Sustaining Digital Projects at the UWM Libraries
Task Force Final Report

Executive Summary

The University of Wisconsin-Milwaukee Libraries currently maintains and makes available a large amount of digital content, including: digitized text, images, video, and audio; digital maps; and digital archival materials and electronic records. The majority of this content is available to patrons via an access system of some type but such systems do not protect the content from loss, obsolescence, or other forms of digital risk. For this reason, the Libraries must invest in the preservation of its digital content in order to ensure that this content continues to be available to patrons in the future.

The leadership team of the UWM Libraries charged this task force with examining the current digital content and providing a framework for moving forward with digital preservation. This report is the result of the group's efforts. The report begins by describing the Libraries' currently held digital content and storage strategy (section 1), and then recommends the development of a library-wide digital preservation solution to advance current preservation practices (sections 2, 3, and 4).

The major task force recommendations are as follows:
1. The Libraries should adopt the National Digital Stewardship Alliance's (NDSA) Levels of Preservation framework as a guide for making incremental improvements to current practices.
2. The task force recommends that the Libraries achieve level 1 in all NSDA categories by the end of calendar year 2015, level 2 by the end of calendar year 2016, and make a plan to reach level 4 by 2020.
3. To better meet these levels, the Libraries should investigate a robust and fully standards compliant digital preservation system to manage workflows and metadata across departments, and consider options for additional offsite/dark storage for long-term preservation of digital assets.
4. A group should be created to research requirements, funding models, and technical solutions and make a recommendation for the above preservation system.

In addition to new technical infrastructure, the Libraries should designate an administrator for this system and foster a working group of system users and preservation practitioners from across the Libraries. Finally, the Libraries should improve preservation practices on the administrative side by incorporating digital preservation goals into the library strategic plan and creating collection development policies for new types of digital content that the Libraries may collect in the future. By leveraging current library expertise, building technical solutions, and steadily improving preservation practices, the UWM Libraries can help ensure that their important digital content is available for years to come.

1 Background

This task force was created to address the sustainability of digital projects at the University of Wisconsin-Milwaukee Libraries. This digital content includes: projects created by Digital Collections and Initiatives (DCI), digital and digitized archival materials and electronic records, complex digital research data, and, potentially, teaching-related projects and projects developed in the Digital Humanities Lab. The Libraries currently collect some of this material and need to plan for potentially collecting the other types of content in the future. The full charge of the task force is in Appendix A.

1.1 The problem

The UWM Libraries are increasingly creating and collecting digital content such as digital maps, digitized images and video, and University electronic records. As more library collections become exclusively digital and as the resolution of digitized content – such as images, audio, and video materials – increases, the quantity of and storage space for digital content held by the Libraries will grow significantly. Additionally, the Libraries have the potential to collect new types of digital content – such as projects created in the Libraries' Digital Humanities Lab, data generated by UWM researchers, and historically important digital content created by the local community – but this requires more robust systems for digital preservation and policies to guide selection.

The Libraries are at a critical junction. They are already responsible for a significant and growing body of digital material and we anticipate that in the near future they will be responsible for other, emerging types of digital content. In order to effectively manage current responsibilities and to plan for new ones, the Libraries will need to develop a new overall strategy for digital projects.

The Libraries' existing digital content is currently at risk of loss along several vectors, including:
- lack of overall strategy for documenting and preserving digital content
- limited resources for rapidly increasing storage needs
- storage that is vulnerable to natural disaster
- file format obsolescence
- data security

With a stated mission to "facilitate…the creation, preservation, and sharing of knowledge," the Libraries have a responsibility to sustain their digital content. With this mission in mind, we propose that the Libraries continue their existing efforts toward digital preservation, and move to implement future-oriented systems and strategies aimed at managing their digital content for the long-term. Fortunately, many academic libraries are moving into the area of digital preservation and there are many resources and tools available ("Digital Curation Centre," 2015, "Digital Preservation Management Tools and Techniques," 2015; Schumacher et al., 2014; Wheatley, Tester, & Jackson, 2014). The Libraries must make a commitment and a plan for preserving their digital content for the future.

