very limited experience providing access to digital material

No knowledge of potential access restrictions to material

No awareness of stakeholder interest

Inadequate IT infrastructure to provide access to the digital materials

Please follow the instructions on the next page.

Instructions:

Step 1 – For each statement below, please check the box that best represents how much you agree or disagree. As you think about each statement, please use the space next to that statement to describe the evidence or experience that supports your response.

Step 2 – To help analyze these answers it is useful to know how confident you are in your response. Please go back over each statement and mark your level of confidence in each answer, using H for high, M for medium, and L for low. Put the letter in the far right-hand box at the end of each row, in the confidence box.

	DIMENSIONS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	DON'T KNOW	EVIDENCE	CONFIDENCE
		SA	A	N	D	SD	DK		H, M, L
3.1	We have much experience providing access to digital material in our holdings.								
3.2	We have extensive knowledge of potential access restrictions (copyright, privacy, etc.) to digital material.								
3.3	We have systems and protocols in place to implement all appropriate access restrictions.								
3.4	Our IT infrastructure is adequate to meet existing needs for making digital material available.								
3.5	We have full awareness about what kinds of access our stakeholders want.								

4. Strategic Planning

This dimension deals with the extent and quality of strategic planning for digital preservation. Assessing this capability takes into account the quality and comprehensiveness of strategic plans themselves along with the characteristics of strategic planning processes and resources, and the integration of strategic planning with other elements of governance and management. Evidence for this capability can be found in the content of strategic planning documents, descriptions of strategic planning processes, and related organizational arrangements and decision-making processes. Evidence will include plans for migration, standards-based archival information packages, test plans, and community review plans. Evidence may also include resources and policies devoted to strategic planning as well as staff skills and experience in this area.

Settings with high strategic planning capability have a clear description of the vision and strategic objectives for the initiative based on a strong consensus among the participants. Planning documents are thorough and detailed and include clear goals, risk and threat assessments, identification and sequencing of activities, and analyses of contingencies and environmental factors. There is a high level of participation by all relevant stakeholders in the planning processes, which are ongoing and systematic. Staff members possess high levels of skills in constructing plans, managing the planning process, and guiding implementation. Strategic thinking and planning is thoroughly integrated with governance and management.

Settings with low strategic planning capability lack a clear, shared vision for the initiative. They have no or only incomplete descriptions of strategic objectives, risks, and contingencies. Planning processes are vague, poorly organized, and infrequent. Participation by relevant stakeholders in the planning process is inconsistent and incomplete. Staff skills and other resources to develop and manage planning processes are weak or absent. Plans are more for display than to guide decisions and actions.

Clear, well-structured strategic plans that address the goals and visions

Actionable plans tied to specific goals and visions

Lack of strategic plans or incomplete or infrequent strategic planing

Please follow the instructions on the next page.

Instructions:

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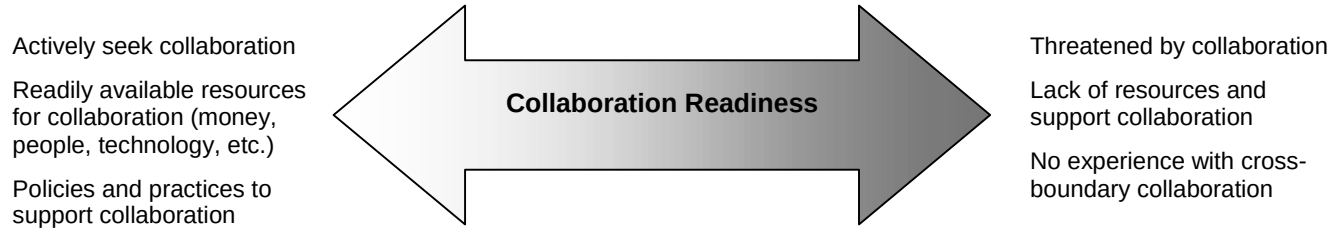
		SA	A	N	D	SD	DK		H, M, L
4.1	We have an established strategic planning process.								
4.2	Our strategic planning process engages all relevant stakeholders.								
4.3	Our strategic plans include thorough risk assessments.								
4.4	Our strategic plans include thorough analyses of threats and contingencies.								
4.5	Participants have well-developed strategic planning skills.								
4.6	Our plans identify strategic goals clearly and in detail.								
4.7	Our plans describe activities and resources clearly and in detail.								
4.8	We have ample resources to support strategic planning.								
4.9	Our strategic planning activities are thoroughly integrated with governance and management.								

5. Collaboration Readiness

This dimension deals with readiness for collaboration on digital preservation initiatives within and across organizations. Collaboration is essential to establishing and maintaining relationships and structures for effective and sustainable digital preservation. Evidence of readiness on this dimension can include specific policies and procedures to support collaboration. It can also be shown in the quality and effectiveness of past and current relationships with stakeholders, such as advisory committees. Collaboration readiness for a specific digital preservation initiative is reflected in relationships between operating agencies, state libraries, state archives, records managers, the office of the state CIO, and any other relevant stakeholders. It is also reflected in the provision of staff, budget, training, technology and other resources to support collaboration. Successes or failures in past collaborative activities can be significant indicators of readiness for future collaboration. Organizations ready for collaboration have a track record of successful collaboration. They actively seek out new opportunities for partnering across organizational boundaries. They have allocation models that respond to the need for cross-boundary assignment of resources (money, people, technology, and information). They also have leadership support for working across organizational boundaries and reward such activities.

Organizations with low capability for collaboration view the open dialog and compromise necessary for collaboration as threats to their interests and power bases. They see collaboration as a form of compromising or loss rather than as an opportunity to enhance their ability to respond to challenges. This could be a result of bad experiences with previous collaborative efforts. Such organizations may avoid or resist initiatives requiring collaboration



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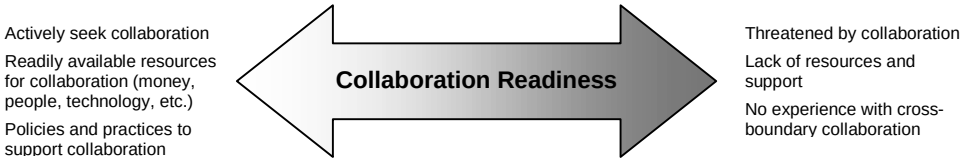
		SA	A	N	D	SD	DK		H, M, L
5.1	We actively seek opportunities for collaboration.								
5.2	We have a substantial record of successful collaboration across organizational boundaries.								
5.3	We have policies that effectively support collaboration.								
5.4	We have management practices that effectively support collaboration.								
5.5	We have standard operating procedures that effectively support collaboration.								
5.6	We are willing to commit resources (staff, finances, technology, etc.) across boundaries.								
5.7	We have effective mechanisms for committing resources across boundaries.								
5.8	We have an executive-level champion of collaborative activities.								

