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Taking Action Together: Professional Development and Digital Preservation in the Digital POWRR Project

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Abstract

In 2014, the Digital Preserving Digital Objects With Restricted Resources (POWRR) Project published a white paper endorsing a "good enough" approach to digital preservation that other researchers had developed. Starting at a small scale with relatively simple technology, practitioners could build a workflow and expand their capacity or reconfigure it entirely over time. Publications discussing good enough digital preservation took a crucial first step but offered little specific advice on how to move implementation forward. In addition, library and information science schools developed graduate curricula and professional development programs related to digital preservation, often presenting new standards from a conceptual perspective. In 2015, the Digital POWRR Project team began a series of professional development events that provided practitioners with a well-defined, practical path toward sustainable digital stewardship. Many attending information professionals reported becoming aware of standards in the field but remained unsure how to apply them. POWRR workshops and institutes provided hands-on experience with individual applications and invited participants to consider how they could fit together in a customised local workflow. In addition, they emphasised the benefits of a community of practice and advocacy activities within and across organisations. This article reviews the contribution that the Digital POWRR Project has made to digital preservation knowledge, understanding, and professional training by examining the evolution of its instructional model. Drawing on program documentation and evaluation data, it analyses how POWRR translated good enough theory into practice and what can be learned from its emphasis on workflow thinking, peer learning, and incremental action. Project team members found that many practitioners welcomed this perspective. Data show that program activities helped participants overcome their initial hesitation and meet the challenge of expanding digital preservation capacity in their organisations. Substantial majorities of program participants reported that their experience helped them to improve local practice. Professional development activities have long been an integral part of library and information science disciplines. This article suggests that pragmatic training, specifically focusing on good enough methods, community of practice, and advocacy activities, complemented the more theoretical focus of other digital preservation instructional programs and helped practitioners begin taking action.

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Introduction

As digital materials became more common and widely used in libraries, archives, and cultural heritage institutions, information professionals began to perceive their great susceptibility to loss (Hedstrom, 1998; Rieger, 2008; Waters & Garrett, 1996). The Digital Preserving Digital Objects With Restricted Resources (POWRR) Project,[1] at Northern Illinois University (NIU) Libraries, since 2012, has explored challenges related to the long-term preservation of digital materials in libraries and archives as well as potential solutions. It used funding provided by US federal agencies to grow through several distinct phases, each building on lessons from the last. An initial research study (2012–2015) funded by the Institute of Library and Information Science (IMLS) produced a 2014 white paper that addressed librarians and archivists at medium-sized and smaller organisations with limited financial resources (Schumacher, et al., 2014). The study endorsed a provisional, "good enough" approach to digital preservation and led to the project's first professional development workshops. A subsequent National Endowment for the Humanities (NEH) grant (2015–2017) supported an expanded series of one-day workshops reaching over 600 practitioners nationwide. In 2017, an IMLS award enabled the project to develop two-day, cohort-based institutes that added individualised consultation and peer learning to the instructional model. Most recently, another grant provided by the IMLS funded the POWRR Peer Assessment Program (2022–2025), which extended the project's emphasis on communities of practice into a distributed, peer-led model (Jones, et al., 2025). A second NEH grant (2022–2025) supported an expanded series of institutes.

This article examines how POWRR contributed to practitioner knowledge and confidence by translating good enough digital preservation theory into actionable training, and how its instructional model evolved in response to participant needs. By synthesising lessons from workshops, institutes, and the POWRR Peer Assessment Program, this article identifies elements of the POWRR approach that may inform future digital preservation training efforts, particularly in under-resourced or uncertain institutional contexts (Jones, et al., 2025).

Literature Review and Historical Context

By the time the Digital POWRR Project[1] published its white paper, librarians and archivists had started to notice a general need for increased digital curation expertise (Lee & Tibbo, 2011; McMillan et al., 2011; Pennock, 2006). In the US, leading library and information science programs expanded their graduate curricula to provide this training (Lee & Tibbo, 2011; Tibbo, 2015; Yakel et al., 2011). Professional development programs for established librarians, archivists, and curators seeking instruction in digital stewardship also emerged; however, researchers and practitioners increasingly called for additional training opportunities (Recker & Schumann, 2012; Brown, 2013). Many sought curricula that focus on pragmatic steps practitioners can take to improve digital preservation practices in organisations (Anderson, 2008; Harvey, 2010; McMeekin, 2011).