1.2 Digital content currently held by the UWM Libraries

As of the end of 2014, the UWM Libraries as a whole had over 28 TB of digital content for which it is the primary responsible party. This number includes digital collections from several library departments, such as Digital Collection and Initiatives, Archives, and the American Geographical Society Library (AGSL), as well as administrative content from departments such as User Services, Collection and Resource Management, etc. The vast majority the Libraries' digital files, roughly 25 TB out of 28 TB, correspond to digitized and digital collections made available to library patrons.

Of the 25 TB of digital content that this task force is particularly addressing (see Table 1), roughly 20 TB corresponds to images, movies, and sound recordings digitized from the Libraries' unique collections by DCI. Another 5 TB corresponds to digital map images (born digital and digitized) and GIS data from the AGSL. The AGSL also maintains almost 2000 CD-ROMs of GIS data that are not included in the current storage estimates but should to be converted from optical disk and added to main storage. Finally, Archives has approximately 0.5 TB of born-digital records that fall within the Archives' collecting scope. Archives is also responsible for scraping the UWM website for university records but contracts this out to Archive It, a service run by the Internet Archive; the Internet Archive, by contract, maintains this data on its own servers. The Libraries also have 18 GB of content housed in the Digital Commons which should be preserved going forward.

The Libraries' files are predominantly stored in one of two locations:
1. Ufiles, which is maintained and backed up at the university level by UITS
2. GML-store2 server, which is maintained by the Libraries' Systems department and backed up to local server GML-store1 and every few months to magnetic tape.

Digital files are preferentially stored on one or the other system on a project-by-project basis. With the exception of the GIS data still on CD-ROM, relevant departments have made efforts in the past few years to move all files from CDs, DVDs, and external hard drives to one of these servers.

Rough estimates for growth of this digital content indicate that it could triple in size within 5 years. The majority of this growth will come from DCI. For example, in 2014 alone DCI created over 5 TB of digitized content from 7 major collections bringing its total holdings to 20 TB. Increasing resolution of images and an expected growth in the digitization of video, which creates particularly large files, suggest that in the immediate future DCI will be creating up to 10 TB of digital content per year. The task force expects smaller growth, but still growth, in all other areas. The Libraries may also start collecting UWM researcher content such as research data, projects and other files in the future, which we include in our projections. Table 1 lays out current holdings and projected rough estimates for storage needs in 5 years. The 2019 data is an estimate but shows the rough scale of the Libraries' storage needs going forward.

Table 1 – Current and projected storage requirements in terabytes

Department	2014	Projected 2019
DCI	20	60
AGSL	4.5	10

Archives	0.5	1
UWM researcher content	0	3
Library administrative data	3	5
Total	*28 TB*	*79 TB*

1.3 Digital preservation on campus, in the UW System, and beyond

Little is currently being done to preserve campus' digital content beyond providing basic storage. The Libraries are leading in this area by providing some preservation guidance to campus, particularly for university records being maintained by individual departments and to comply with new federal mandates for the preservation of research data (though the actual preservation falls to external data repositories). Two other areas on campus that are doing more active work with digital content are individual departments like Physics, where some groups maintain huge amounts of digital content, and the university research cluster, which manages and analyzes digital content from multiple groups across campus. Neither of these groups or campus IT, however, are pursuing digital preservation on the scale addressed in this report. The task force did not conduct a further review of campus resources and stakeholders, as directed in the task force charge, due to time limitations.

The UW System does not currently have plans for a system-wide digital preservation strategy. The University of Wisconsin-Madison is furthest along in planning for digital preservation. They are currently developing a Fedora asset management system that will be integrated with a new Hitachi storage and software system to manage digital object storage. This project is being administered jointly by the UW-Madison Division of Information Management Technology (DoIT) and the UW-Madison Libraries. There are currently no plans to extend this system beyond Madison.

