NORTH CAROLINA'S DIGITAL PRESERVATION EXPLORATION, 2018-2019

Summary Report

August 2019

PROJECT TEAM

Andrea Green, State Library of North Carolina
Lisa Gregory, North Carolina Digital Heritage Center
Amanda McLellan, East Carolina University
David Gwynn, University of North Carolina Greensboro
Liz Skene Harper, Western Carolina University

INSTITUTE of Museum and Library SERVICES

SLNC | NC Research. Library Support. Talking Books.

statelibrary.ncdcr.gov

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report provides a summary of the findings of the Digital Preservation Exploration (DPE) project, a Statewide Leadership Project funded by IMLS and led by the State Library of North Carolina. Planning for the DPE project began in September 2018 and culminated in three (3) regional meetings in May and June 2019. DPE sought to address recommendations related to digital preservation made in the 2017 Digital Summit Initiative final report[1]. The 2017 Digital Summit Initiative identified Digital Preservation as a key area of interest among cultural institutions in North Carolina and recommended further exploration of collaboration or digital preservation network possibilities. DPE was the first step in addressing this recommendation, by facilitating regional conversations with North Carolina cultural institutions during which participants brainstormed options for institutional collaboration and next steps that could help build resourced digital preservation activity around the state.

Participants invited to the regional meetings included practitioners familiar with digital preservation from a variety of NC cultural institutions, including museums, public libraries, colleges, universities, community colleges, special libraries, and archives. The agenda for the regional meetings was informed by the areas of interest identified in the 2017 Digital Summit Initiative report. Digital preservation was the most frequently cited area in which institutions were already collaborating or wish to collaborate (at 42%). These results indicate that digital preservation is seen as one of the most pressing current and future priority areas for North Carolina institutions, and Digital Summit attendees indicated that digital preservation should be "a priority at the state level going forward" with "[e]xpansion of efforts to manage and preserve born-digital objects...as well as the idea of incorporating instruction on personal digital archiving for students and other library users..." (p.17). DPE sought to directly assess these expressed priorities and interests to determine which approaches are of the most interest and are the most feasible for institutions. By consulting potentially interested stakeholders located across the state, DPE allowed for a formalized and official process to assess the specific ways North Carolina can support digital preservation statewide.

The three meetings confirm that digital preservation practitioners are interested in collaboration with regional partners as well as with similar institutions on a statewide scale. Additionally, participants identified a need for centralized resource sharing and education for those at various stages in developing or managing digital preservation initiatives at their institutions. Support in advocating for digital preservation, education in digital preservation standards and best practices, and facilitation in building collaborations with colleagues were the primary needs identified during the meetings among participants from all institution types. North Carolina digital preservation practitioners are facing digital preservation challenges at all levels and this project confirms that statewide support in navigating digital preservation system assessment and identifying needs and resources would be of great benefit to cultural institutions across the state, potentially reducing redundant work, knowledge gaps, and siloed projects.

The DPE planning committee will be hosting a webinar after the release of this report to share their findings and recommended next steps.

---

[1] https://files.nc.gov/dncr-statelibrary/ncdigitalsummit_findingsreport_final_20171016.pdf

METHODOLOGY

The DPE planning committee[2], formed in late summer 2018, coordinated three regional meetings, each with 15 to 20 professionals from North Carolina cultural institutions. In-person meetings were chosen to expand on the reported findings from the Digital Summit Initiative; to foster communication and collaboration; and to share needs, interests, experiences, and goals. More specifically, regional meetings sought to:

1. **Determine the goals and priorities institutions have regarding digital preservation.**
2. **Determine how feasible and sustainable different digital preservation solutions would be for interested institutions.**
3. **Identify potential approaches to future digital preservation initiatives and possible areas of collaboration.**
4. **Determine recommended next steps for the State Library.**

The DPE planning committee determined the project's scope and needs based on the project outline and findings from the Digital Summit Initiative. These included learning from participants about:

- **Current status**
- **Needs and challenges**
- **Realistic ways to address needs and challenges**

The committee also agreed it was important to establish a consensus on vocabulary terms[3], basic digital preservation concepts, and digital preservation standards, so that all participants felt informed about the scope of the meeting and to avoid mismatched assumptions about what one means by certain terms, including "digital preservation." A detailed outline of the meeting agenda is available in Appendix B: Detailed Meeting Agenda.

Each meeting took place at a university in a different region of the state and lasted at most six hours. No agenda item lasted longer than 1.5 hours and interaction and discussion were encouraged. Sections of the agenda allowed for a mixture of small groups and full group activities, with two breaks and a lunch discussion.

Two facilitators[4] from outside of the digital preservation field led the meetings to encourage open communication and objective facilitation; however, each planning committee member acted as a mini-facilitator during small group activities and both facilitators and planning committee members recorded notes. These extensive notes informed the below content analysis and results. Every participant was offered a survey at the end of the meeting per LSTA policy.

At times, section activities were changed based on feedback from the participants and reflections from the planning committee members between meetings. These changes were solely aimed at improving sections to better ensure the project met original intentions and goals with the sections.

---

[2] Committee members included Andrea Green, State Library of North Carolina; Lisa Gregory, North Carolina Digital Heritage Center; Amanda McLellan, East Carolina University; David Gwynn, University of North Carolina Greensboro; and Liz Skene Harper, Western Carolina University.

[3] Appendix A: Glossary of Terms

[4] Facilitators were Catherine Prince and Lynda Reynolds, both from the Library Development Section of the State Library of North Carolina.

RESULTS

Participant Overview

Invitations were sent to 70 practitioners from a variety of cultural institutions across North Carolina: 44% were different universities or colleges of different sizes, 6% archives, 13% museums, 11% public libraries, 16% special libraries, and 10% community colleges. Of the 70 invitations, 45 accepted the invitation (excluding the planning committee members); the following represents the overall institution representation of participants[5]:

- **University / College** – 57.8%
- **Archives** – 6.7%
- **Museums** – 8.9%
- **Public Libraries** – 11.1%
- **Special Libraries** – 8.9%
- **Community Colleges** – 6.7%

Table 1 illustrates the distribution of types of cultural institutions across the three different meetings. Map 1 illustrates the geographic breakdown of cultural institutions with the colors corresponding to each meeting.

Table 1: Types of Institutions Across Meetings

---
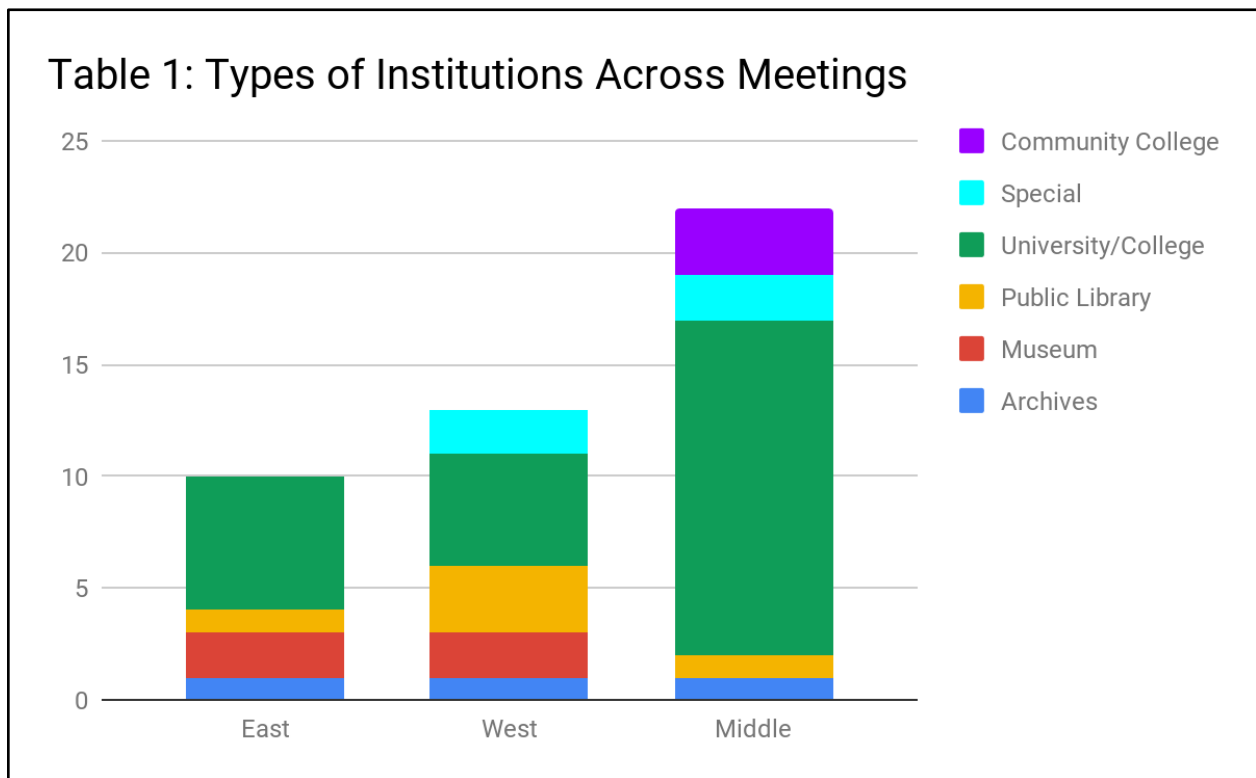
[5] Appendix E: Participating Institutions provides a list of all participating institutions, organized alphabetically.