Within the group of practitioners calling for additional digital preservation expertise, Sharon McMeekin noted that many practitioners found the prospect of developing effective digital preservation processes unnerving because of the complexity and perceived expense of these processes. She argued that a successful practice could begin on a small scale using simple technology and increase capacity in keeping with available resources (McMeekin, 2011, pp. 241–242). In a similar vein, Adrian Brown urged practitioners to focus less on meeting best-practice standards that represented "a single, and almost certainly unattainable ideal of curatorial perfection." Instead, they could "think about what 'good enough' preservation looks like, in their

[1] Digital POWRR: https://digitalpowrr.niu.edu/

own particular circumstances "(Brown, 2013, p. 90).[2] McMeekin and Brown's publications provided practitioners with a promising approach to digital preservation but did not provide detailed discussions on how practitioners could implement it. The Digital POWRR Project helped librarians, archivists, and other cultural heritage professionals address this gap. Project publications and events allowed practitioners to begin creating new processes and practices by determining how individual tools and services could fit together into a workflow best suited to local conditions. POWRR also followed earlier publications in emphasising how communities of practice sharing information and expertise, and organised advocacy activities within and across organisations, could help practitioners to improve local capacity (Anderson, 2008; Harvey, 2010; Jones, 2005; Savage, 2006). Data show that attending practitioners found that these activities helped them start preserving digital materials more effectively in their organisations.

Origins

In 1998, the NIU Libraries started producing original digital materials from their collections and those of several partner organisations. In 2008, a team of NIU Libraries staff and faculty submitted a grant proposal seeking funding for the digitisation and online presentation of additional materials. However, it failed to win funding primarily because of a reviewer's observation that it lacked a provision for the materials' long-term preservation.

This occurred as the NIU Libraries Digital Initiatives Unit technical staff started to confront a host of difficulties related to sustaining digital materials online and preserving them in local storage. The collaborators studied the issue and discovered researchers' rapidly increasing awareness of the many methods by which digital materials could become unavailable for use, as well as a shortage of practical techniques for preserving them., In 2009 the NIU Libraries team submitted a proposal seeking IMLS funds to develop a distributed digital preservation network in Illinois using LOCKSS technology[3]. The IMLS declined to support it but offered them an opportunity to submit a new proposal seeking funds for a study, in partnership with several other Illinois universities, testing multiple collaborative digital preservation solutions and evaluating their suitability for small and medium-sized academic libraries (IMLS, 2011; Howard, 2015). When this proposal received an award, the undertaking that became known as the Digital POWRR Project began (Erdman, 2014; IMLS, 2011; Schumacher, 2015, pp. 2–3).

Research Study and White Paper

In 2012, the project's coprincipal investigators hired a project director, who brought recent experience in private sector information technology consulting. She suggested that the research team name the project Digital POWRR. In addition, she expanded the project scope beyond its original focus on evaluating several digital preservation applications to encompass a broader investigation of scalable digital preservation solutions. The expanded project aimed to deliver a "well-marked, practical path toward sustainable digital stewardship" for medium-sized and smaller organisations that lack considerable financial resources (Schumacher, 2015, p. 2). The NIU Libraries team coordinated research at NIU and four participating institutions: Chicago State University Libraries, Illinois State University Libraries, Illinois Wesleyan University Libraries, and Western Illinois University Libraries (Erdman, 2014; Schumacher, 2015, pp. 2–3).

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[2] This review includes publications discussing a "good enough" approach to digital preservation at the time of the project's white paper preparation. For subsequent discussions of this approach, see Baucomb (2019b), O'Meara and Stratton (2016), Owens (2018), and Wilson (2018).