Beyond Wisconsin, leaders in the field of digital preservation include the University of North Carolina, Yale University, Purdue University, and the University of Michigan. While the UWM Libraries can follow in the path of these institutions, a better model comes from a group of smaller universities in Illinois which, like UWM, are trying to do digital preservation with limited resources. This group, called the Digital POWRR (Preserving digital Objects with Restricted Resources) Project, created a report that details an incremental approach to digital preservation and evaluates several potential tools and models (Schumacher et al., 2014). The POWRR report was very helpful in the creation of this report and we expect it to be useful for the proposed group evaluating preservation systems.

1.4 The NDSA Levels of Preservation framework

Throughout this report, the National Digital Stewardship Alliance's (NDSA) Levels of Preservation (see Table 2) is used as a framework for assessing UWM Libraries' current and future ability to sustain digital content. The task force finds this system useful for several reasons. First, the NDSA's current association with Library of Congress and proven track record in the field of digital preservation give authority to this system of recommendations. Second, the levels of preservation are broken down in a way to make them easy to understand and offer a rubric for evaluating progress. Finally, and perhaps most importantly, the

existence of four different preservation levels in five different categories provides a path to gradually develop digital preservation strategy and resources over time. The ability to progressively improve the Libraries' digital preservation systems is central to the recommendations made by this task force.

Table 2 – NDSA Levels of Preservation from (National Digital Stewardship Alliance, 2014)

	Level 1 (Protect your data)	Level 2 (Know your data)	Level 3 (Monitor your data)	Level 4 (Repair your data)
Storage and Geographic Location	- Two complete copies that are not collocated - For data on heterogeneous media (optical discs, hard drives, etc.) get the content off the medium and into your storage system	- At least three complete copies - At least one copy in a different geographic location - Document your storage system(s) and storage media and what you need to use them	- At least one copy in a geographic location with a different disaster threat - Obsolescence monitoring process for your storage system(s) and media	- At least three copies in geographic locations with different disaster threats - Have a comprehensive plan in place that will keep files and metadata on currently accessible media or systems
File Fixity and Data Integrity	- Check file fixity on ingest if it has been provided with the content - Create fixity info if it wasn't provided with the content	- Check fixity on all ingests - Use write-blockers when working with original media - Virus-check high risk content	- Check fixity of content at fixed intervals - Maintain logs of fixity info; supply audit on demand -Ability to detect corrupt data - Virus-check all content	- Check fixity of all content in response to specific events or activities - Ability to replace/repair corrupted data - Ensure no one person has write access to all copies
Information Security	- Identify who has read, write, move, and delete authorization to individual files - Restrict who has those authorizations to individual files	- Document access restrictions for content	- Maintain logs of who performed what actions on files, including deletions and preservation actions	- Perform audit of logs
Metadata	- Inventory of content and its storage location - Ensure backup and non-collocation of inventory	- Store administrative metadata - Store transformative metadata and log events	- Store standard technical and descriptive metadata	- Store standard preservation metadata
File Formats	- When you can give input into the creation of digital files encourage use of a limited set of	- Inventory of file formats in use	- Monitor file format obsolescence issues	- Perform format migrations, emulation and similar activities as needed

	known open formats and codecs			

2 Task force recommendations

This task force makes several recommendations for managing the Libraries' digital content for long term preservation. These recommendations fall into three groups:

1. Recommendations for content the Libraries already collect and maintain
2. Recommendations for a central preservation infrastructure
3. Recommendations for content the Libraries' may collect in the future

This section gives an overview of the recommendations in these three areas with later sections of this report offering more specifics.

2.1 Dealing with current content

The task force's first recommendation is that the Libraries focus initially on current content. This includes three major goals:

1. Reach level 1 for all categories of the NDSA framework by the end of this calendar year (2015)
2. Reach level 2 for all categories of the NDSA framework within two years (2016)
3. Map out a path to achieve and sustain level 4 by 2020

These goals satisfy the needs of the Libraries, are achievable, and put the Libraries on a path toward good practices in the long term. Section 3 breaks down these goals in more detail.