Map 1: Geographic Distribution of Participants
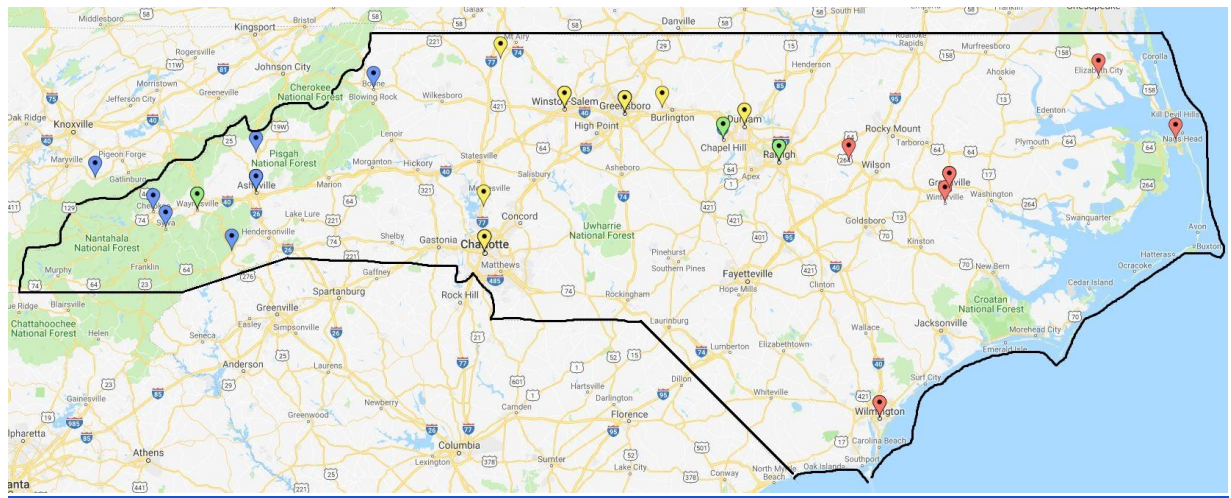
Interactive, Larger version of map available at: https://www.easymapmaker.com/map/DigPresExplorationNC2019
Western Meeting = Blue; Middle Meeting = Yellow; Eastern Meeting = Red; Committee Member institutions = Green

Though efforts were made to have representation from different cultural institutions at all three meetings, more work needs to be done to include voices and experiences from all types of cultural institutions since the needs, challenges, solutions, and standards informing digital preservation are not specific to any given institution type. Additionally, the map shows areas in North Carolina that were not as strongly represented at the meetings, often because invited participants were not able to attend. It's important to note that when a given county, institution type, or region was not present at the regional meeting, this does not exclude them from future participation and inclusion in discussions or collaborations.

Current State of Digital Preservation Practices

Early in each meeting, participants introduced themselves and provided more information about why they chose to attend the meeting and/or what they were hoping to get out of the meeting. Chart 1 provides the overall breakdown of the responses. Many participants provided some context about their institution, including current projects, issues, concerns, and questions.

Chart 1: "Why are you here today? What do you want out of this meeting?" Answers

- To Learn (37.6%)
- To Collaborate / Network (27.1%)
- To Address Specific Needs / Questions (35.3%)
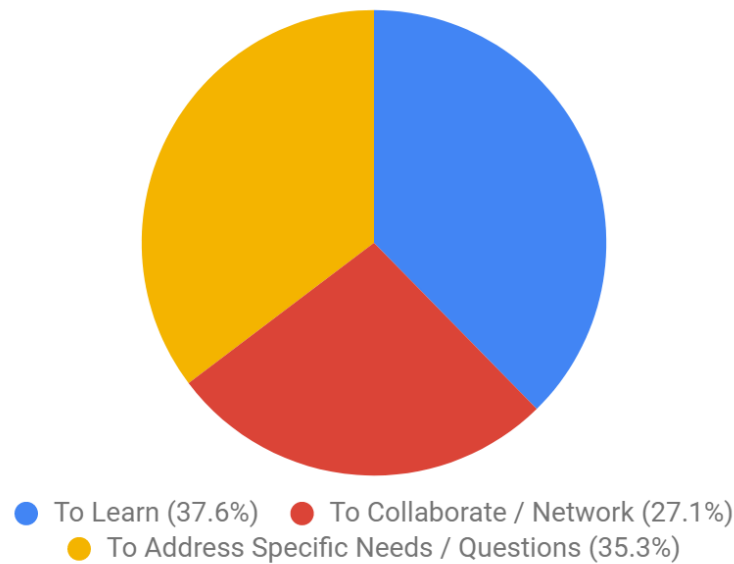
Of the approximately 45 total individual answers, participants provided 85 distinct answers. Of those answers, three broad categories emerged, with eleven total subcategories:

1. **To Learn** (Chart 2)

    a. Standards and/or Best Practices

    b. What others are doing at their institution

    c. How to get started in digital preservation or in a new role

2. **To Collaborate / Network** (Chart 3)

    a. Community Collaboration - Form partnerships with communities and institutions outside of one's institution

    b. Meet Colleagues (regional / institutional) - Meet professionals dealing with similar situations, working at similar institutions, or working in the same area

    c. Internal Partnership Building - Tips on building partnerships with stakeholders and departments within one's institution

3. **To Address Specific Needs / Questions** (Chart 4)

    a. Digitization – Standards, best practices, and project management

    b. Advocacy and Support - Tips on how to advocate for digital preservation and argue for support from community and stakeholders

    c. Problem Solving (general and specific issues) - Discussion on how to address issues as they arise or how to address specific problems such as preserving email

d. Access & Discovery - Tips and Discussion on how to make digital content accessible, work on metadata for discoverability and record keeping, improve on other components of Access and Digital Preservation

e. Policy & Program Development - Tips and Discussion on how to develop digital preservation policies, how to develop programs with digital preservation in mind

Chart 2: To Learn
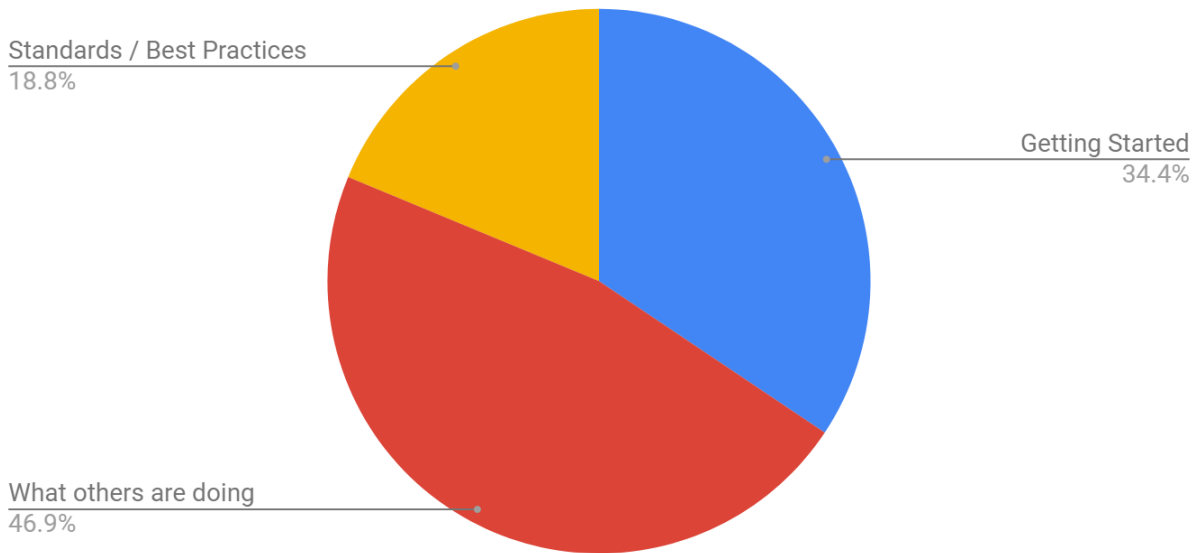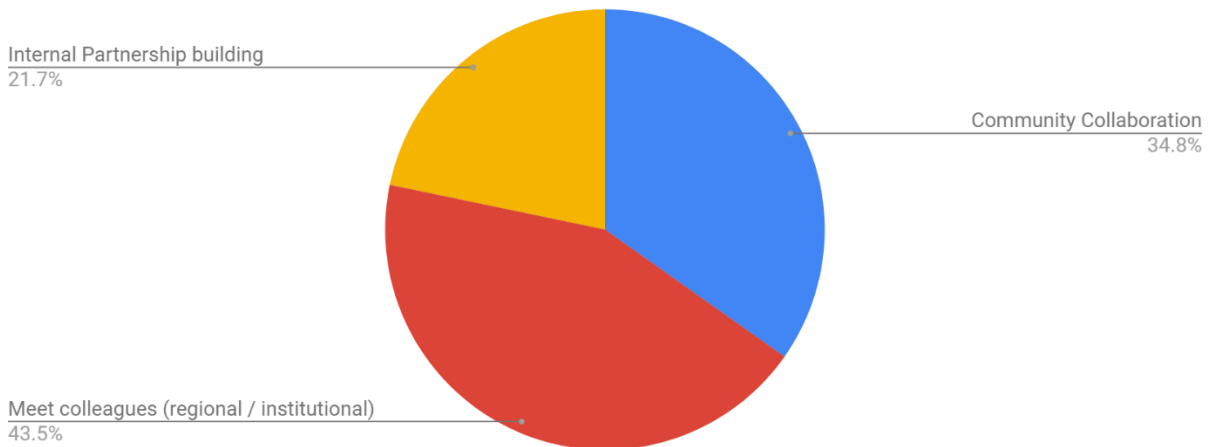
Standards / Best Practices
18.8%

Getting Started
34.4%

What others are doing
46.9%

Chart 3: To Collaborate / Network

Internal Partnership building
21.7%

Community Collaboration
34.8%

Meet colleagues (regional / institutional)
43.5%

Chart 4: To Address Specific Needs / Questions

Digitization
26.7%

Problem Solving (e.g. general and s...
20.0%

Advocacy/Support
20.0%

Access & Discovery (incl. metadata)
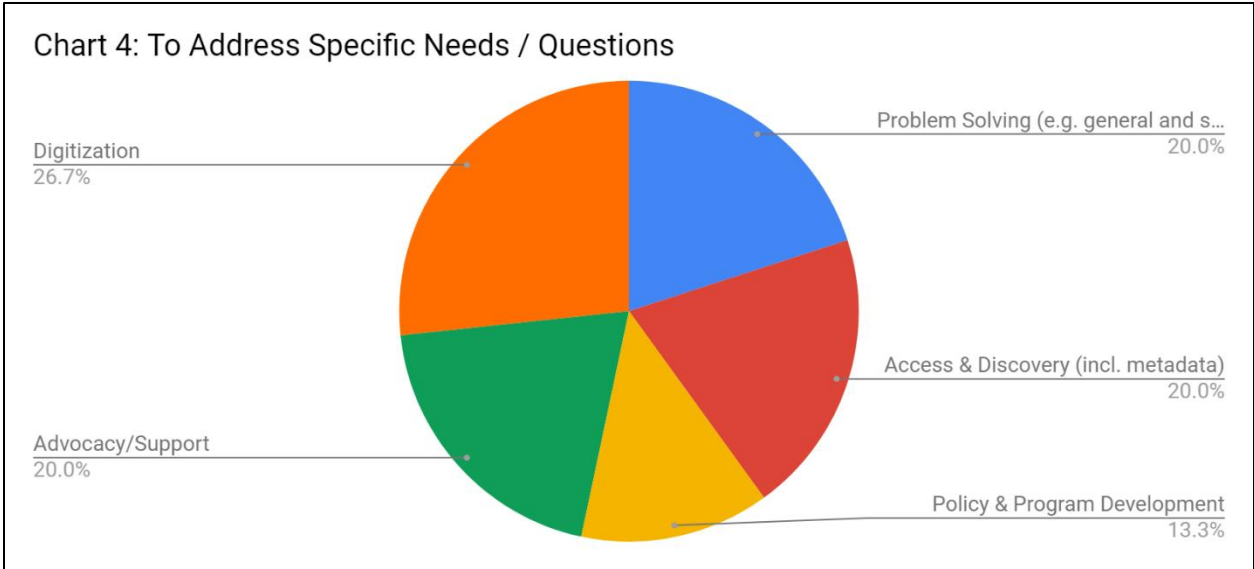20.0%

Policy & Program Development
13.3%

Table 2 illustrates how these categories were represented across the three meetings. The distribution of answers supports other conclusions and takeaways about participants' overall familiarity with digital preservation and their current goals and needs. The western and eastern regions, where the majority of participants were generally newer to digital preservation, were more focused on learning, while the middle region, where the majority of participants had more established digital preservation programs, had more of a focus on specific needs and questions. Regardless of participants' status, all regions were interested in collaboration.