Continued on next page 14

Collaboration Readiness:
(Continued)



	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
5.9	We have high levels of stakeholder support for collaboration.								
5.10	We have an effective agreement for sharing hardware.								
5.11	We have an effective agreement for sharing network resources.								
5.12	We have an effective agreement for sharing software and application.								
5.13	We have an effective agreement for sharing technical staff.								
5.14	Whenever needed, network resources are easily shared.								
5.15	Whenever needed, hardware resources are easily shared.								
5.16	Whenever needed, software and application resources are easily shared.								
5.17	We have a record of successful collaboration with content producers and their data administration staffs.								
5.18	Our network infrastructure fully supports collaboration for digital preservation.								

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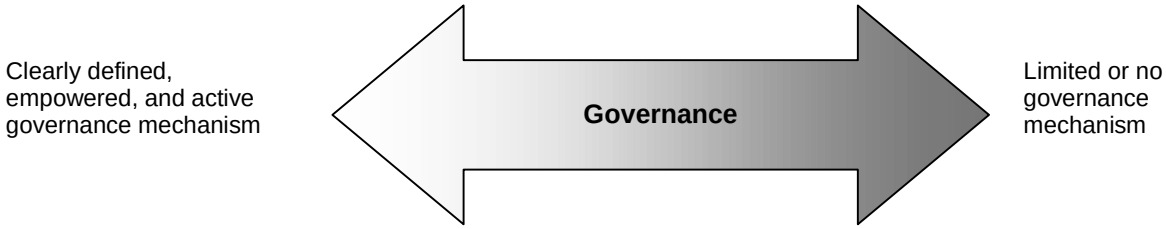
Dimension #6 Governance, on next page.

6. Governance

This dimension deals with the mechanisms to set policy, direct, and oversee the digital preservation initiative planned or underway. Evidence of the effectiveness of governance mechanisms will be found in the scope and clarity of policies and other sources of authority as well as in the procedures and organizational arrangements for making decisions and allocating resources. There will also be evidence of effective means to ensure that policies are vetted, implemented, and maintained.

Settings with high capability on this dimension have governance mechanisms that have a clear, comprehensive, and viable charter or other sources of authority to move the digital preservation initiatives forward. Organizations with an effective governance structure operate smoothly and purposely. Governance policies and procedures are clearly defined and agreed upon and involve all relevant parties. The governance structure has the appropriate authority to make decisions across program areas, levels of government, and agencies. Methods for conflict resolution and consensus are well established.

Settings with low capability on this dimension lack a clear or authoritative charter to operate and have poor policy making and control mechanisms. Decisions and actions are delayed or inhibited by slow decision making, uncertainty, and unresolved conflicts.



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		SA	A	N	D	SD	DK		H, M, L
6.1	We have a formal charter providing authority for specifying goals, roles, and responsibilities for this initiative.								
6.2	We have a governance body that has the authority it needs for engaging in this initiative.								
6.3	Our authority to proceed is clear to all participants and stakeholders.								
6.4	Our authority to proceed is fully accepted by all participants and stakeholders.								
6.5	All relevant parties are effectively engaged in governance.								
6.6	Our governance body has all the support and resources needed to ensure its effectiveness.								
6.7	State-level policy makers (CIO, etc.) are part of our initiative governance structure.								
6.8	W e have defined the roles and responsibilities of all of the agencies involved in this initiative.								
6.9	Our governance structure provides incentives for compliance with policies and requirements.								

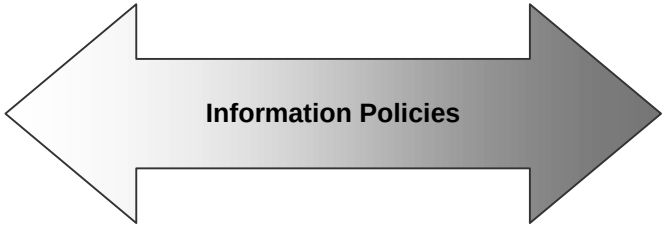
7. Information Policies

This dimension deals with information policies and procedures that contribute to the capability for digital preservation. These policies deal with issues of collection, use, access, dissemination, and storage of digital information, including privacy, confidentiality, and security. Evidence about these policies and how they affect digital preservation capability can be found in the policy statements themselves (written laws, rules, regulations, and other formal policies) and in how they are documented, implemented, and enforced.

Settings with high capability on this dimension have wide-ranging, clear, and precise information policies that encourage and support the desired digital preservation initiative. These policies are systematically implemented and enforced to facilitate digital preservation within and across organizational boundaries. Within these settings, policies are seen as supporting and facilitating digital preservation.

Settings with low capability on this dimension are characterized by the absence of policies or by poorly implemented policies guiding digital preservation. There may be confusing or conflicting information policies that demonstrate a lack of adequate knowledge about digital preservation. Low capability settings may also have policies that fail to cover the full range of issues required for digital preservation. These settings may lack policies to support preservation of sensitive or high-stakes digital information. Settings with low capability on this dimension may also have policies that interfere with successful digital preservation.

Clear, precise and comprehensive information policies and procedures that govern digital preservation and decision making



No policies or procedures guiding decision making concerning digital preservation

Please follow the instructions on the next page.

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		SA	A	N	D	SD	DK		H, M, L
7.1	Our Information policies and procedures are clear and well documented.								
7.2	Our Information policies are fully accessible throughout the digital preservation setting.								
7.3	Our Information policies and procedures are fully implemented and enforced.								
7.4	None of our information policies and procedures inhibit or interfere with digital preservation.								
7.5	Our information policies and procedures are consistent throughout this initiative.								
7.6	We have policies in place to ensure the preservation of information.								