2.2 Creating central infrastructure

The task force's second recommendation is to build a centralized infrastructure for preservation that adds to practices and resources already in place. In particular, the Libraries should make improvements in documentation of file format information (data streams), geographically distributed storage, and the ability to systematically track file integrity and ensure replacement or repair in the event of file corruption. A shared system with shared workflows will be the most efficient way for all departments in the Libraries to meet the goals stated in section 2.1. Section 4 explores this recommendation further, along with describing resources necessary to put such a system into place.

2.3 Preserving new types of content

Once additional infrastructure is put into place to preserve the Libraries' existing content, it may be used to preserve new types of content. The task force recommends the creation of collection development policies and the designation of access systems prior to collecting any new content. Section 5 covers these issues in more detail.

3 Improving preservation of the Libraries' current content

The 25 TB of digital project content that the Libraries currently maintains does not meet all of the level 1 requirements for the NDSA Levels of Preservation (see Table 2). This means that this content is currently at risk for loss. In order to protect this data for the future, work needs to be done in several areas to bring the Libraries' systems up to the most basic digital preservation level (level 1) by 2015. The ultimate goal is to be at level 4 by 2020; see section 3.6 for an action item summary.

3.1 Storage and geographic location

Currently, the Libraries nearly meet level 1 for this category:
1. The Libraries maintain at least "two complete copies" of digital files that are considered archival masters that "are not collocated".
2. The Libraries do not fully meet level 1, however, due to lingering data storage on optical devices, most notably the large collection of CD-ROMs maintained by the AGSL. Additionally, the Libraries should determine whether this data is unique material for which they have a long-term preservation responsibility.

Because storage and backup are critical to the preservation of existing digital data and because the Library's current storage infrastructure is almost at level 1, the committee recommends that the Libraries immediately look to progress to level 2 in this category. Adding an offsite copy of the Libraries' content [ACTION ITEM 2] provides another complete copy in a different geographic location and ensures the safety of that digital content in the event of data loss due to system error, natural disaster, or any number of other potential threats.

3.2 File fixity and data integrity

The Libraries have made initial progress in the category of file fixity, mostly in the Archives and DCI. Both currently meet NDSA level 1, in that they have or create fixity information at ingest, and are working to reach level 2. AGSL has not yet done anything in this category, though files created for AGSL by DCI meet these standards. None of the Library department currently address repair or replacement in case of file corruption.

The task force recommends that the Libraries implement shared tools and procedures to create and store fixity information, building on the current Archives and DCI workflows [ACTION ITEM 3]. Additionally, the Libraries should adopt tools and procedures for "write blocking" and to automate virus checking for all preserved digital content to reach level 2 in this category [ACTION ITEM 4].

3.3 Information security

The Libraries' Systems Department is currently providing security at the NDSA level 1 standard, in that they limit access to certain content to a particular subset of individuals. Systems also maintains a list access restrictions for different users, satisfying level 2 in this category, and also has the ability to move to higher levels in this category in the future.

No immediate work needs to be done in this category for the purpose of this report, though leveraging Systems' capabilities to achieve higher NDSA levels here would be beneficial.

3.4 Metadata

The state of metadata for the Libraries' digital content is varied. Archives uses a complex metadata system involving the tool FITS, PREMIS, Bagger, and DROID. While this system touches components at all 4 levels of the NDSA framework, it is complicated and not scalable. DCI maintains an index of content (Level 1), descriptive metadata on all digital items (Level 3), and some administrative metadata (Level 2). The department, however, does not log events (Level 2) nor maintain extensive technical metadata external to the digital files themselves (Level 3). The AGSL maintains an inventory of its digital holdings (Level 1) via an Access database for GIS data and individual README.txt files containing descriptive metadata for each dataset.

All departments maintain an index of content backed up to non-collocated storage, satisfying the requirements for level 1 in this category. To reach level 2, the task force recommends streamlining metadata workflows across the library to use common tools and procedures for metadata [ACTION ITEM 5]. The ideal system will create an inventory of content, store technical and administrative metadata, and record events as transformative metadata, in addition to having capacity for reaching the higher NDSA levels in this category.