Table 2: Distribution of Answers Across Regions

Legend: Middle, West, East

Category	Middle	West	East
To Learn (37.6%)	5	14	13
To Collaborate / Network (27.1%)	8	9	6
To Address Specific Needs / Questions (35.3%)	11	12	7
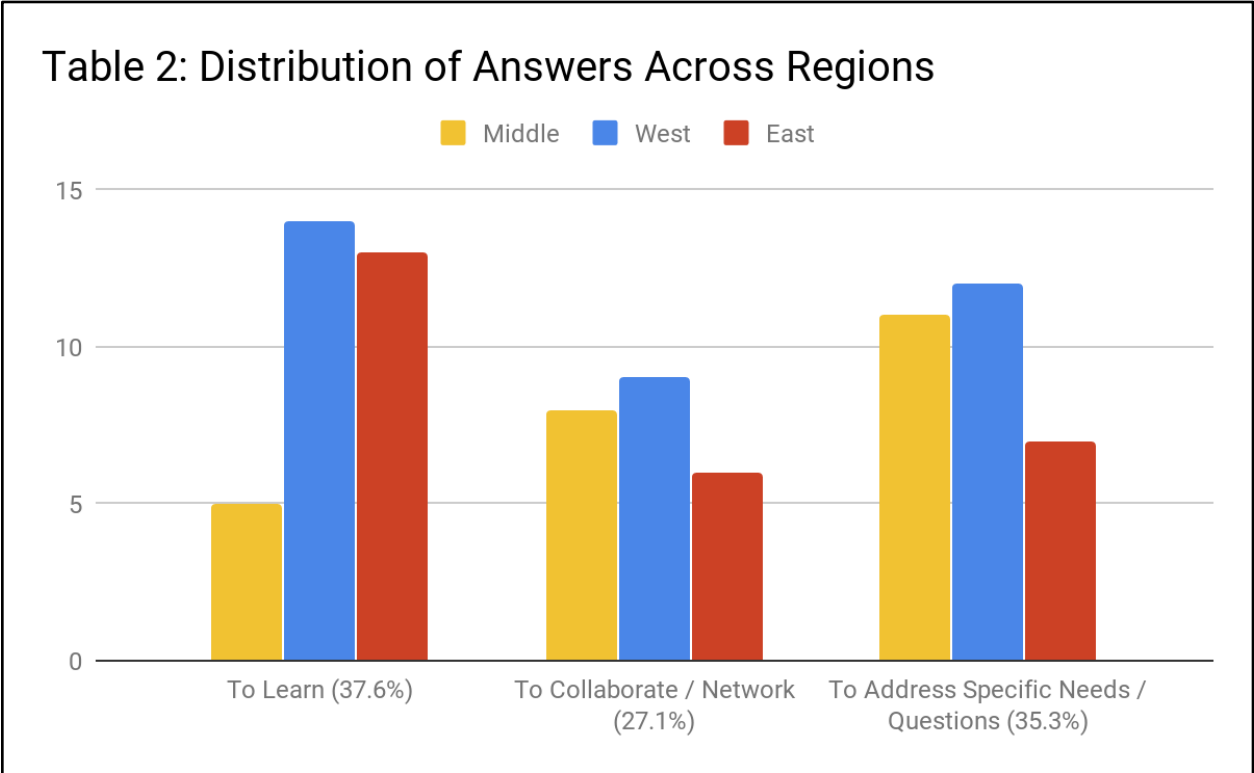
Status

Attendees were asked to respond to seven questions assessing their institution's current digital preservation environment, responsible parties, and workflows (Appendix C).

Table 3: What types of materials are involved?
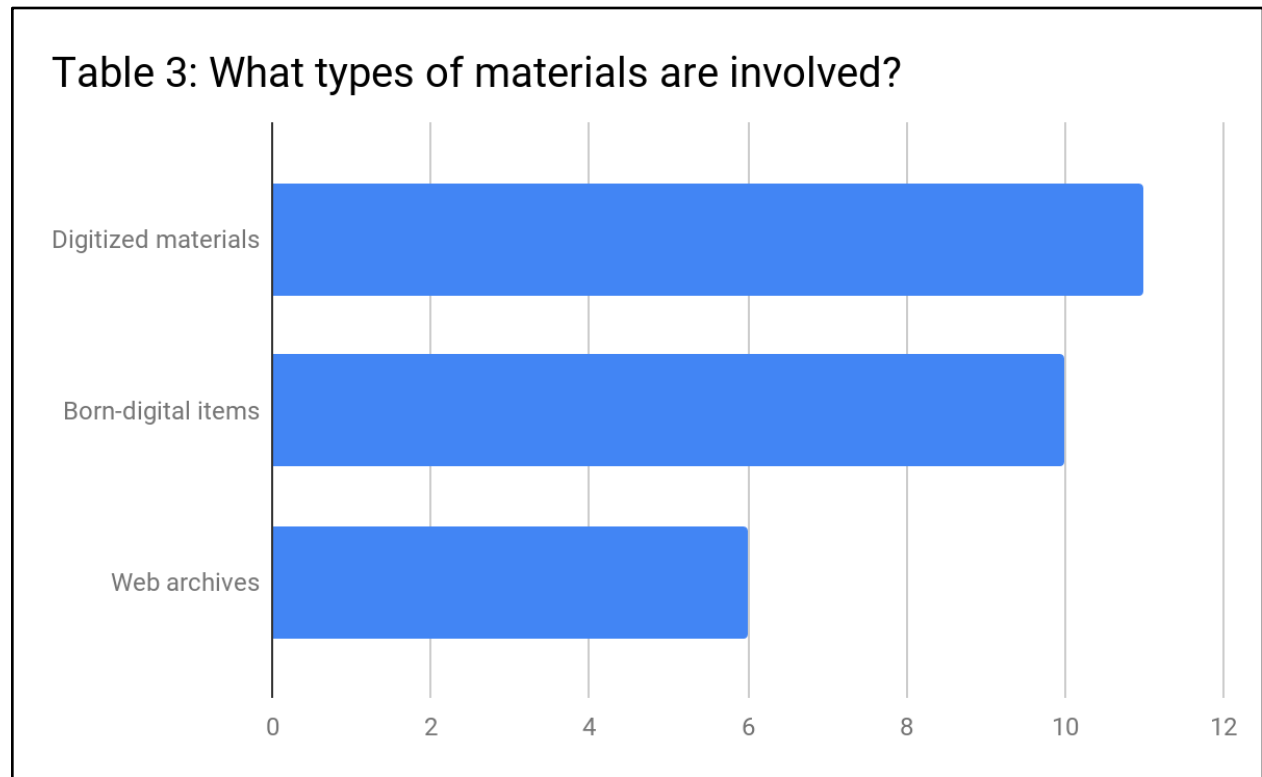
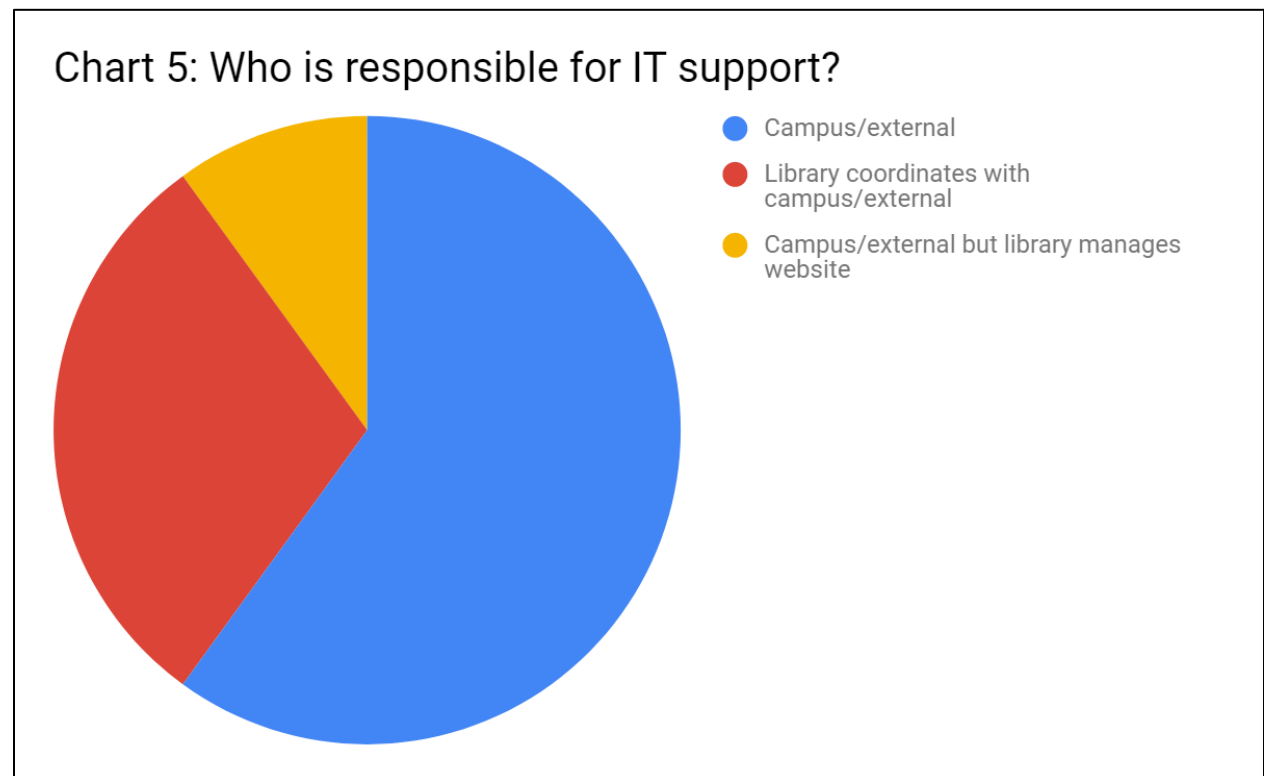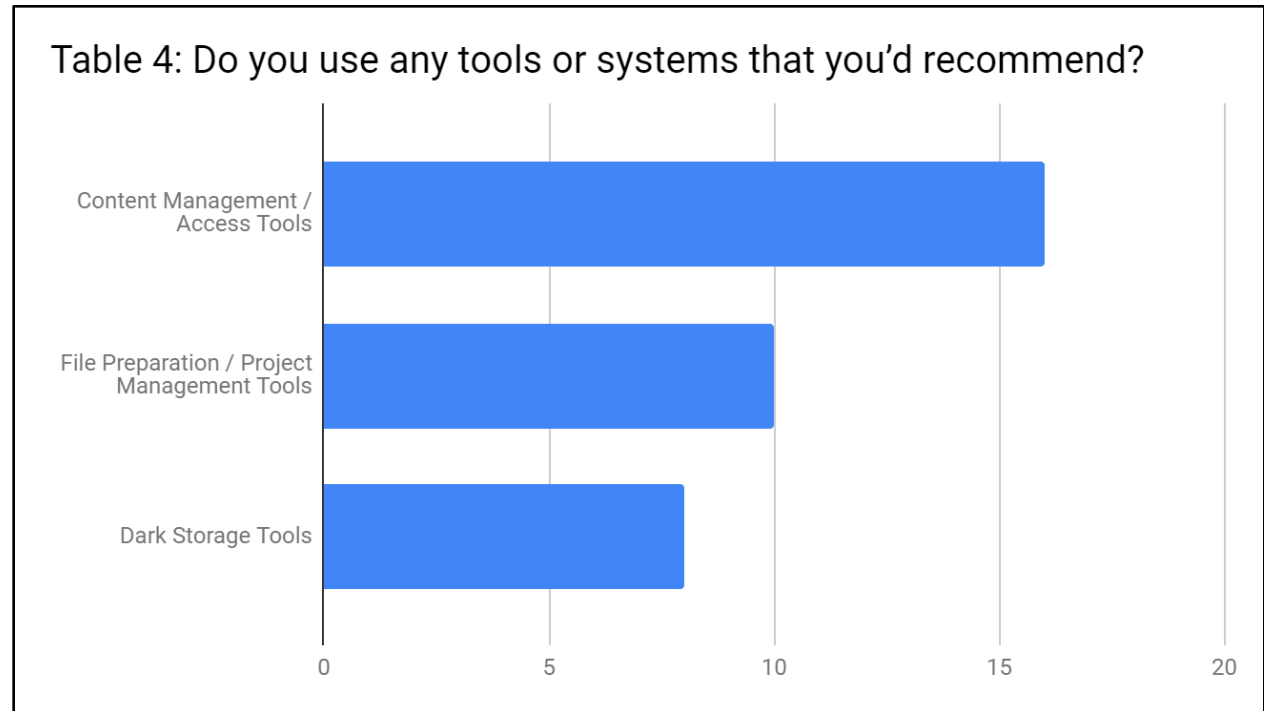As noted in Table 3, almost all respondents said that they were collecting files created through digitization. Digitization seems to be the focus of smaller institutions in terms of preservation, although most were also collecting born-digital items on some level. Attention to born-digital materials seems to be a more recent but growing phenomenon for most institutions. Considerably fewer institutions (slightly more than half of those who responded) were currently doing web archiving, most of them via Archive-It or free Internet Archive crawls. Most involved in web archiving were connected with larger institutions, and interest was expressed in the possibility of a consortial approach to Archive-It.