[3] LOCKSS ("Lots of Copies Keeps Stuff Safe") is a peer-to-peer network that allows organisations to collect, preserve, and provide users with access to information. In practice, a LOCKSS network allows collaborating organisations to store preservation copies of each other's data. See https://www.dpconline.org/blog/blog-aw-lockss for more information.

Project research proceeded in several stages. The NIU team conducted an environmental scan of tools and services available to organisations grappling with the challenges of digital preservation., They then created a tool evaluation rubric, loosely based on the Open Archival Information System model and existing tool registries (Consultative Committee for Space Data Systems, 2012). During its development, the project director consulted with an NIU Libraries archivist, aligning the OAIS model's general points of emphasis with the specific steps that the archivist used to accession new physical collections. Then, the project director and project team members identified individual tools and services that could be used in various sections of the process, based on the roles or functions they could perform (Schumacher et al., 2014, pp. 6–7). After using the framework to review the available tools and services, the researchers selected seven for further testing and evaluation. The team compiled information on all applications and products subject to initial review, which numbered over 60, into an online resource known as the POWRR Tool Grid.[4] It depicted the tool evaluation rubric in a visual matrix that helped users understand the digital curation life cycle as consisting of several discrete activities: ingest, processing, access, storage, maintenance, and other. The grid also presented each activity as composed of a number of specific, individual functions. For example, ingest activities included file copying, fixity checks, virus scans, file de-duplication, and the creation of unique identifiers.[5] Then, it noted which functions each included application or product performed (Schumacher, 2015, p. 3, 38).

Collaborators at each of the five participating Illinois institutions conducted local case studies, outlining their unique collections and organisational challenges (Schumacher, 2015, p. 5). Combining this information with the Tool Grid, the project team and a Board of Advisers jointly developed an evaluative framework for testing selected applications and products. They agreed that the testing should focus on how a practitioner could experience and work with the selected tools and services within constraints that could include outdated technical infrastructure, limited personal technical skills, little to no budget for licensing, consultancy fees, or additional equipment, no computer programmers on staff and no access to server administrators, and no data, metadata, or digital collections librarians on staff. At each participating institution, local researchers recruited individuals with varying skill sets, including librarians, archivists, archival processors, and graduate assistants, to test applications and products. Researchers conducted testing with computers using a variety of operating systems; however, all institutions tested the same version of the tool or service under review whenever possible (Schumacher, 2015, p. 5).

The project white paper started with a brief introduction that listed factors that place digital materials at risk (Schumacher et al., 2014, p. 3). After discussing project methods and participating institutions, the paper outlined the Digital POWRR Project's primary emphasis. The research team noted that case studies had discovered a fundamental misconception preventing many cultural heritage professionals (including members of the project team) from making meaningful progress toward the development of an effective digital preservation program, or even beginning to plan for one: "We assumed that digital preservation is an either/or proposition; either an institution has implemented successful digital curation and preservation measures or it has not" (Schumacher et al., 2014, p. 4). This misconception initially left members of the project team feeling overwhelmed by the complexity of the technical issues surrounding digital preservation work and the difficulty of devising or selecting a comprehensive solution (Rinehart et al., 2014). Instead, the team came to realise that "the opposite is true. Digital preservation is best thought of as an incremental, ongoing, and ever-shifting set of actions, reactions, workflows, and policies" (Schumacher et al., 2014, p. 5).

This approach meant that practitioners did not need to start digital preservation work by creating or selecting a comprehensive solution, choosing technologies to be used for the next 20 years or more. Instead, they could start by taking small steps to prioritise and assess digital collections, making progress toward improved practice. The National Digital Stewardship Alliance's Levels of Digital Preservation, first released in 2013, provided a helpful guide to this

[4] POWRR Tool Grid: https://digitalpowrr.niu.edu/digital-preservation-101/tool-grid/

[5] Project staff members selected these activities due to their frequent inclusion in a typical workflow, and their inclusion is not meant to be construed as a "required" function. Many other functions are available, although not represented in the matrix.

approach.[6] The model emphasised specific activities practitioners could undertake to enhance their organisation's digital preservation capacity at each level. It encouraged practitioners to take an iterative approach and focus on activities they could accomplish over the next six to 24 months, rather than waiting a decade for a potentially perfect solution. This approach seemed counterintuitive to some practitioners accustomed to thinking in terms of decades and centuries; the report emphasised that "to wait is to risk catastrophic content loss" (Schumacher et al., 2014, p. 5; Schumacher, 2015, p. 7).