3.5 File formats

As with metadata, different departments within the Libraries address file formats at different levels on the NDSA framework. Archives currently maintains a list of recommended file formats, advises campus record holders as to the preferred formats for retention, and keeps an inventory of file formats in use, placing this department at level 2 in this category. They are also doing some work to monitor file format obsolescence at level 3, but this is not systematic. DCI documents preferred file formats for content based on established best practices (level 1), but do not have a firm list of all file formats in use. DCI has done some file format migration, a level 4 task, but again this is not systematic. The AGSL would like to move their data away from proprietary formats but has not yet done any work in this category.

To bring the Libraries to level 1 in the category of file formats, AGSL should create a list of preferred formats and use these as guidelines when purchasing/digitizing new digital content [ACTION ITEM 6]. To reach level 2, both AGSL and DCI should create an index of file formats currently in use [ACTION ITEM 7].

A shared preservation system that automatically identifies file formats would be a significant help in this task.

3.6 Action Item Summary

The following table summarized the action items required to meet NDSA levels 1 and 2 by the end of 2016.

Table 3 – NDSA level goals summary

NDSA category	Level 1 – end of 2015	Level 2 – end of 2016
Storage and Geographic Location	Move files off of CDs as appropriate	Add second offsite/dark copy
File Fixity and Data Integrity	Use shared tools and procedures to create and store fixity information	Perform automatic virus testing and adopt write-blocking tools
Information Security	-	-
Metadata	Back up metadata in a secondary location	Adopt common tools and procedures to store administrative, technical, and transformative metadata and log events
File Formats	AGSL should create a list of preferred file formats	Create index of file formats currently in use

In addition to achieving the action items for the first two NDSA levels, the Libraries should create a plan for how to reach NDSA Level 4 by 2020 [ACTION ITEM 8]. This will involve technical solutions and resources described in the next section.

4 Resources needed to meet the task force goals

Anne Kenny and Nancy McGovern equate institutional support for digital preservation with a three-legged stool (Kenney & McGovern, 2003) in that digital preservation requires support in three key areas in order to have a stable foundation. The first leg of the stool corresponds to the organization's commitment to digital preservation, the second leg is the technology necessary to facilitate digital preservation, and the third leg represents resources such as money and staff time dedicated to preservation. Without any of these three key elements, the stool that is digital preservation falls over.

The previous section of this report outlines incremental steps for improving the preservation of the Libraries' current digital content. However, these steps should exist within a larger infrastructure for digital preservation. Assuming that the Libraries decide to commit to digital preservation, thus forming the first leg of the stool, the next subsections cover the technology and resources necessary to put into place the recommendations from section 3.

4.1 Technology

One of the biggest challenges of moving the Libraries' digital content to higher levels on the NDSA framework will be finding a scalable solution that works across the organization. While the Libraries can certainly adopt an array of preservation tools in each department with digital content, this is not efficient. Instead, the task force recommends investigating options for a preservation system that is centrally maintained and used by multiple Library departments [ACTION ITEM 9].

The task force explored potential systems to understand the costs and trade-offs for preservation infrastructure. We present a few options here, not as a final recommendation but to outline the resources necessary for a preservation system. Table 4 summarizes our findings.

Table 4 – Potential preservation systems

System	Storage and Geographic Location	File Fixity and Data Integrity	Information Security	Metadata	File Formats	Potential costs; advantages; and drawbacks
Current system	(Ufiles, GML2, tape backup) + [no offsite dark storage] (**nearly Level 1**)	Some inventory of files and creation of fixity information (**nearly Level 1**)	(**Level 2**)	Creation of descriptive metadata for publicly available files; some administrative and technical, but not systematically created or maintained (**not yet Level 1**)	Some inventory of file formats, documentation of best practices, preferring open formats and codecs (**Level 1, nearly Level 2**)	Costs currently part of Library budget; question of projecting costs for growth of storage needs
Current system + additional offsite dark storage that is commercially hosted and cloud-based	(Ufiles, GML2, tape backup) + (ex. Amazon Glacier or Google Nearline for commercial cloud services; DuraCloud as a broker for commercial cloud services) (**Level 2; possibly Level 3 and 4 if services meet requirements**)	No change (**nearly Level 1**)	No major change; additional documentation required for added storage; possibly gain logs and auditing actions depending on service (**Level 2, possibly 3 or 4**)	No change (**not yet Level 1**)	No change (**Level 1, nearly Level 2**)	Additional cost for offsite storage, *potentially* lower cost for long-term *inactive* storage; direct control of data; Still relies on ad hoc preservation procedures for metadata, file fixity and integrity, and format monitoring for migration; charges for removing data from storage; slow retrieval of data in case of need to access preservation masters; *Cost estimate*: **~$10,000/year additional**