Digitization also emerged as the primary area in which most participants were personally involved with digital preservation, either through their roles as the responsible parties for digitization or through coordination with internal or external responsible parties such as the North Carolina Digital Heritage Center. One respondent also mentioned serving on a campus digital preservation committee.

On the question of digital preservation tools that participants would use or recommend (Table 4), the most cited tools were primarily content management systems that are used to facilitate access to digital (and largely digitized) files. Top platforms include Omeka and ArchivesSpace. Google Drive was the most frequently cited tool specific to long-term "dark" storage, followed by Amazon S3. One respondent mentioned the MetaArchive Cooperative, but also noted the need for a very robust internal IT infrastructure for this solution. Numerous file preparation tools were also widely used (e.g. Bulk Rename Utility, Hashmyfiles) and Trello was noted as a project management tool. A list of tools discussed during

this section as well as other digital preservation resources is available in Appendix D.

Table 4: Do you use any tools or systems that you'd recommend?

Chart 5: Who is responsible for IT support?

- Campus/external
- Library coordinates with campus/external
- Campus/external but library manages website

Not surprisingly, IT support and infrastructure emerged as significant issues for most participants. The predominant model among respondents was that IT is controlled through a centralized department that is separate from the respondent's institution (e.g. campus IT staff, city/county staff, etc.), though some

noted that the institution itself retained control of its own website (Chart 5). One mentioned that there was only one (shared) IT staff member. Several institutions (mostly larger universities) mentioned a model where their own IT staff worked in coordination with external or campus IT staff, often meaning that the institution managed its own servers, for example, but in a space managed by campus IT. Several respondents reported that they were the only staff member working with digital preservation, while at the other end of the spectrum, several institutions mentioned teams, multiple staff members working on different aspects, and taskforces.

Most participants responded that they had not devised a specific policy or workflow for digital preservation but relied on external documents like the State Library and State Archives' North Carolina Digital Preservation Program Overview.[6] One institution developed its own document based on the State Library standard and internal records retention schedules, etc. Some institutions were developing specific policies on such aspects as file naming conventions, date/time formats, etc. Several institutions mentioned that their workflows were still primarily related to digitization rather than specifically to digital preservation.

Chart 6: What would be helpful to your organization?

- Contacts (external/regional)
- Communication and awareness
- Specific training (usually in person preferred)
- Advisory group (internal)
- Policy management/priorities/scope
- Insititutional support
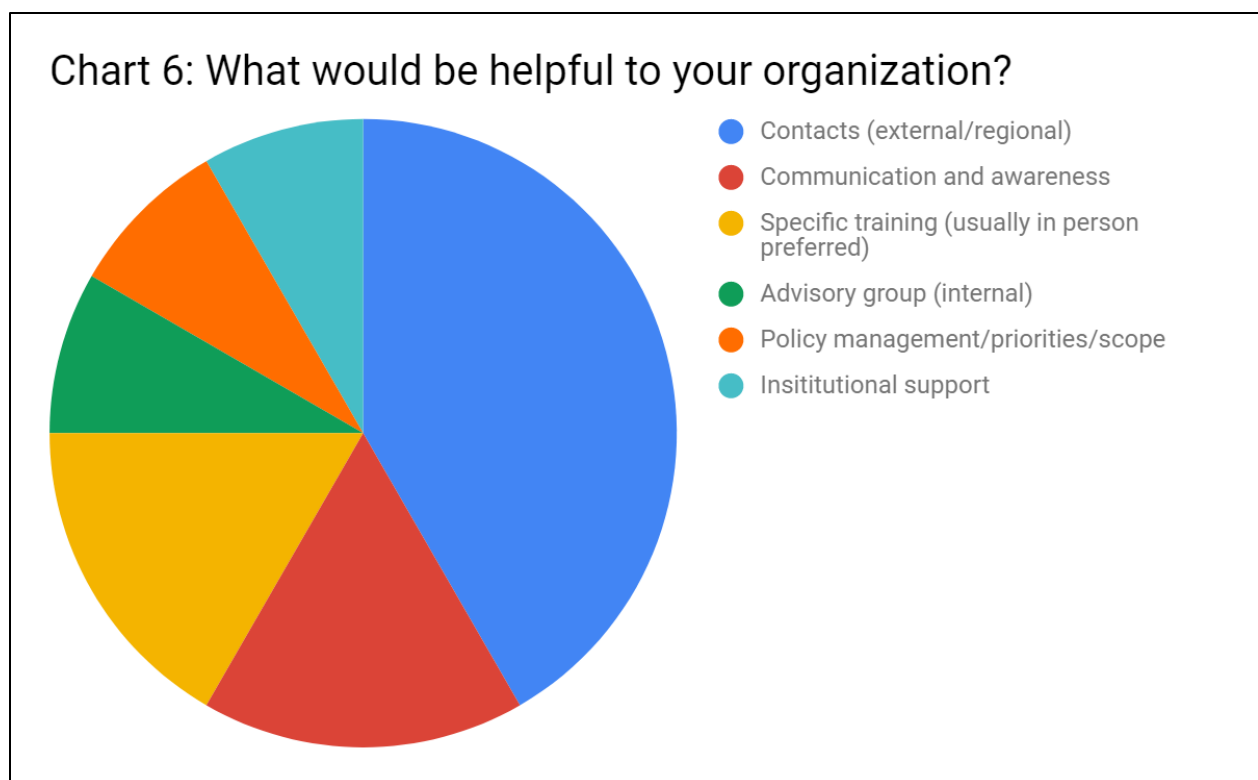
Respondents felt strongly that a network of regional contacts and in-person training would be the most helpful things for their institutions as they consider digital preservation. This is supported by the answers to the subsequent question (on resources used previously) as well.

---

[6] https://files.nc.gov/dncr-archives/documents/files/20190422_DNCR_preservationguidelines_final.pdf

Chart 7: What resources have you used?