The research identified a second point of emphasis that previous publications and training programs discussing digital preservation had overlooked. The team discovered that most preservation tools and services they reviewed could only be of use after local practitioners had completed initial accessioning and inventorying activities, which the team identified as "triage" (Schumacher et al., 2014, p. 6; Schumacher, 2015, p. 7). This study directed readers to the POWRR Tool Grid,which was then incorporated into the Community Owned Digital Preservation Tool Registry, where they could review a number of applications and products for triage.[7] Then, it moved on to discuss the results of its testing work. The 2014 white paper reviewed individual tools and provided four potential solution models, recommending applications, products, or combinations suited to different institutional contexts (Schumacher, 2014, pp. 6-18). Because these reviews and solution models included applications and products that are now over ten years old, this article will not discuss them in detail. However, the discussion of solution models elaborated on a concept that would play an increasingly important role in the Digital POWRR Project's approach to digital preservation: workflow. The project white paper reported that during their research, Digital POWRR team members at five institutions "each sought sensible workflows for our unique situations" (Schumacher et al., 2014, p. 15). The report concluded that "when exploring more robust technical solutions, understand that selecting more than one tool or service may be preferable" (Schumacher et al., 2014, p. 15). A number of utilities, each performing specific functions, could often provide the best digital preservation capacity possible in a given organisational context. The white paper advised practitioners to use the Tool Grid as a basic guide to the potential components of a digital preservation workflow. The grid provided information about tools performing each function in a digital object life cycle, which could help librarians and archivists select a combination of products or applications that best suited their local needs.

In addition, the study produced findings indirectly related to software applications and products, or their combination into workflows. It asked practitioners to work with colleagues in other organisations who faced similar challenges. Based on the researchers shared experiences, the study concluded that a community of practice emphasising collaboration and cooperation provided a significant advantage in achieving higher levels of digital preservation capacity. The researchers initially focused their study on smaller, relatively under-resourced organisations, believing that larger institutions had already found solutions to meet their needs (Schumacher et al., 2014, p. 16). Instead, they found that a functional community of practice could include practitioners from the full range of organisations. A review of digital preservation activities beyond the five collaborating universities found that many organisations with substantial financial resources and high staffing levels continued to struggle to implement basic digital preservation infrastructure and policies, especially given their more complex environments. They welcomed new ideas. Sharing information about experiences with various digital materials, as well as digital preservation services and products, enabled practitioners to make well-informed decisions when creating local practices and processes.

Immediate, incremental action figured prominently in the white paper's recommendations because its findings showed that administrators and other leaders responsible for allocating personnel and funds remained largely unaware of the high risk of loss associated with digital materials and the potential consequences of that loss. The white paper urged practitioners to move forward on two tracks, doing their best to raise their organisation's capacity via the Levels of Digital Preservation while advocating for resources that could bring policy changes, delivering more substantial results faster (Schumacher et al., 2014, p. 14). If concerned librarians and

[6] Levels of Digital Preservation: https://ndsa.org/publications/levels-of-digital-preservation/
[7] Community Owned digital Preservation Tool Registry: https://coptr.digipres.org/index.php/Main_Page

archivists could make decision-makers aware of the stakes involved in the potential loss of unique materials, they could perhaps direct or acquire resources, via annual budget allocations, to begin addressing the problem. The report advised librarians and archivists to begin informing a range of stakeholders of the high risk of loss associated with digital materials. At universities and colleges, this group included faculty, staff, students, administrators, board members, and donors. At cultural memory organisations, stakeholders included archival and curatorial staff, administrators, board members, and donors (Schumacher et al., 2014, p. 14).