Continued on next page 20

Information Policies:
(Continued)

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
7.7	We have developed a clear and specific set of criteria for the choice of digital content that will be preserved.								
7.8	Our information policies and procedures are subject to regular review and revision.								
7.9	Our digital preservation policies are consistent with State CIO and other state-level information policies.								
7.10	Overall, state policies and regulations support this initiative.								
7.11	We have policies that enable information to be disseminated as authenticated copies or as traceable to the original.								

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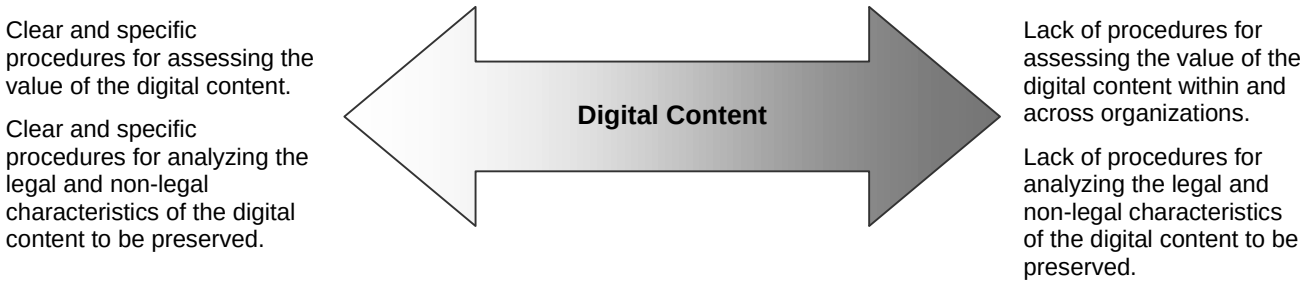
Dimension #8 Digital Content, on next page.

8. Digital Content

This dimension deals with the ability of organizations to assess the value and analyze key legal characteristics of the digital content to be captured for the digital preservation initiative. Evidence of this capability can be found in descriptions and documentation of the administrative, cultural, fiscal, and legal value of the digital content to be captured. Evidence of this capability also can be found in descriptions and documented analyses of the key legal and non-legal characteristics and attributes of the digital content, such as confidentiality, privacy, copyright, and authenticity.

Settings with high capability on this dimension have clear and specific procedures for assessing the value of digital contents and identifying the key legal characteristics and attributes of the specific digital content to be captured.

Settings with low capability on this dimension lack clear and specific procedures for assessing the value of digital content within and across the organizations involved in the initiative. In addition, settings with low capability on this dimension lack procedures for determining the key legal characteristics an attributes of the content that must be addressed in order to successfully capture and preserve such content.



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		SA	A	N	D	SD	DK		H, M, L
8.1	We have developed clear and specific criteria for selecting the digital content to be preserved for this initiative.								
8.2	We have identified the information that should be preserved.								
8.3	We have fully assessed the value (i.e., administrative, cultural, fiscal, and legal value) of the digital information to each of the partners involved in the initiative.								
8.4	We have identified all of the business objectives the information to be preserved currently supports.								
8.5	We have a thorough analysis of the copyright and intellectual property issues related to preserving the content.								

Continued on next page 24

Digital Content:
(Continued)

Clear and specific procedures for assessing the value of the digital content.

Clear and specific procedures for analyzing the legal and non-legal characteristics of the digital content to be preserved.

Lack of procedures for assessing the value of the digital content within and across organizations.

Lack of procedures for analyzing the legal and non-legal characteristics of the digital content to be preserved.

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
8.6	We have completed a thorough analysis of the contractual terms related to preserving the content.								
8.7	We have a completed thorough analysis of the legal obligations related to preserving the authenticity of content.								
8.8	We have completed a thorough analysis of the legal obligations related to the confidentiality of the content.								
8.9	We have completed a thorough analysis of issues of privacy and publicity rights related to preserving the content.								
8.10	We have completed a thorough analysis of issues of obscenity and defamation related to preserving the content.								

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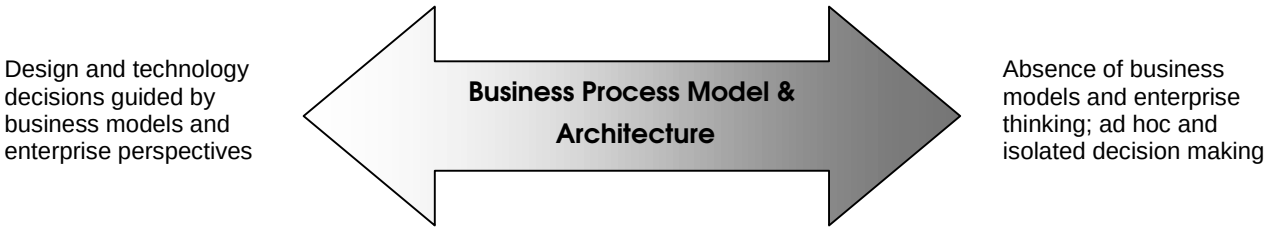
Dimension #9 Business Process Model & Architecture, on next page.

9. Business Process Model & Architecture

This dimension deals with the degree of modeling and architecture development that is already in place to support digital preservation initiatives. Planning and design for effective digital preservation initiatives depend to a significant degree on a clear and detailed analysis of the entire enterprise involved. By enterprise we mean all the organizational units and business processes involved in the digital preservation initiative. By business process model we mean a systematic description of the relationship among activities that produce and use the digital material. This planning and design should be based on such a detailed descriptions of the business processes and possibly also of the enterprise architecture. Such descriptions identify the services and operational components of the enterprise and show how they are connected to each other and what technologies are used to implement them. These descriptions show how the digital information currently is produced, managed, employed, preserved, and accessed.

Settings with high capability on this dimension base their digital preservation strategies on detailed and comprehensive descriptions of their business processes and how they are linked to the overall enterprise architecture. The strategic objectives of digital preservation are clearly described and linked to the underlying business processes. The enterprise architecture guides decisions on technology design, procurements, and coordinates changes in business processes.

Settings with low capability on this dimension have neither detailed business process descriptions nor an understanding of the how the digital information is created, preserved, and accessed. Project design and technology decisions are made without knowledge of interactions in the business process or within the enterprise. Staff members have only limited understanding of process analysis and modeling skills.