Legend:
- Statewide resources
- Professional groups
- National partners
- Conferences/continuing education
- Google
- Regional partners/contacts
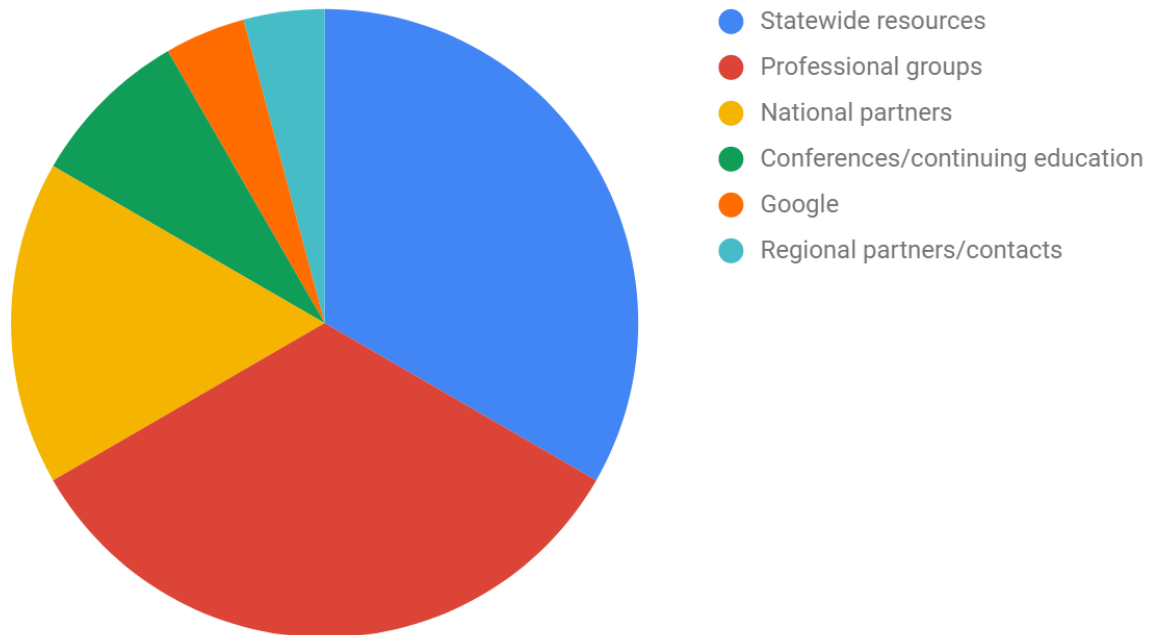
Statewide resource groups and programs such as the former NC ECHO group and the current North Carolina Digital Heritage Center and Traveling Archivist Program were among the most cited resources used by respondents, and the group responded positively to each of these initiatives. Professional groups, such as SAA, NDSA, Powrr, and the Council of State Archivists, were also frequently mentioned. Respondents also noted the importance of conferences and continuing education and for working with regional contacts and partners.

Best Practices

When given the open-ended prompt to discuss digital preservation best practices, two themes emerged: theoretical discussions around the planning and management of digital preservation and practical methods of implementation and maintenance. The overarching theme of the discussion, however, was "start where you are." Participants agreed that while it is good to aim for digital preservation practices that adhere to professional standards, even small steps are better than nothing.

World cloud generated from participants' best practices list
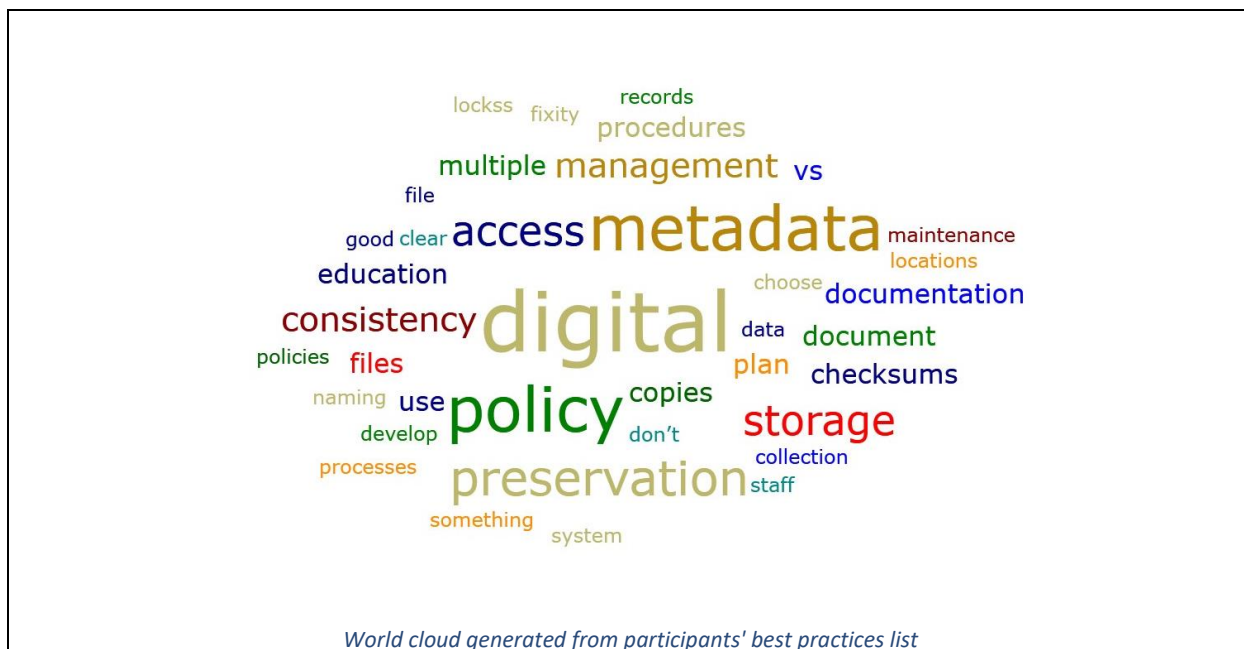
The most important theoretical consideration was the need for explicit policies and process documentation. A collection development policy was considered an essential piece of planning for digital preservation, particularly when the policy prioritized materials to be preserved, laid out the strategic vision for the institution's digital preservation practices, and addressed how preservation related to the organization's mission. Workflows, standards used, and other information to ensure consistent practices were mentioned as key pieces to be documented.

Another key consideration was the need for advocacy and continuing resources. Institutional buy-in at both the administrative and interdepartmental (such as IT) levels was key, as well as the need to raise awareness. This theme was buttressed by the need for collaboration. Participants recognized the need for collaboration within their departments, but also emphasized that working with colleagues and peers across the state, both formally and informally, was a key resource for them.

Metadata and standards were also major themes. File naming conventions, technical metadata, administrative metadata, and descriptive metadata were all mentioned, with the need for consistency among each category being the most important consideration.

In terms of the more practical considerations, every group mentioned storage, and nearly everyone mentioned the LOCKSS (Lots of Copies Keeps Stuff Safe) protocol. Participants demonstrated a clear understanding of the benefits of having multiple backups of materials.

On-going maintenance was less frequently mentioned, typically in the context of doing fixity checks on the materials as well as file format migration. Lastly, software was mentioned a few times. Specifically, the importance that software be easy to use, meet the needs of the organization, and be something that will assist in meeting future technological changes and challenges. An overarching theme was training and education - for records creators, those providing access, and those responsible for implementing and maintaining the digital preservation plan. Lastly, participants mentioned the need for ongoing assessment of any policy or practices implemented.

Below is the full list of best practices mentioned, ordered by frequency of mention:
- **Policy** (23 mentions)
- **Storage** (16 mentions)

- **Training** (13 mentions)
- **Documentation** (11 mentions)
- **Metadata** (10 mentions)
- **Collaboration** (9 mentions)
- **Standards** (7 mentions)
- **Procedures** (6 mentions)
- **Access** (6 mentions)
- **Maintenance** (6 mentions)
- **Resources** (5 mentions)
- **Start where you are** (4 mentions)
- **Advocacy** (3 mentions)
- **Assessment** (3 mentions)
- **Software** (2 mentions)

Priorities

Each meeting involved a small-group activity that presented a hypothetical scenario at a generic cultural institution[7]. Participants were asked to create a list of priorities from the perspective of different roles at the institution when developing a digital preservation project based on the provided scenario. The most popular areas prioritized by participants were:

- **Budgeting and resources:** Finding funding and allocating resources and personnel

- **Advocacy, support, and creating buy-in:** communicating why digital preservation is important and what might be the result if nothing were done.

- **Strategic planning, mission, and goals**

- **Project management and logistics**

- **Hardware systems and platforms**

- **Education and training**

Table 5 provides a more detailed outline of project priority areas determined by participants as well as what level of involvement each role should play: a major or considerable role or only some of a role. Table 5 illustrates that participants generally agreed on role distribution across broad categories and reinforces the idea that digital preservation is a collaborative, team-based effort. Additionally, the distribution of responsibility as well as the diversity between priority areas suggests that digital preservation priorities have multiple levels of consideration: technical, resource management, organizational, and content selection and scope.

Participants generally felt that multiple departments should be closely involved and work together through a committee or task force with representation from all departments. It was generally agreed that the head of the organization (or someone in a similar management, leadership position) should have a major role in budgeting and high-level strategic planning (with final say on the big picture). This role could include setting policy and defining the mission and goals for digital preservation as well as allocating resources. The curator of collections (or someone similarly focused on collection development or management) was also seen as a "gatekeeper" with a major role in strategic planning and policy and

---

[7] Scenario available in Appendix B: Detailed Meeting Agenda, under "11:05-11:35- Priorities"

a more active role than the head in day-to-day project management. Many participants noted that in practice, different institutions may require a different distribution of responsibilities and priorities based on their specific needs and limitations (e.g. a larger university will have different roles / departments and different resource availability compared to a small museum with a handful of people sharing all responsibilities).