The Digital POWRR Project white paper provided librarians, archivists, and other practitioners responsible for the long-term stewardship of digital materials with a guide for incrementally improving digital preservation practices. The Levels of Digital Preservation provided a broad, framing concept and suggested a pathway toward improved operations. The study uncovered several practical problems that emerged during the team's efforts to establish testing workflows, and the study proposed solutions to address them. Product testing provided readers with impressions of several digital preservation tools, and the team suggested several product combinations that could fit different organisational contexts. More broadly, the study advised practitioners to survey their organisational contexts and collections, then begin assembling workflows tailored to their needs. As they found access to organisational resources, practitioners could gradually expand and improve their practice. At the time of the study's publication, an increasing number of authors in the field recommended this approach; however, none had taken the next step of showing practitioners how to implement it. The white paper suggested tools and concepts that could help librarians and archivists begin to achieve good enough practice. Then, the project team moved on to provide instruction showing practitioners how to develop specific policies, technical infrastructure, and expertise within their organisations.

From Research to Instruction

The original Digital POWRR Project proposal called for the dissemination and discussion of the study's results in a national conference at NIU in DeKalb, Illinois. However, the Board of Advisers and researchers agreed that this format, while familiar to many practitioners, would not provide the most effective distribution method for the paper's findings, nor would it attract the audience most likely to benefit from them (Schumacher, 2015, p. 6). Instead, the project team chose to use what they had learned from their research to create a one-day professional development workshop that would show practitioners how to implement a good enough approach to digital preservation. Using award funds originally allocated for a conference, team members delivered a curriculum with five expected outcomes as stated in workshop materials:

1. You will understand that different digital preservation tools/services can perform different functions within the digital curation lifecycle and be able to explain how these tools/services can be used within your institution's workflow;

2. You will practice some of the initial pre-ingest activities required to accession a digital collection and gain the skills necessary to repeat this process at your institution;

3. You will gain hands-on experience with a basic digital preservation tool and understand how it can be used within your institution's workflow;

4. You will take away resources that help align communication and advocacy, as well as guide policymaking and tool selection/implementation; and

5. You will create a 3-3-3 Action Plan to implement in the following three months that will move you closer to your digital preservation goals (Digital POWRR Project, 2015b, slide 4).

Although the workshop curriculum grew and changed over several years, it retained a common, basic structure. The event began with a 30-min discussion, "The POWRR Approach to

Digital Preservation." It explored the distinction between digital preservation in theory (as seen in the OAIS model) and in practice, while emphasising the event's focus on the latter. The curriculum then turned to the Tool Grid, which had attracted widespread notice (Burgi et al., 2016, p. 70; Burgi et al., 2017, p. 10; Digital Preservation Coalition, 2024; Doll & Hiltunen, 2016; Erickson, 2014; George et al., 2018; Mullins, 2015; Preserve This, n.d.; Virginia Tech University Libraries, 2022). It appeared prominently in workshop materials, helping participants understand digital preservation activities as consisting of five stages. Instructors described the first stage, "ingest," as "getting it [the material]." They went on to describe the second stage, "processing," as "understanding it and documenting it;" the third stage, "access," as "letting people use it ... or not!" the fourth and fifth stages, "storage" and "maintenance," as "taking care of it;" and a final category, "other," as "a few other odds and ends." The next page of the curriculum, again borrowing from the Tool Grid, described each stage or workflow element as made up of discrete activities or functions. For example, "Copy," "Fixity Check," "Virus Scan," "File De-duplication," and "Auto Unique ID (creating a unique identifier for each digital object)" together composed the "Ingest" stage. Together, these stages and their constituent functions represented the outline of a potential workflow, "AKA Good Enough DP for Real People!" (Digital POWRR Project, 2015b, slide 10).