System	Storage and Geographic Location	File Fixity and Data Integrity	Information Security	Metadata	File Formats	Potential costs; advantages; and drawbacks
Current system + additional offsite dark storage that is commercially hosted and cloud-based + centralized preservation application (examples include ArchivesDirect and Preservica)	(Ufiles, GML2, tape backup) + (ex. Amazon Glacier or Google Nearline for commercial cloud services; DuraCloud as a broker for commercial cloud services) (**Level 2; possibly Level 3 and 4 if services meet those requirements**)	Fixity check built into capture of all data streams; some systems offer virus scan (Archivematicaand Preservica); need separate systems for write-blocking and ability to replace/repair corrupted data (**Levels 2, possibly 3**)	No major change; additional documentation required for added storage; possibly gain logs and auditing actions depending on service (**Level 2, possibly 3 or 4**)	Most preservation systems build in metadata harvest and manual metadata creation for technical, preservation, and administrative metadata (**Likely Level 4**)	Some preservation systems (including Preservica and DuraCloud) include tools to monitor file formats via registries and create migration pathways (Depending on system, **Level 3, part of Level 4** – no emulation tools available via systems researched)	Automates many preservation actions; geographical separation plus bit-independent copy coordination; many system options are open source; High upfront costs; on-site administration requires technical expertise; some systems include extensive technical support; *Cost range estimate*: $20,000-$80,000/year; additional upfront costs and staff costs not included

The outlined scenarios focus on the two components necessary for preservation: low-performance, large-scale dark storage for an offsite backup copy and a system for managing preservation tools and workflows. The first component covers the NDSA "Storage and Geographic Location" category and the second covers the other NDSA categories.

A related issue not addressed by the task force is access storage. Access storage enables immediate access to digital files for patrons. CONTENTdm is an example of access storage for lower resolution JPEG, PDF, mp4, and mp3 files, where allowed by copyright and agreements. While access storage was not considered part of the charge for this task force, it should be noted that some of the potential systems reviewed include both access and dark storage. As specific options are considered, access storage may become an additional factor in selecting a preservation solution.

Table 4 represents initial research into preservation systems for the purpose of resource allocation, but further work needs to be done. This task force recommends the creation of a second group to define requirements, further investigate preservation systems, and make a final recommendation for a system to purchase [ACTION ITEM 10].

4.2 Resources

Technology is an important leg of the digital preservation stool but the stool will not stand without other resources devoted to preservation. In particular, the task forces recommends appointing an administrator of the proposed digital preservation system [ACTION ITEM 11]. An individual should be tasked with primary maintenance of the system. A team might be tasked with specific preservation duties across the library, reporting on these tasks to a central administrator. The actual staff position can be an existing librarian retrained in this role, an administrator from UITS, or a newly hired staff position.

In addition to a dedicated administrator, the task force recognizes that digital preservation will be an ongoing issue within the Libraries. For this reason, we recommend the creation of a working group made up of those involved in preservation from the different parts of the library [ACTION ITEM 12]. The group will share knowledge, support, and work through any issues with the Libraries' digital preservation strategy.

Finally, the task force recommends that digital preservation be added to the Libraries' strategic plan [ACTION ITEM 13]. As an important piece of how the Libraries manage their growing amount of digital content, digital preservation needs to be represented among the other priorities for the Libraries.

5 Collecting new types of UWM digital content

The Libraries can leverage a centralized infrastructure for preservation to collect new types of content. For example, should the Libraries choose to collect research data, preserve projects from the Digital

Humanities Lab, or collect important local history in digital form, these can be folded into the proposed preservation system. Note that this may add additional preservation demands, as some types of digital projects require maintaining not just the bits, but the context and operation of project components as well.