Table 5: Level of Involvement Among Roles in Digital Preservation Projects					
Role	**Head of Organization**	**Curator of Collections**	**Tech Services**	**IT Staff**	**Public Services**
RESOURCES:					
- Budget and resources	Major				
- Recognize resources/team	Major	Some	Some		Some
PLANNING AND "BIG PICTURE":					
- Collection planning and development		Considerable	Some		
- Prioritizing	Considerable	Considerable			Some
- Advocate, support, create buy-in	Major			Considerable	
- Strategic planning, policy, mission, goals	Major	Major	Some	Considerable	
- Standards and practices		Major	Some	Considerable	
- Survey of materials, inventory, identify materials	Considerable	Major	Some		
- Sustainability planning	Considerable	Some			
NUTS AND BOLTS:					
- Collaboration	Some	Some			
- Communicating	Some	Considerable	Some	Considerable	Major
- Documenting		Some	Some		
- Educate, training	Considerable	Considerable	Some	Considerable	Major
- Metadata creation			Major		
- Project management and logistics	Considerable	Major	Major	Considerable	
- Rights, donor issues, intellectual property, /privacy		Considerable			Some
SYSTEMS:					
- Access, permissions, security				Major	
- Hardware, systems, platforms				Major	

Barriers

Meeting facilitators provided a "wall of despair" where attendees could write their biggest frustrations with digital preservation, often ones that are beyond their control. Common themes were staffing, funding, difficulties with IT permissions and support, and bureaucracy. When participants were asked to speak on their biggest barriers, excluding funding and staffing, these were the themes that emerged:

- **Getting Started:** Some institutions have developed digital preservation workflows; many have not. It can be difficult to know where to start, what is appropriate for the size/mission, and to find time and resources to gain expertise. People are not always sure where to turn for help even if they had the time and resources.

- **Communication / Shared Understanding:** Common throughout the meetings was a wish for more clarity and understanding when using vocabulary and terms like "digital preservation". Fitting many kinds of policies and procedures (from administration to central IT) into the workflow and not always getting reciprocal support.

- **Responsibility / Staffing Issues:** Question asked at all three meetings: "Who does digital preservation 'belong' to?" Turnover and shifting priorities can be problematic; many institutions are already understaffed with no one responsible for digital preservation. Administration may not understand the complexities leading to unfunded mandates on one extreme or not providing any support on the other.

- **Finding Balance / Sustainability:** Issues with balancing the ideal (what should be saved/preserved vs what can be saved/preserved) and managing expectations, keeping up with technology changes and shifting best practices.

- **Born Digital:** Born-digital material has some similarities to digitized material, but many differences, and the workflows are either not established, fuzzy, or insufficient; many institutions struggle with how to deal with born-digital material separately from digitized material.

Lessons Learned

When asked what lessons they had learned from prior digital preservation projects, participants shared the following:

1. Get buy-in at a higher level:

- Project participants want to be able to communicate how digital preservation will affect other staff and involve other staff in workflow conversation.

- Have someone with influence repeat participants' digital preservation message to others- funders, decision makers, etc.

2. It's more about people than it is about technology:

- Be less judgmental and encourage people where they are. Relationship building is important.

- Build trust, the human aspect is important for working with IT team.

- Find out what's important to IT, and weave that into your own mission; build the relationship and find the right person to talk with.

- Show the later digital preservation steps to staff that work earlier in the digital preservation process, so they understand the benefit of what they're being asked to do.

3. Have discussions before you begin that inform a good scope and policy document:

- Outline things that are in and out of scope to limit scope creep. Use the outline when creating an elevator pitch. Refer to the outline regularly. Assign roles. Treat it like a living document.

- Documentation and workflows - define your audience, and make sure the documentation is useful to users as well as staff, revisit them on a regular basis.

- Have conversations about "why."

- Use a consistent file naming convention.

- Make preservation part of the initial digitization conversation, as well as part of priority setting.

- Clarify assumptions; for example:

  - When you inherit digitization projects, and think you know the project history, scope, and storage status, seek clarification or perform a storage audit to confirm.

  - Don't assume everyone knows/understands the phrase "digital preservation" – use more descriptive language/create dictionary for shared words that may have different meanings.

- Talk about digitization and digital preservation as a more unified way to look at a project.

- Thoughtful management of the project.

- Know your collection and what people want to see, what's helpful to be digitized.

4. Look for Communities of Practice (COPs) and share your COPs with others:

- Don't reinvent the wheel - use expertise in the region/state

5. Compromise is necessary:

- Digital preservation situation, workflows, or resources may not be perfect or how you would want in the ideal world.

- Just pick one thing and tackle it.

- Acknowledge you can't do it all.

- It's ok to take smaller steps towards digital preservation and to not feel pressure to be the first to implement something.

- Be ok with what you have been able to do – it does not have to be fancy or perfect.

6. Sustainability:

- Grant funding can be instrumental in getting equipment. Equipment may still require long-term maintenance fees, but grant funding can give you a leg up.

Needs and Potential Opportunities

Participants at all three meetings came up with similar ideas related to how their digital preservation needs could be addressed. The needs included the following:

- **More information and expertise shared within the state**

- **Digital preservation hosting and storage**

- **Outlets for collaboration within the state**

Regarding sharing information and expertise, participants suggested a single online source that would include sample documentation, best practices, guidelines, a bibliography, and links to recommended tools. There was also interest in a directory or guide that lists "who's doing what" and "who's an authority on X topic," with an emphasis on finding regional peers.

In-person collaboration and learning opportunities were also highly desired, as long as these could be low- or no-cost. Sharing current work and having a cohort of peers to ask questions and brainstorm would be desirable, as would a more formal sharing of expertise through consultants, workshops, or webinars. While in person is preferred, the participants recognized that travel represents a larger time and resource investment. Virtual suggestions included conference calls, webinars, and a listserv. Participants brainstormed a list of the most immediate training needs:

- **A "beginning skills" boot camp**

- **Help with digital appraisal**

- **Help assessing where an institution is, i.e. levels of digital preservation being accomplished**

- **Help with project management for organizations starting digital preservation**

- **Help with born-digital materials**

- **Advice on advocating for digital preservation work**

- **Finding funding opportunities**

Beyond sharing information and expertise, participants expressed the desire for low cost externally managed hosting and storage that provides basic digital preservation services. Many of the participants' institutions have neither the technical expertise nor infrastructure to build out such systems on their own. While there are some systems and services like this available on the market, they are mostly targeted to large institutions or businesses. The proposed hosting and storage would ideally be feasible for smaller institutions without any requirement on their part to have significant local expertise or technology.

Finally, there was a great desire for collaborations that expand beyond a single institution type to include all cultural heritage professionals doing this type of work. More specifically, rather than solutions tailored to a library or museum environment, per se, the participants are looking for solutions that could agnostically serve North Carolina cultural heritage institutions of all types. Instead of reinventing the wheel, it was suggested that there are already organizations that might play a part fostering collaborations:

- **Organizations with a Statewide Mandate** (State Library, State Archives, North Carolina Digital Heritage Center, NC LIVE)

- **Professional Organizations** (Society of North Carolina Archivists, North Carolina Library Association, North Carolina Museums Council, North Carolina Preservation Consortium)

- **Regional Collaborations** (Metrolina Library Association, Triangle Research Libraries Network, Western North Carolina Library Network)

Considering the variety of needs expressed by participants and to begin exploring concrete steps to address them, the planning committee suggests the following action plan moving forward:

1. Research which needs and opportunities can realistically be addressed within 6 months.

2. Research which of the needs and opportunities (or versions of them) would require funding or substantial support and determine best course of action (6 months - 1 year).

3. Determine approach(es) that is(are):

   a. Communicative

   b. Inclusive

   c. Sustainable

   d. Relevant to Needs

4. Continue communication and resource sharing with DPE participants and North Carolina digital preservation practitioners.

APPENDIX A: GLOSSARY OF TERMS

This list of terms was generated by participants when asked what words they associated with digital preservation, as well as which words they had heard but were unfamiliar with[8].

Access restrictions	Access restrictions may be defined by a period of time or by a class of individual allowed or denied access. They may be designed to protect national security, personal privacy, or to preserve materials
Checksum	An algorithmically-computed numeric value for a file or a set of files used to validate the state and content of the file for the purpose of detecting accidental errors that may have been introduced during its transmission or storage. The integrity of the data can be checked at any later time by recomputing the checksum and comparing it with the stored one. If the checksums match, the data was almost certainly not altered.

---

[8] Unless noted, the following definitions come from these resources:
National Digital Stewardship Alliance Glossary
A Glossary of Archival and Records Terminology by Richard Pearce-Moses (PDF)
Digital Preservation Handbook by the Digital Preservation Coalition
International Council on Archives
Digital Curation Centre

Compatibility	The ability of different pieces of hardware, software, and data to work together. A file written by a different version of the same software may not be compatible unless the different versions use the same format or the software is backward compatible.
Compression	Compression may be described as lossless and lossy. Lossless compression ensures that the uncompressed version is identical to the original; no information has been lost. Lossy compression results in some difference between the original and an uncompressed version. In general, lossy compression may produce a smaller file size
Copyright	A property right that protects the interests of authors or other creators of works in tangible media (or the individual or organization to whom copyright has been assigned) by giving them the ability to control the reproduction, publication, adaptation, exhibition, or performance of their works.
Curation	Digital curation involves maintaining, preserving and adding value to digital research data throughout its lifecycle. The active management of research data reduces threats to their long-term research value and mitigates the risk of digital obsolescence.
Digital asset management systems (DAMs)	These systems have an integral approach and centralize and speed up the ingest and documentary treatment of digital content, the control and follow-up of its use, the processes associated with intellectual property and rights, security issues and search and retrieval.
Discovery layer	A discovery layer is a Google-like search across all library resources. In library language, a discovery layer is a searchable meta-index of library resources, usually including article-level metadata, e-book metadata, metadata from library catalogs, open access resource metadata, etc., and it includes a means of retrieving resources in the result set through linking technology. ([source](#))
Dublin Core	A standard (ISO 15836, ANSI Z39.85) that defines metadata elements used to describe and provide access to online materials. The data elements of unqualified Dublin Core include title, creator, subject, description, publisher, contributor, date, type, format, identifier, source, language, relation, coverage, and rights. In qualified Dublin Core, elements may be refined for greater specificity.
Emulation	A means of overcoming technological obsolescence of hardware and software by developing techniques for imitating obsolete systems on future generations of computers.