The presenters then guided workshop participants through a pre-ingest workflow, a process by which they could accession born-digital materials, such as those donated to a library or archive on a digital storage device, before transferring them to a digital preservation repository application or product. The process began with the creation of an inventory spreadsheet, and then demonstrated how Data Accessioner, an open-source application developed at Duke University (as noted in the Tool Grid), could help practitioners perform basic preservation activities. The tool allows practitioners to move files from at risk external media to secure, networked storage. It deploys file identification and characterisation tools in the background, creating technical and preservation metadata in XML format. Users may also assign additional descriptive metadata at the object or file level as needed. In addition, Data Accessioner calculates an MD5 hash value, a unique, 32-character hexadecimal string representing a file's contents, for each file. Even a minimal change in content, such as the addition of a single comma, will produce a completely different hash value. When a file is moved to a new location, Data Accessioner recalculates its hash value. If the application produces the same hash value for the file, it indicates that it has been moved safely. In addition, it creates an access copy of a digital object, distinct from the master copy. Again using the Tool Grid diagram, the presenters showed participants how the process had allowed them to perform the "Copy," "Fixity Check," "Auto Unique ID," "Auto Metadata Creation," "Auto Metadata Harvest," "Manual Metadata," "Package Metadata" and "Auto SIP Creation" functions within the Ingest and Processing stages of a workflow (Digital POWRR Project, 2015b, slide 21).[8] Then, they moved on to discussions of how other applications performed specific functions within the digital preservation lifecycle (Digital POWRR Project, 2015b, slides 28–59).

In the next session, the presenters provided participants with access to Data Accessioner and a sample collection of digital materials via portable storage devices. Using laptops that event organisers had advised them to bring along or computers provided by the instruction team, workshop participants completed the pre-ingest workflow in a hands-on training session (Digital POWRR Project, 2015, slides 64–71). The presenters then congratulated participants on learning to do "Digital Preservation in Your Office" and reminded them that to continue to increase digital preservation capacity at their organisation, "There are things that need to happen *outside* of your office as well ... ." (Digital POWRR Project, 2015, slide 71).

Then, the curriculum turned to advocacy activities. The presenters advised participants that:

> Digital Preservation is not sustainable by just using a tool or selecting a service. Sustainability takes funding and people. You cannot do this alone. You will need to talk to other people .... Successful Digital Preservation programs take a team of

[8] SIP refers to "Submission Information Packet," an element of the OAIS model for digital preservation.

> people at multiple administrative levels (Digital POWRR Project, 2015, slide 72).

The instructors went on to propose a 3-3-3 Action plan. Following the plan, a workshop participant would recruit three individuals at their institution with whom they already enjoyed a working relationship to serve as allies. Probable allies would include colleagues who regularly worked with or relied on digital collections and stood to benefit from improved digital preservation practices. Project staff members created a set of advocacy materials focused on the concerns of different stakeholders, which were available at the workshop and online (Digital POWRR Project, 2025c). The plan also asked participants to identify three "concrete, small steps" (e.g., creating an inventory of digital materials on hand, examining other institutions' digital preservation policies, and downloading Data Accessioner and becoming familiar with it) that the group could take to move a beginning digital preservation program forward in three months (Digital POWRR Project, 2015, slide 75).

The workshop concluded by inviting participants to review potential solution models for their organisation. Instructors asked practitioners to consider several factors in this process, including the number of personnel available for digital preservation work and their familiarity with digital technology and computers, the size and state of their organisation's information technology group, an organisation's existing use of archival management or institutional repository applications, and the nature and value of an organisation's digital collections. They suggested that an organisation lacking personnel with strong technical skills or an information technology department capable of taking responsibility for digital preservation applications should hesitate to build a workflow using open-source software. An organisation already using archival management or institutional repository applications, such as ArchivesSpace, BePress, or Fedora, should consider selecting digital preservation tools and services that function well with them. Organisations would probably hold collections of digital material of varying significance and value. Collections that an organisation identified as high-value and requiring immediate availability merited more robust, costly preservation services. A digital preservation policy could also deposit materials of moderate value that need not be immediately available for retrieval in less expensive storage formats. Summarising this approach, the curriculum concluded, "One tool/service will not be your only solution" (Digital POWRR Project, 2015, slide 83).