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		SA	A	N	D	SD	DK		H, M, L
9.1	We have identified all of the business objectives the information to be preserved currently supports.								
9.2	We have identified the strategic objectives for each initiative.								
9.3	We have identified an enterprise model or architecture for this initiative.								
9.4	We have analyzed the full range of business processes involved in this initiative.								
9.5	We have identified all business process discrepancies that may interfere with this initiative.								

Continued on next page 28

9. Business Process Model & Architecture:
(Continued)

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
9.6	We have eliminated all such business process discrepancies.								
9.6	Our technology design and procurement decisions are guided by and referenced to an enterprise architecture.								
9.8	Our business model and architecture reflect prevailing digital preservation standards and practice.								
9.9	We are able to adapt our business process models and architecture to new digital preservation requirements and conditions.								

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Dimension #10 Data Assets & Requirements, on next page.

10. Data Assets & Requirements

This dimension deals with the degree to which data-related resources, policies, and practices reflect a high capability for digital preservation. Evidence of this capability can be found in formal policies for data use, storage, and handling and in documentation of databases and record systems as well as in data quality standards and data dictionaries. Data policies and standards cover ingest, archival storage, data management, administration, and access issues. Evidence can also be found in the procedures for and results of data requirement analyses and analysis of necessary levels of preservation. Resources include data models and modeling techniques. These elements are necessary for establishing digital preservation processes, relationships and organizational viability for digital preservation.

Organizations with high capability on this dimension invest in the stewardship of data and the modeling of data requirements. They know what data they need to have available and for how long as part of the digital preservation initiative. They invest in the creation and maintenance of a comprehensive set of preservation metadata or require others to provide specified metadata with deposits. There are well-developed and standardized data definitions acquisition criteria for data and quality standards for ingest and archival storage. Standard procedures for data acquisition, storage, maintenance, and disposal are specified, clearly communicated, and fully implemented.

Organizations with low capability on this dimension do not invest in or adhere to digital preservation standards. Descriptions and analysis of data and requirements are neither comprehensive nor systematically maintained. They do not have policies and procedures that address known requirements for digital assets. They have little experience with data modeling and have difficulty describing and communicating about their data resources and requirements. They also lack familiarity with or acceptance of requirements and standards thus make digital preservation difficult.

Please follow the instructions on the next page.

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		SA	A	N	D	SD	DK		H, M, L
10.1	We have implemented prevailing digital preservation standards.								
10.2	We have identified the information that should be preserved.								
10.3	We have sufficient control of the information provided to ensure long-term preservation.								
10.4	High quality metadata is available for all information to be preserved.								
10.5	We maintain accurate data inventories for all digital information to be preserved.								
10.6	We follow uniform policies for ingest.								
10.7	We follow uniform policies for archival storage.								
10.8	We follow uniform policies for data management.								

Continued on next page 32

Data Assets & Requirements:
(Continued)

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
10.9	We follow uniform policies for access.								
10.10	We have adopted quality standards for all data.								
10.11	We have adopted acquisition standards for all data.								
10.12	We have identified all relevant user data requirements.								
10.13	We fully understand all users data requirements.								
10.14	We have fully identified discrepancies among user requirements.								
10.15	We have reconciled all discrepancies in data requirements.								
10.16	We are able to identify all relevant data sources.								
10.17	All necessary data sources are accessible.								

Continued on next page 33

Data Assets & Requirements:
(Continued)

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
10.18	We can provide access to all preserved information.								
10.19	We can assist users to understand the preserved information.								
10.20	We understand content producers' data administration practices.								
10.21	Our standards and guidelines assist agencies in digital preservation efforts.								
10.22	Our data standards and policies are compatible with existing agency standards and policies								
10.23	We have an effective agreement for depositing digital content.								
10.24	Our standards and policies are compatible with statewide policies, standards, and procedures.								

11. Leaders & Champions

This dimension deals with two roles that are critical to the success of digital preservation initiatives: leaders and champions. Effective leaders motivate and build commitment, guide and coordinate activities, encourage creativity and innovation, and mobilize resources. They see goals clearly and are able to craft plans for achieving them. Champions communicate a clear and persuasive vision for an initiative, provide the authority and legitimacy for action, and build support in the environment. In some cases the same person can perform both roles. Evidence for this dimension can be seen in descriptions of leadership or championing behaviors, consensus on who acts in these roles, documents or formal records of activity, and levels of public support, publicity, or other recognition.

For digital preservation, leaders and champions persuade participants of the fundamental need for digital preservation. They create incentives that highlight long-term benefits and help overcome resistance resulting from short-term priorities and commitments. Champions communicate a clear and compelling vision of how to protect organizational investments in digital assets over time in order to ensure citizen's rights and document key events.Settings with high capability on this dimension have leaders and champions who are clearly identified and accepted. Leaders and champions are able to effectively convey the basis for digital preservation. Leaders are engaged in all aspects of the initiative and support it with resources, guidance, timely decisions, and effective motivation. The champion is highly visible and energetically promotes the initiative to all stakeholders, articulates a clear and compelling vision, and provides authority and legitimacy to the effort.

Settings with low capability on this dimension lack an active and effective leader or have disruptive competition for the leadership role. Leaders lack an understanding of and the ability to convey the basis for digital preservation. The organization also lacks a visible, active champion for the digital preservation initiative, resulting in inadequate authority, visibility, or legitimacy in the stakeholders' environment.

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		SA	A	N	D	SD	DK		H, M, L
11.1	Leadership in this initiative is highly effective in motivating all participants.								
11.2	Leaders in this initiative effectively build commitment among producers, managers, and users of digital assets.								
11.3	Leaders in this initiative effectively guide and coordinate action throughout the entire digital preservation lifecycle.								
11.4	Leaders in this initiative effectively promote creative and innovative digital preservation strategies.								
11.5	This initiative has a champion who effectively articulates a vision for the digital preservation effort.								
11.6	This initiative has a champion who effectively establishes the authority and legitimacy for work to proceed.								
11.7	This initiative has a champion who effectively generates support among the stakeholders.								