Fixity check	A mechanism to verify that a digital object has not been altered in an undocumented manner. Checksums, message digests and digital signatures are examples of tools to run fixity checks. Fixity information, the information created by these fixity checks, provides evidence for the integrity and authenticity of the digital objects and are essential to enabling trust
Geographic distribution	Geographic distribution of multiple copies of content (LOCKSS principle) ensures maximizes survivability of content in the event of localized loss or natural disaster.
HIPPA	The Health Insurance Portability and Accountability Act of 1996 provides data privacy and security provisions for safeguarding medical information.
Lifecycle	The distinct phases of a record's existence, from creation to final disposition. Different models identify different stages. All models include creation or receipt, use, and disposition. Some models distinguish between active and inactive use, and between destruction and archival preservation.
LOCKSS	Lots of Copies Keep Stuff Safe (LOCKSS) A project designed to preserve copies of electronic publications by ensuring that multiple copies are stored at different organizations.
Lossy	See "Compression"
Machine readable	Data that can be read through an electronic device (such as a laser scanner, magnetic stripe reader, or disk drive) for interpretation and manipulation by a computer. Examples include MARC and XML. Read more: http://www.businessdictionary.com/definition/machine-readable.html
Access copy	A digital object (typically a graphic) that has been scaled down from a high-quality original to a lower-quality, smaller version, to facilitate delivery over low-bandwidth networks. Also known as a "use copy."
Metadata	Information which describes significant aspects of a resource. Most discussion to date has tended to emphasize metadata for the purposes of resource discovery, as well as metadata required to successfully to manage and preserve digital materials over time and which will assist in ensuring essential contextual, historical, and technical information are preserved along with the digital object. The PREMIS Data Dictionary for Preservation Metadata has become a key de facto standard in digital preservation.

Format migration	A means of overcoming technical obsolescence by preserving digital content in a succession of current formats or in the original format that is transformed into the current format for presentation. The purpose of format migration is to preserve the digital objects and to retain the ability for clients to retrieve, display, and otherwise use them in the face of constantly changing technology.
OAIS	Open Archival Information System (OAIS, abbr.) A high-level model that describes the components and processes necessary for a digital archives, including six distinct functional areas: ingest, archival storage, data management, administration, preservation planning, and access.
Obsolescence	File formats can become obsolete for a number of reasons: software upgrades fail to support legacy files, the format itself is superseded by another or evolves in complexity, the format "take up" is low or industry fails to create compatible software, the format fails, stagnates, or is no longer compatible with the current environment, software supporting the format fails in the marketplace or is bought by a competitor and withdrawn. ([source](#))
PREMIS	Preservation Metadata: Implementation Strategies. A de facto standard for digital preservation metadata. http://www.loc.gov/standards/premis/
Proprietary	Proprietary software is primarily commercial software that can be bought, leased or licensed from its vendor/developer. In general, proprietary software doesn't provide end users or subscribers with access to its source code. It can be purchased or licensed for a fee, but relicensing, distribution or copying is prohibited.
Retention schedule	A document that identifies and describes an organization's records, usually at the series level, provides instructions for the disposition of records throughout their life cycle.
SIPs/DIPs/AIPs	Submission Information Package (SIP), Archival Information Package (AIP), or Dissemination Information Package (DIP) within the Open Archival Information System (OAIS) Reference Model.
Surrogate	A surrogate refers to a digital reproduction of a material object, such as an image or document.

Trusted digital repository	A trusted digital repository has been defined as having "a mission to provide reliable, long-term access to managed digital resources to its designated community, now and into the future". The TDR must include the following seven attributes: compliance with the reference model for an Open Archival Information System (OAIS), administrative responsibility, organizational viability, financial sustainability, technological and procedural suitability, system security, and procedural accountability. The concept has been an important one particularly in relation to certification of digital repositories. ISO 16363:2010 can be the basis for this certification.
Virtual reading room	A dedicated workstation or stations that allow access to digitized material restricted to on-site use (material that is not widely available online to the public). Has many of the same policies and rules a physical visit to a reading room would, except the material is digital.
Preservation copy	The version of a thing set aside to protect its informational content from harm, injury, decay, or destruction. A preservation copy may be either the original or a preservation transfer copy. It is used only to make other copies for access.

APPENDIX B: DETAILED MEETING AGENDA

8:30-9:00- Registration and light breakfast

9:00-9:15 - Welcome, Introductions and Plan for the Day

Welcome participants and make housekeeping announcements

Introduce committee members and facilitators & Introduce grant project and goals

Participant introductions
- Name
- Title and institution
- One thing you hope to get out of this meeting

Define meeting structure
- Purpose of meeting (posted): To foster communication and collaboration and to share needs, interests, experiences and goals for digital preservation
- Outcome: (posted) Your input and participation will make connections between institutions and inform the State Library of North Carolina about potential future programs and services.
- Ground rules (posted)
- Our Plan for the Day
    - Full and small group activities
        - For small group activities try to move around and sit with new people
    - "Wall of Despair"- Anytime until 1pm you can write on the "Wall of Despair" (flipchart) your frustrations or complaints that are out of your control.

9:15-10:25 - Best Practices & Vocabulary Consensus

9:15-10:00- Vocabulary Consensus

Full group activity: Participants will write on a post-it with a sharpie a word or phrase that they associate with the following digital preservation categories:
- Access
- Storage
- Policy
- Standards
- Tools/Technology
- Terms you don't know

Discussion will clarify understanding of vocabulary terms by group

10:00-10:20- Best Practices

Small group activity: Break into small groups with a committee member at each table. Designate a recorder and a presenter. Each group comes up with list of best practices for digital preservation and/or digital storage.

10:20-10:30- Reconvene for groups to share best practices noticing similarities and differences.

10:30-10:45- Break

10:45-12:00 - Status & Priorities

10:45-11:05- Status

Full group activity: Go through the questions sent out before the meeting ensuring that all questions are answered.

11:05-11:35- Priorities

Small group activity: Each group is assigned digital preservation scenario to help participants

- Think through options
- Knowledge gaps and identify roles
- Responsibilities (in relation to them/at their institution

Scenario:

You work for a cultural heritage organization that has 10 employees and is open to the general public. The organization has a widely scattered collection of digital files. Some of these have accumulated from scanning projects over the years, and some have been collected through donations. These files live on different local computers, a server managed by an off site IT company, and Google Docs. You're beginning to think you need a more coordinated plan for managing all of these. Where do you start?

- Head of the organization
- Curator or head of collections
- Technical services staff that describes collection items
- IT staff in charge of the local computers and staff technology needs, who liaises with the IT company when needed
- Public Services staff

11:35-11:45- Reconvene to share how each group handled the scenario.

11:45-12:00- Review travel reimbursement paperwork

12:00-1:00 - Lunch and Discussion

1:00-1:35 - Barriers

1:00-1:15 - Review "Wall of Despair"

1:15-1:35 - Full group activity: Discussion focusing on these topics. [ground rule that money and staff are universal barriers]
- Lessons learned / What would you do differently?
- Roadblocks
- Challenges / things needing to be addressed

1:35-2:45 - Next steps

1:35-2:00 - Small group activity: Each group will brainstorm answers to 3 questions:
- What do we need?
- What collaborations could be proposed?
- Anything else that needs to be discussed?

2:00-2:15 - Reconvene to share how each group answered the questions.

2:15-2:30 - Wrap up and evaluation

Plus/Delta feedback from group

APPENDIX C: PRE-MEETING PREPARATION FOR PARTICIPANTS

Digital Preservation Exploration Pre-meeting Questions

[MEETING DATE]

[MEETING PLACE]

We're looking forward to seeing you at our regional North Carolina Digital Preservation Exploration meeting. You don't have to be a digital preservation expert - just willing to share your challenges and questions with a group of colleagues. If you're completely new to digital preservation, here are two brief articles that can help you understand what it means:

https://www.dpconline.org/handbook/digital-preservation/why-digital-preservation-matters

https://www.dpconline.org/handbook/digital-preservation/preservation-issues

Before we meet, please take some time to think about the following.

- Does your institution collect and preserve digital files made from digitizing items? Born-digital items? Website archives? If so, for how long have you been collecting these?

- What is your role in the care of digital materials? Who else takes part in digital preservation tasks?

- Do you use any tools or systems that you'd recommend?

- Who is responsible for the information technology infrastructure at your institution?

- Have you developed any digital preservation policies and/or workflows you'd be willing to share?

- Outside of more money and staff, what are some things that would be helpful in advancing digital preservation goals at your institution?

- What resources have you used in the past to learn more about how to manage and/or preserve digital files?

We hope you will share some of the answers to these questions at the meeting. Your input and participation will make connections between institutions and inform the State Library of North Carolina about potential future programs and services.

We are planning on providing a list of attendees at the meeting. If you need more information prior, please let us know.

APPENDIX D: RESOURCES MENTIONED DURING MEETINGS

| Tools & Resources	Link	Description
Association for Library Collections and Technical Services (ALCTS) Webinars	http://www.ala.org/alcts/confevents/upcoming/webinar	digital preservation reference; continuing education
Amazon S3	https://aws.amazon.com/s3/	storage
Archive-It	https://archive-it.org/	tool; web archiving tool
ArchiveSocial	https://archivesocial.com/	tool; social media archiving tool
Bagger / BagIt	https://github.com/LibraryOfCongress/bagger	tool; file packaging tool for archival materials
Bulk Renaming Utility	https://www.bulkrenameutility.co.uk/Main_Intro.php	tool; open source renaming tool
Copyright and Permission Forms NCDHC	digitalnc@unc.edu	copyright and permission forms; contact NCDHC for a copy
Council of state archivists	https://www.statearchivists.org/	digital preservation reference; continuing education
DACS	https://www2.archivists.org/groups/technical-subcommittee-on-describing-archives-a-content-standard-dacs/describing-archives-a-content-standard-dacs-second-	metadata
Digital POWRR	https://digitalpowrr.niu.edu/	digital preservation reference
Digital Preservation Storage Criteria	https://osf.io/sjc6u/	storage reference
DSpace	https://duraspace.org/dspace/	digital preservation management
Dublin Core	https://guides.library.ucsc.edu/c.php?g=618773&p=4306386	metadata
DuraCloud	https://duraspace.org/duracloud/	storage
Folder 2 File	https://www.dcmembers.com/skwire/download/files-2-folder/	tool; file transfer tool
Google Cloud	https://cloud.google.com/	storage
HashMyFiles	https://www.nirsoft.net/utils/hash_my_files.html	tool; open source checksum generator
Islandora	https://islandora.ca/	digital preservation management
International Standards	https://www.iso.org/iso-8601-date-	digital preservation resource

|		
Organization standard for dates	and-time-format.html	
JSTOR Forum	https://www.artstor.org/jstorforum/	digital preservation / content management
LYRASIS webinars	https://www.lyrasis.org/services/Pages/Classes.aspx	continuing education
MetaArchive	https://metaarchive.org/	storage; digital preservation management
National Digital Stewardship Alliance (NDSA)	https://ndsa.org//	digital preservation reference; continuing education
NDSA Levels of Digital Preservation	http://ndsa.org//activities/levels-of-digital-preservation/	digital preservation reference
NC ECHO standards	http://digital.ncdcr.gov/cdm/ref/collection/p16062coll9/id/1838	digital preservation reference
NC Traveling Archivist Program (mostly physical, hoping to add preservation)	https://archives.ncdcr.gov/about/traveling-archivist-program	digital preservation resource
OAIS	https://www.oclc.org/research/publications/library/2000/lavoie-oais.html	digital preservation reference
Omeka	https://omeka.org/	content management & collection curation
POWRR Tool Grid	https://digitalpowrr.niu.edu/digital-preservation-101/tool-grid/	tools / systems comparison & reference
ReNamer	https://www.den4b.com/products/renamer	tool; open source renaming tool
Society of American Archivists (SAA) Preserving Digital Archives Reading List	https://www2.archivists.org/prof-education/course-catalog/preserving-digital-archives	digital preservation reference; continuing education
SAA Courses	https://www2.archivists.org/prof-education/catalog	continuing education
Trello	https://trello.com/	tool; workflows