The Digital POWRR team used funds from its original IMLS grant to present workshops at no cost to participants at ten locations across the country (Spalenka, 2016; VandeCreek, 2015). In 2015, the project team received new grant support from the NEH to present 16 revised and expanded workshops at 11 locations in the US. Together, the events reached over 600 practitioners.

POWRR workshops suggested that practitioners attempt to make gradual progress toward improved digital preservation capacity by following the project's well-marked path toward good enough practice, and event participants provided generally positive assessments of their instruction and experience. A survey of workshop participants found that 81 per cent had initiated digital preservation activities at their institutions within three months of the workshop. Of these, 71 per cent indicated that they found the skills and knowledge gained during the POWRR workshop were very helpful or crucial in choosing and implementing digital preservation activities (Spalenka, 2017, p. 6). Workshop participants completing evaluations described the event's impact in more detailed language. Many noted and celebrated its practical orientation. One wrote,

> As a student, some of these concepts were briefly touched upon in my archives class, but we never learned how to apply them in a "real way". Working with software while being mindful of institution limitations (i.e., budget) helped me to understand the realities of digital preservation.

A second observed, "I did the DAS [Association of American Archivists Digital Archives Specialist] curriculum, which was so theoretical. The POWRR workshop made everything much more understandable. Very practical indeed." A third reported, "I will go back to my institution to implement most of what I learned today." A fourth stated "I feel much better equipped to get started" (POWRR Workshop Evaluation Data; Spalenka, 2017, p. 9; for another account of a

program event, see Mita, 2016). These remarks suggest that the pragmatic orientation of Digital POWRR professional development events filled a notable gap in the range of available training programs.

Expanding the Instructional Model

In 2017, the POWRR team received additional funding from the IMLS to present a series of five two-day institute events reaching 150 practitioners. The institutes solicited applications and generally selected participants representing non-elite, small to medium-sized organisations with few resources. Many participants represented organisations that collected materials documenting the histories and cultures of underrepresented ethnic and geographic groups. Instructors asked participants to provide information about their digital preservation activities and experiences before attending the institute. Summarising them, the project director reported that:

> Despite the existence of reasonable digital preservation solution models, practitioners were struggling to implement vital curation and preservation activities .... A general unfamiliarity with digital materials, the many tools available, and already heavy local workloads combined to prevent them from making headway (Schumacher, 2019, p. 6).

Program events included much of the original POWRR workshop curriculum; however, project team members noted workshop participants' calls for additional, more detailed instruction and expanded the format to incorporate more hands-on technical training, presentations from expert practitioners, reviews of institutional case studies, group meetings, and one-on-one consultations with instructors. Institutes used a modified cohort model, dividing participants into five groups of six individuals representing similar organisations, each led by an institute instructor. Cohort meetings held during institute events provided participants with opportunities to describe and discuss their local digital stewardship challenges and activities with practitioners representing similar organisations, building relationships that could become ongoing communities of practice (McCracken, 2018). The team expanded the original technical training, which had focused on Data Accessioner, into a new module, "Walk the Workflow." It included multiple tools, presented together as an example workflow (Digital POWRR Project, 2017a).
Consultation activities took place during 30-min sessions that brought each institute participant together with a staff instructor. Developed from the project director's training and experience as a technology consultant in the private sector, the sessions allowed participants to review local situations and goals in detail. These discussions helped practitioners identify a pilot project for moving their local digital preservation activities forward. Each ultimately produced a plan, including three, six, and 12-month goals for the pilot project, which enabled event participants to begin curation activities on returning to their institutions (Digital POWRR Project, 2017a).