12. Performance Evaluation

This dimension deals with the capability to evaluate the performance of a digital preservation initiative or program. Performance evaluation capability has multiple, related components. They consist of the skills, resources, and authority to observe, document, and where appropriate, measure: (1) how well the initiative itself is developed and implemented (often referred to as *input* and *process* measures); (2) how well digital preservation goals are being achieved (initiative or system *output* evaluation); and (3) how much this initiative improves the performance of state efforts to preserve and provide access to information of significant institutional or cultural heritage value. Evidence of performance evaluation capability can be found in the documentation of clearly articulated and accepted goals, evaluation policies and procedures, resources devoted to evaluation activities, evaluation results, and mechanisms to integrate performance evaluation with management and governance.

In settings with high capability on this dimension performance evaluation is regarded as a critical element in implementing effective digital preservation. There is adequate investment in resources for performance evaluation. Performance goals are agreed upon and measurable or documentable. Evaluation results are available regarding the performance of initiative management and implementation, digital preservation performance, compliance with standards and requirements, successful preservation of and access to specific digital content, and other business outcomes. Evaluation is used for the continuous improvement of processes as well as for the overall assessment of outcomes. Evaluation methods support efforts to optimize performance.

Settings with low capability on this dimension are characterized by poorly implemented evaluation procedures and policies or their absence. Little or no investment is made in conducting or using performance evaluations to improve processes or outcomes. Some policies and practices may inhibit or interfere with conducting or using evaluations.

Please follow the instructions on the next page.

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		SA	A	N	D	SD	DK		H, M, L
12.1	We have clearly defined operational goals for this initiative.								
12.2	We can effectively evaluate performance relative to achieving the goals for this initiative.								
12.3	We have clearly defined goals for complying with community-based digital preservation requirements.								
12.4	We can effectively evaluate improvements in digital preservation performance.								
12.5	We have clearly defined outcome goals for how the digital preservation initiative will improve electronic records management and long-term access to state government information.								
12.6	We have clearly defined indicators for each of the goals in this initiative.								

Continued on next page 38

Performance Evaluation:
(Continued)

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
12.7	We monitor performance relative to the indicators on an on-going basis.								
12.8	There is a high level of consensus about performance goals in this initiative.								
12.9	We have ample resources for performance evaluation.								
12.10	We use performance evaluation effectively to improve digital preservation processes.								

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Dimension #13 Project Management, on next page.

13. Project Management

The dimension deals with the capability to manage this initiative within and across organizations. Evidence of this capability can include technical tools and procedures as well as broader policies and the integration of project management concerns into overall governance and management practices. Evidence of operational project management capacity appears in methods for progress goal setting, scheduling development and production activities, analyses of resource needs, management of interdependencies among activities and goals, and provisions to anticipate and respond to contingencies. Project management capacity is evident in provision for mitigating errors or failures, methods for resolving resource or process conflicts, and recording and reporting practices and policies. This also includes the ability to collaborate and the ability to actively and effectively engage stakeholders (such as advisory committees, producers, consumers, and organizational leadership) in the initiative. Project management across organizations also involves coordinating the cross–boundary issues and requirements for planning and collaboration.

Settings with high project management capability have the technical skills, the tools, and the organizational structures to direct and assess project performance regarding the initiative. They view project management broadly, from the daily details of tracking activities to overall strategy making and planning. Their project management methods include technical analysis of process and resource requirements, risk assessment, and contingency planning as well as managing collaboration and coordination across organizations and functions. Project management of the initiative is thoroughly integrated with overall management and governance.

Organizations with low project management capability view project management narrowly as simply task management rather than as a strategic organizational function. They see project management as a series of to-do lists and PERT charts rather than as a strategic or communication function. They lack technical skills and tools for resource tracking, process analysis, and reporting of project activities.

Utilizes sophisticated tools and techniques for planning and analyzing initiative resources and activities

Project management is integrated with governance, policy goals, and objectives

Project management methods are implemented and supported by all stakeholders

Methods limited to a series of to-do lists, timelines, and PERT charts

Limited view of the strategic nature of project management as it relates to organizational strategy and collaboration

Please follow the instructions on the next page.

Instructions:

Step 1 – For each statement below, please check the box that best represents how much you agree or disagree. As you think about each statement, please use the space next to that statement to describe the evidence or experience that supports your response.

Step 2 – To help analyze these answers it is useful to know how confident you are in your response. Please go back over each statement and mark your level of confidence in each answer, using H for high, M for medium, and L for low. Put the letter in the far right-hand box at the end of each row, in the confidence box.

	DIMENSIONS	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	DON'T KNOW	EVIDENCE	CONFIDENCE
		SA	A	N	D	SD	DK		H, M, L
13.1	We have staff with formal project management responsibility for this initiative.								
13.2	Project managers of this initiative have substantial technical training for their tasks.								
13.3	We utilize an appropriate project management method.								
13.4	We use project management technology.								
13.5	Project management is closely linked to overall management, policy making, objectives, and vision.								
13.6	We use regular project management reports to assess and direct activities.								

Continued on next page 42

Project Management:
(Continued)

Utilizes sophisticated tools and techniques for planning and analyzing initiative resources and activities

Project management is integrated with governance, policy goals, and objectives

Project management methods are implemented and supported by all stakeholders

Methods limited to a series of to-do lists, timelines, and PERT charts

Limited view of the strategic nature of project management as it relates to organizational strategy and collaboration

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
13.7	Project management responsibility is shared across collaborating organizations.								
13.8	Our project management methods include risk assessment and contingency planning.								
13.9	Overall, we have ample project management resources for this initiative.								
13.10	We have a controlled workflow and quality assurance procedures to document chain of custody and ensure authenticity.								

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Dimension #14 Resource Management, on next page.

14. Resource Management

This dimension deals with the capability to identify, acquire, and manage the resources necessary for an effective digital preservation initiative. The term resources includes financial, human, and technical assets. Evidence of this capability can be found in budget documents, strategic plans, financial analyses, financial management procedures and practices, and qualifications of staff.

Settings with high resource management capability have both adequate resources and the capacity to manage them effectively. Staff has a high level of financial analysis and management skills and has the authority to use these skills to the full. Financial plans, resource allocations, budgets, and analyses are sophisticated and comprehensive. The organization has designated funding to sustain the digital preservation initiative and mechanism in place to regularly review financial fitness. Initiative personnel have the requisite organizational and the technological skills to enable the initiative. The organization has, in-house or through contractual arrangements, an appropriate technological infrastructure to support the initiative. Financial control and evaluation mechanisms are thorough and effectively implemented in the organization.