APPENDIX E: PARTICIPATING INSTITUTIONS

Institution	Institution Type
Appalachian State University/Belk Library	University/College
Asheville School & Warren Wilson	University/College
Bennett College	University/College
Black Mountain College Museum + Arts Center	Museum
Cape Fear Museum	Museum
Central Piedmont Community College	Community College
Cone Health Medical Library	Special
Country Doctor Museum	Museum
Davidson College	University/College
Duke University	University/College
East Carolina State University	University/College
East Carolina University	University/College
Elon University	University/College
Fontana Regional Library	Public Library
Forsyth County Public Library	Public Library
Great Smoky Mountains National Park	Special
Guilford	University/College
Haywood County Public Library	Public Library
J.A. Jones Library, Brevard College	University/College
Johnson C. Smith University	University/College
Mars Hill University/ Southern Appalachian Archives	Archives
Museum of the Cherokee Indian	Museum
North Carolina A&T State University	University/College
North Carolina Central University/Shepard Library	University/College
Outer Banks History Center (OBHC)	Archives
Sheppard Memorial Library	Public Library
State Archives of North Carolina	Archives
State Library of North Carolina	Special
Surry Community College	Community College
The Biltmore Company	Special
UNC Asheville	University/College

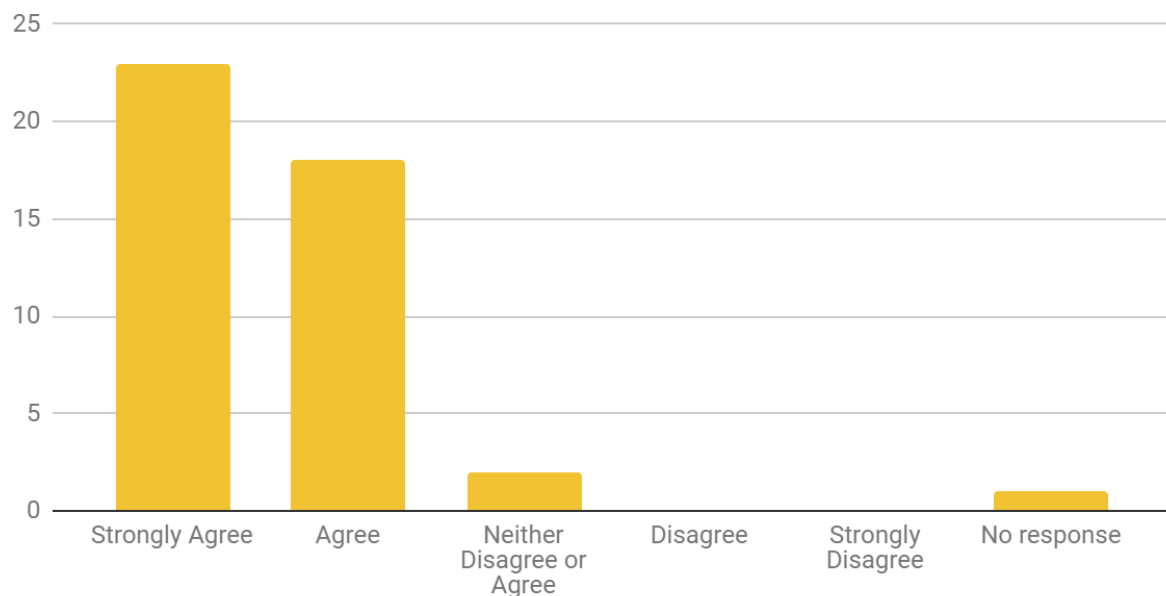| UNC-Charlotte	University/College
UNC-Chapel Hill	University/College
UNC-Greensboro	University/College
UNC-Wilmington	University/College
Wake Forest University	University/College
Western Carolina University	University/College
Winston-Salem State University	University/College

APPENDIX F: SURVEY RESULTS

1. I believe the planning and evaluation addresses library needs
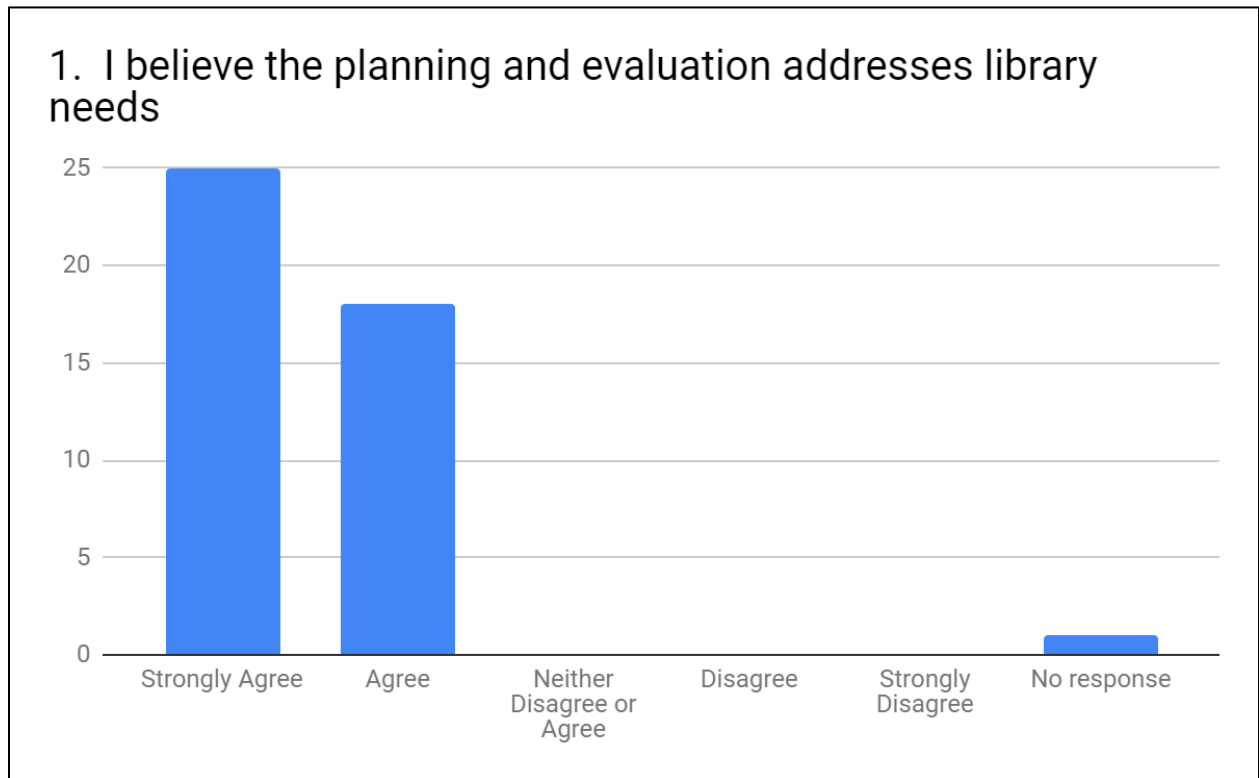
2. I am satisfied with the extent to which the plan or evaluation addresses library needs
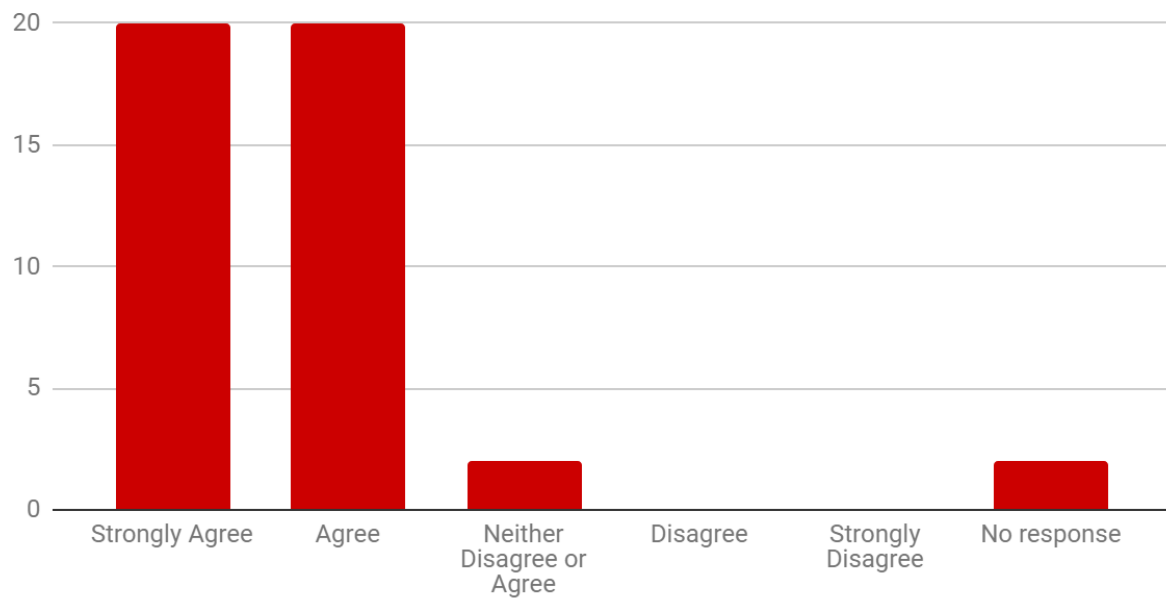
3. I believe the information from the plan or evaluation will be applied to address library needs

Common Themes Found in Optional Comments

Education / Learning
22.2%

Collaboration / Networking
33.3%

Enthusiasm for Future / Next Steps
44.4%