First, the task force recommends creating new collection development policies for any digital content acquired from outside of the libraries [ACTION ITEM 14]. This will help the Libraries evaluate and only take in high quality content that is central to its mission. The actual policy development may fall to the Collections and Resource Group, Archives, the Digital Humanities Lab, or another group designated for the task, depending on the content.

In addition to policy, the Libraries will need to consider access systems for new types of digital content [ACTION ITEM 15]. The infrastructure detailed in this report mainly concerns preservation and, while preservation is usually done for the purpose of access, the final preservation infrastructure may not necessarily allow for public access. It is possible that in collecting new categories of digital content the Libraries can make use of existing access infrastructure, but this also needs to be considered before collecting in new areas.

6 Summary

The Libraries currently have roughly 30 TB of digital content and, while much of this content is accessible and publically available, it is at risk for loss. This task force was charged to identify ways to better preserve the Libraries' digital content in order to ensure that this material remains available and usable into the future.

The task force has come up with 14 action items for the Libraries' digital content which are detailed more thoroughly in this report. They are as follows:
1. Identify crucial and unique digital content on CDs in AGSL and move into the main storage system by end of 2015. (Level 1)
2. Create an offsite, dark copy of the Libraries' digital content for a non-collocated backup copy by 2016. (Level 2)
3. Adopt common tools and procedures to create and store file fixity information by 2016. (Level 2)
4. Adopt write-blocking and virus-checking tools for all content by 2016. (Level 2)
5. Adopt library-wide tools and procedures for preservation-related metadata workflows by 2016. (Level 2)
6. The AGSL should create a list of preferred file formats by 2016. (Level 2)
7. All departments should maintain a list of file formats currently in use by 2016. (Level 2)
8. Create a plan to reach Level 4 by 2020. (Level 4)
9. Adopt a central system for managing preservation workflows and tools.

10. For the above system, create a group to research requirements, possible system solutions, and make a recommendation for purchase.
11. Designate a central administrator for the preservation system.
12. Create a working group for all library personnel involved with digital preservation.
13. Incorporate digital preservation goals into the Libraries' strategic plan.
14. Create relevant collection development policies prior to collecting new types of digital content.
15. Designate access systems for any new types of collected digital content.

Overall, the UWM Libraries must commit to three key areas of support – administrative support, technical solutions, and the dedication of resources – so that the Libraries' digital content will be available in the future.

7 References

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Appendix A: Task Force Charge

Title: Task Force on Sustainable Digital Projects

Description: The sustainability of digital projects is an increasingly pressing issue in the Libraries and on campus and Golda Meir Libraries is in a strategic place to help support the longevity of such projects. We propose a task force to examine how the Libraries can meet these needs in the coming years.

The main purpose of the task force is to consider potential library services for sustaining digital projects. The scope of these projects includes those developed in the DH Lab and DC&I, digital and digitized archival materials and electronic records, complex digital research data, and, potentially, teaching-related projects.

The group will investigate policies, tools, storage, and support solutions offered by other libraries in this area. This investigation will include other Wisconsin universities and the UW System with an eye toward potential collaborations. The task force will also develop a basic needs assessment for the UWM Libraries and campus. From this information, the task force will recommend approaches to sustaining digital projects over the long term.

The task force would deliver a report, including recommendations, to ELC for consideration at the end of a nine-month term. The report will include:
- A needs assessment for digital project and data support in the Libraries and on campus.
- A review of programs, policies, funding models, and strategies for digital project support at other institutions. The task force will examine peer institutions and universities that are leaders in digital preservation.
- Potential opportunities for collaboration with other Wisconsin universities and the UW System.
- A review of campus resources and stakeholders in this area.
- A set of recommendations and justifications for those recommendations, with a suggested timeline for implementation and, as appropriate, cost estimates for infrastructure and staffing.

Proposed task force members:
Kristin Briney and Ling Meng, co-chairs
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