Settings with low resource management capability lack adequate resources and are unable to effectively plan or manage existing resources. The organization does not have designated funding for the initiative or a mechanism in place to review financial fitness. The organization does not have access or has not been able to acquire the requisite digital preservation skills to enable the initiative. The organization has not established a sufficient technological base to support the initiative. Financial data and analyses may be incomplete or missing. Staff lacks the authority to acquire and allocate resources where needed. Staff lacks skills and analysis tools for this management responsibility. Financial control mechanisms are weak and ineffective.

Please follow the instructions on the next page.

Instructions:

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		SA	A	N	D	SD	DK		H, M, L
14.1	We have a complete analysis of the necessary financial resources for this initiative.								
14.2	We have a complete analysis of the necessary technical resources for this initiative.								
14.3	We have a complete analysis of the necessary human resources for this initiative.								
14.4	We have adequate authority to acquire financial resources for this initiative.								
14.5	We have adequate authority to acquire human resources for this initiative.								
14.6	We have adequate authority to acquire technical resources for this initiative								
14.7	We have effective financial control mechanisms for this initiative.								
14.8	We have adequate authority to use the internal resources available to this initiative.								

Continued on next page 44

Resource Management:
(Continued)

Effective mechanisms for managing resources

Appropriate human, technical, and financial resources for the initiative

Lack of means to manage resources. Inadequate human, technical, and financial resources for the initiative

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
14.9	We have an overall resource acquisition plan for this initiative.								
14.10	Our procurement process is fully adequate and effective for this initiative.								
14.11	We have a plan for the outsourcing and subcontracting necessary for this initiative.								
14.12	We have adequate experience with management of outsourcing and subcontracting.								
14.13	We have completed a return-on-investment analysis for this initiative.								
14.14	We can demonstrate ongoing financial resource flows and commitment to long-term digital preservation.								
14.15	We have a mechanism in place to regularly review our financial fitness.								
14.16	We maintain an adequate operating budget and reserves for digital preservation and we actively seek potential funding sources.								

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Dimension #15 Secure Environment, on next page.

15. Secure Environment

This dimension deals with the degree to which the organization possesses the resources, technologies, practices, and policies that ensure security of the digital information and its surrounding infrastructure. Evidence of a secure environment is found in the presence of appropriate security devices, software, and protocols for data, systems, applications, networks and other operations. Further evidence would be found in documentation of systems, policies, training, and management practices.

Security in a digital preservation context embodies facility, platform and network access control mechanisms, defenses against intrusion, malicious code, human action, physical infrastructure failures (burst pipes, fire, power failure), and the ability to recover from catastrophic loss. Digital preservation requires reliable documentation and verification of the chain of custody for preserved digital assets. Organizations must be able to securely receive, store, manage, and provide access to digital assets over time.

Settings with high capability for providing security continually review and evaluate the requirements for the creation of a secure environment for digital preservation. They also possess detailed and up-to-date knowledge of what a secure environment entails, and they strive to achieve it. They have clear and realistic security goals and plans to secure all the technical and organizational components of a digital preservation program. They invest in testing, management, training, and other activities that insure the archival system can survive a variety of threats without permanent loss of data.

Security provisions in a low capability setting do not reflect the interdependent nature of threats and risks. They focus primarily on physical security issues, such as building safety or firewalls. They lack adequate organizational strategies and resources to promote a secure environment. There are no clear guidelines governing access across boundaries or decisions concerning such access. They are indifferent to, or poorly informed, about risks to their security operations.

Highly effective policies, practices, and technology make up the security environment and ensure long-term preservation

Rigorous testing of the environment for threats and breaches of security

Inadequate strategies & resources

Indifference to risks

No policies, practices, or technologies that define a secure environment for access and long-term preservation

Please follow the instructions on the next page.

Instructions:

Step 1 – For each statement below, please check the box that best represents how much you agree or disagree. As you think about each statement, please use the space next to that statement to describe the evidence or experience that supports your response.

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		SA	A	N	D	SD	DK		H, M, L
15.1	We have up-to-date and comprehensive disaster recovery/business continuity plans.								
15.2	We routinely test and update our disaster recovery/business continuity plans.								
15.3	We have highly effective intrusion detectors and alarms.								
15.4	We maintain off site backup copies of all applications and digital information.								
15.5	Off-site backup locations ensure that primary and backup files will not succumb to the same disaster.								
15.6	We have effective control of access to equipment, storage, and staff spaces and facilities.								
15.7	We have a thorough analysis of security needs for this initiative.								
15.8	We have highly effective security protocols in place.								

Continued on next page 50

Secure Environment:
(Continued)

Highly effective policies, practices, and technology make up the security environment and ensure long-term preservation

Rigorous testing of the environment for threats and breaches of security

Inadequate strategies & resources

Indifference to risks

No policies, practices, or technologies that define a secure environment for access and long-term preservation

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
15.9	Overall, we have highly effective security practices.								
15.10	We conduct systematic evaluation of our security vulnerabilities.								
15.11	Management devotes serious efforts to ensure network security.								
15.12	Staff shows strong support for our information security officers.								
15.13	We have highly effective accountability mechanisms to ensure network security.								
15.14	We employ highly effective risk assessment strategies.								
15.15	There is an excellent fit between our security technology investments and security risks.								
15.16	Staff does an excellent job of responding to security breaches.								
15.17	Security policies and procedures are effectively communicated to all involved.								
15.18	We have comprehensive and clearly defined data security policies and procedures.								

Continued on next page 51

Secure Environment:
(Continued)

Highly effective policies, practices, and technology make up the security environment and ensure long-term preservation

Rigorous testing of the environment for threats and breaches of security

Inadequate strategies & resources

Indifference to risks

No policies, practices, or technologies that define a secure environment for access and long-term preservation

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
15.19	We employ effective tools to prevent or eliminate malicious code in our systems.								
15.20	Our data security policies and procedures ensure adherence to privacy, confidentiality, and copyright requirements.								
15.21	We can detect and repair unauthorized access to digital information.								
15.22	We have comprehensive data security plans.								
15.23	We employ highly effective formal reviews of security compliance.								
15.24	We employ technology effectively to ensure compliance with security policies.								
15.25	Technology is well matched to security needs.								
15.26	There is a strong willingness to investigate new security technologies.								
15.27	There is a strong willingness to investigate new data security threats.								

16. Stakeholder Identification & Engagement

This dimension deals with how well stakeholders and their interests have been identified and analyzed. Stakeholders are persons or groups that have an interest in the digital preservation initiative and some capacity to influence it. Evidence of stakeholder awareness is found in documents produced in formal stakeholder analysis and in the experience and knowledge of staff. Evidence of stakeholder identification and engagement is found in records or reports of participants in policy making and other decisions, and in their membership in advisory or constituent groups.

Settings with high capability on this dimension have clear and comprehensive knowledge of their stakeholder environment and have conducted formal stakeholder analysis to undertake effective digital preservation. These settings have implemented mechanisms for monitoring their political environment. They maintain regular contact with key stakeholders for digital preservation. They use the information gathered in these ways to inform decisions and maintain stakeholders' support for this initiative.

Settings with low capability on this dimension are inattentive to or not fully aware of the stakeholders in their environments pertaining to digital preservation. They may have a cursory awareness of their stakeholders but lack accurate and timely knowledge of stakeholder interests and power resources. Often, this is due to the absence of mechanisms to engage with stakeholders and build support.

Please follow the instructions on the next page.

Instructions:

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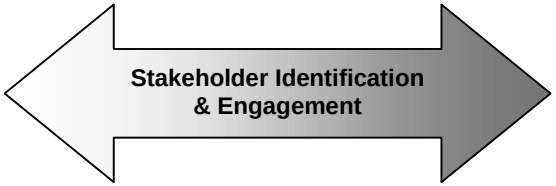
		SA	A	N	D	SD	DK		H, M, L
16.1	We have identified all relevant stakeholders for this initiative.								
16.2	We have accurately and fully analyzed the stakeholders' interests for this initiative.								
16.3	We have accurately and fully analyzed the stakeholders' ability to influence events for this initiative.								
16.4	We have fully informed our stakeholders about this initiative.								
16.5	Our planning and decision making is guided by the results of a stakeholder analysis.								
16.6	We can effectively mobilize stakeholders' support for this initiative.								

Continued on the next page 54

Stakeholder Identification & Engagement:
(Continued)

Thorough identification of stakeholder individuals and groups, goals, interests, and capacity to exert influence



Incomplete or deeply flawed awareness of stakeholders, their interests, and capacity to influence events

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
16.7	Our stakeholders have a high level of engagement in this initiative.								
16.8	Our stakeholders have a high level of trust in this initiative.								
16.9	We have high levels of stakeholder support for digital preservation.								
16.10	We are able to negotiate with all relevant stakeholders about copyright and intellectual property issues.								
16.11	We have identified how well our stakeholders understand the information that will be preserved.								
16.12	We have strategies to respond to stakeholder preferences for contents to be preserved.								

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Dimension #17 Technology Acceptance, on next page.

17. Technology Acceptance

This dimension addresses staff attitudes toward technology and technological innovations in the organizations participating in the digital preservation initiative. Evidence of technology acceptance can be found in talk and actions that express positive or negative attitudes toward workplace changes, distrust of new tools and techniques, success or failure stories that are widely shared and believed, or enthusiasm for innovations. The record of past experiences with technology innovation is a good indication of staff members' attitudes toward new initiatives. Their level of acceptance and comfort can be an important indicator of preparedness for changes and adaptation to new technologies and practices that may be required by enhanced digital preservation opportunities.

Staff in settings with high capability for technology acceptance are comfortable with and open to new technology and technological innovations. Workers in such settings have extensive experience with innovation and are enthusiastic about the possibilities of new tools and techniques. They express active support for change and help foster positive attitudes toward technology among their colleagues. They utilize every opportunity to communicate the importance of an innovation to encourage its acceptance. They embrace new ways of doing routine tasks and celebrate novelty and successful past innovations.

Staff in settings with low capability for technology acceptance is hostile toward or resistant to changes in technology and work processes. Workers in these settings prefer unchanging work environments and may openly and actively oppose or avoid technological changes introduced in their work environment. Often, they feel threatened by technology and the changes it brings. They regard innovation as possibly dangerous and disruptive to their jobs or status.

Please follow the instructions on the next page.

Instructions:

Step 1 – For each statement below, please check the box that best represents how much you agree or disagree. As you think about each statement, please use the space next to that statement to describe the evidence or experience that supports your response.

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		SA	A	N	D	SD	DK		H, M, L
17.1	Management provides staff with a clear vision and goals of the use of new technology.								
17.2	Management supports and rewards technology innovation.								
17.3	Staff is provided with training of new technology applications that support this initiative.								
17.4	Staff members strongly believe IT change is a good thing.								
17.5	Staff is open and enthusiastic about using new IT.								
17.6	Most staff members find it easy to use new technology.								
17.7	Most staff members become skillful in using the new technology for digital preservation relatively quickly.								

Continued on the next page 58

Technology Acceptance:
(Continued)

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
17.8	Staff members strongly believe technology will improve their efficiency and work quality.								
17.9	Staff has extensive experience with different applications and computers.								
17.10	Staff demonstrates enthusiastic support for this initiative.								
17.11	Very few staff members have demonstrated opposition to using new technology for this initiative.								
17.12	Training is provided for the use of new technology.								
17.13	Very few staff members feel seriously threatened by the technology changes required by this initiative.								

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Dimension #18 Technology Compatibility, on next page.

18. Technology Compatibility

This dimension deals with the degree of compatibility and interoperability for the digital preservation initiative among the technology resources of the participating organizations. Evidence of this capability can be found in existing compliance with prevailing digital preservation standards for and the technical descriptions and documentation of computer system hardware and software, network hardware and protocols, applications, and data repositories. Evidence can also be found in the descriptions of and the extent of connectivity among the persons and organizations that create, store, capture, and preserve digital information. Staff experience in with of compatibility issues, achievements, and problems can also provide useful evidence as well.

Settings with high capability on this dimension have highly standardized, compatible, and interoperable platforms, infrastructure, and applications. The participants in digital preservation have high bandwidth connectivity extending to all potential users. These settings have the necessary technical resources to establish digital preservation linkages among all participating organizations. These technology resources are well integrated with staff experience and practices.

Settings with low capability on this dimension have highly diverse platforms and infrastructure. There are few if any standards to support compatibility. Connectivity is inadequate due to both limited bandwidth and gaps in access. Reliance on non-standards-based proprietary systems interferes with interoperability. The design and operation of applications and data repositories are inconsistent and interfere with data preservation and with establishing interoperable linkages.

Highly compatible and interoperable standardized and consistent platforms, infrastructure, and applications for digital preservation

High connectivity

Common standards, practices, and protocols in place

Lack of technology standards and resources for digital preservation

Diverse and conflicting, infrastructure, and applications

Inability to exchange digital assets

Use of proprietary network protocols & poor connectivity

Please follow the instructions on the next page.

Instructions:

Step 1 – For each statement below, please check the box that best represents how much you agree or disagree. As you think about each statement, please use the space next to that statement to describe the evidence or experience that supports your response.

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		SA	A	N	D	SD	DK		H, M, L
18.1	Our technology infrastructure is designed for and fully supports collaboration in digital preservation.								
18.2	Our software applications are well suited for collaboration in digital preservation.								
18.3	Our network protocols and standards support full connectivity.								
18.4	Our technology infrastructure fully supports interoperability of applications for digital preservation.								
18.5	Our network infrastructure has adequate bandwidth for this initiative.								
18.6	Our network infrastructure extends to all potential participants in this initiative.								

Continued on next page 62

Technology Compatibility:
(Continued)

Highly compatible and interoperable standardized and consistent platforms, infrastructure, and applications for digital preservation

High connectivity

Common standards, practices, and protocols in place

Lack of technology standards and resources for digital preservation

Diverse and conflicting, infrastructure, and applications

Inability to exchange digital assets

Use of proprietary network protocols & poor connectivity

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
18.7	Technical support is available to assist digital preservation participants when needed.								
18.8	All digital preservation participants have adequate local resources for network connectivity.								
18.9	All participants have adequate local technology resources for effective digital preservation.								
18.10	We have agreed upon the metadata standards for this initiative.								
18.11	We have agreed upon the digital preservation format.								

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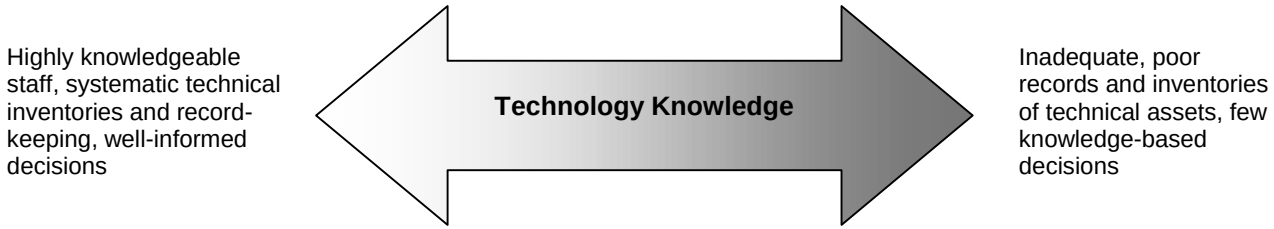
Dimension #19 Technology Knowledge, on next page.

19. Technology Knowledge

This dimension deals with levels of and sharing of knowledge about current and emerging technology for digital preservation. Evidence of this capability can be found in documentation of technical staff qualifications and experience, records and documentation of technology assets useful for digital preservation (i.e., computer systems, software, network infrastructure), and in the actions of staff in compiling, storing, and sharing such knowledge. Technical knowledge about digital preservation may often be acquired and shared informally and thus be well known among some staff but not well documented.

Settings with high capability regarding technology knowledge have adequate numbers of staff with high levels of training and experience with digital preservation technologies. They maintain accurate and detailed inventories and documentation of such technology assets. Staff, documentation, and other knowledge resources are actively and freely shared within and across organizations and are used to guide investment decisions.

Settings with low capability regarding technology knowledge have an inadequate number of staff members with the needed training and experience with digital preservation technologies. These settings maintain only incomplete and out-of-date records of these technology assets. Knowledge about technology assets is not readily available or shared. Decisions about technology assets are not based on accurate or extensive knowledge.



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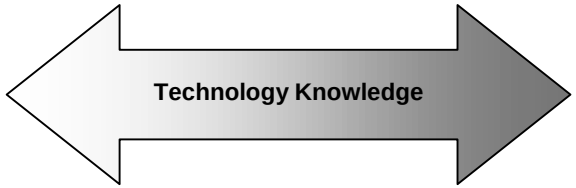
		SA	A	N	D	SD	DK		H, M, L
19.1	Our staff members know all they need to know about hardware for this initiative.								
19.2	We maintain accurate inventories of hardware for this initiative.								
19.3	Knowledge about such hardware is shared effectively.								
19.4	Our staff members know all they need to know about network infrastructure for this initiative.								
19.5	We maintain accurate inventories and documentation of network infrastructure.								
19.6	Knowledge about network infrastructure is shared effectively.								
19.7	Our staff members know all they need to know about required software applications for this initiative.								
19.8	We maintain accurate inventories and documentation of software useful for this initiative.								

Continued on next page 67

Technology Knowledge:
(Continued)

Highly knowledgeable staff, systematic technical inventories and record-keeping, well-informed decisions



Inadequate, poor records and inventories of technical assets, few knowledge-based decisions

	DIMENSIONS	SA	A	N	D	SD	DK	EVIDENCE	H,M,L
19.9	Knowledge about software for digital preservation is shared effectively.								
19.10	We maintain accurate inventories of staff members' technical skills and knowledge about digital preservation.								
19.11	Knowledge about technical staff resources is shared effectively.								
19.12	We maintain accurate inventories and documentation of our applications useful for digital preservation.								
19.13	Knowledge about applications is shared effectively.								
19.14	Knowledge about technology is a highly important part of decision-making regarding this initiative.								
19.15	We have a comprehensive understanding of content producers' data administration tools.								
19.16	We make efforts to keep up with the development of new preservation technology.								

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