During evaluations of institutes, a large majority of participants reported gaining new familiarity with the standards, processes, and tools used to curate and preserve digital materials. They described their acquisition of increased skills in the operation of specific open-source tools; a new facility in assembling a set of tools and practices into a workflow attuned to their institution's existing processes and activities, while recognising its strengths and weaknesses; and increased awareness that digital curation could be achieved incrementally (Schumacher, 2019).
Evaluation materials also provided participants with an opportunity to communicate their impressions of an institute in more specific language. Many reported that they found the good enough approach to digital preservation, the emphasis on constructing workflows, and hands-on experience with tools helpful. One found "finally getting beyond OAIS discussion" especially effective (Digital POWRR Institute evaluation data, Naperville (IL) within Schumacher, 2019, additional file 2). A second named an event's most valuable product as an awareness "that you can be starting at any point and still improve on current practice" (Digital POWRR Institute evaluation data, Warm Springs (OR) within Schumacher, 2019, additional file 4). A third noted that the event provided them with "a better understanding/idea of what would be feasible and

reasonable to get started when going home" (Digital POWRR Institute evaluation data, Warm Springs (OR) within Schumacher, 2019, additional file 4). A fourth recorded their experience of numerous "a-ha!" moments in which they began to perceive how the event's presentations could inform their local practice (Digital POWRR evaluations, Naperville (IL) within Schumacher, 2019, additional file 1) Numerous participants indicated that the cohort structure proved helpful. One remarked that "Any opportunity to hear other people talk about their experiences was valuable" (Schumacher, 2019). In addition, participants mentioned that they especially enjoyed working with specific tools, and one observed, "It was helpful to finally get to hands-on experience with tools I've read about but haven't used yet" (Digital POWRR Institute evaluation data, Naperville (IL), within Schumacher, 2019, additional file 2).

In 2021, the NEH provided support that allowed Digital POWRR to present five additional institutes featuring an updated curriculum, which expanded to 2.5 days of instruction time (Digital POWRR Project, 2025a, 2025b). The suspension of project activities in mid-2025 left the project without comprehensive evaluation data; however, participants nonetheless provided feedback in other formats. A "solo archivist" writing in a blog format described the event's curriculum as valuable information, finding the "Walk the Workflow" module and hands-on experience with Data Accessioner particularly helpful. They went on to note that the POWRR Plan they developed in consultation with an instructor proved to be the most valuable output, as it because it "allows attendees to use some of their newfound knowledge and take action" (Explore the Digital POWRR Institute, 2024). In another discussion of program activities, made available via a blog, a participant noted the program's "blended emphasis on hands-on practice with tools and conceptualising policy development" (Oduok, 2024).

In 2021, Digital POWRR began operations at a second university. One member of the NIU Libraries project team had moved to Arizona State University Libraries in 2019, and two years later she received an IMLS grant for the development of the POWRR Peer Assessment Program (IMLS, 2021). In 2022, she moved to the University of Arizona and transferred grant administration to that institution. Her project created a training program and community of practice that brought cultural heritage practitioners from under-resourced organisations together with digital preservation specialists to collaborate on preparing self and peer assessments. Partner organisations, such as the Sustainable Heritage Network, the Association of Hawai'i Archivists, Amigos Library Services, the Midwest Archives Conference, and Northwest Archivists, Inc., helped project staff members identify practitioners likely to benefit from the program. The project, which ended in July 2025, trained 36 practitioners and six peer facilitators. Over four years, six cohorts of six participants, each with a peer facilitator, worked to conduct systematic analyses of current digital stewardship practices at their respective organisations, focusing on the creation of achievable goals and activities. The cohort model builds on POWRR Institutes' community of practice and consulting components by providing practitioners with the knowledge and skills needed to assess participating organisations' digital curation challenges and activities and to provide recommendations. In effect, cohort members serve as consultants for each other (Jones, 2025; Clark et al., 2024).

Rather than treating assessment frameworks as checklists or compliance tools, the Peer Assessment Program emphasised reflection, dialogue, and locally grounded goal setting, enabling participants to translate abstract standards into actionable priorities. Participants in the program's first year of activities reported that it increased their overall knowledge of and success in using evaluation tools and frameworks for digital preservation. Half of the participants found that the program achieved its objectives at the highest level, while 29 per cent reported achievement at the second-highest level, resulting in 79 per cent reporting a favourable overall experience. Overall, 69 per cent reported that they intended to use the tools and frameworks reviewed in the program in future digital preservation activities (Digital POWRR Peer Assessment Program, 2023). In a more detailed discussion of program activities, one participant observed,

> I was able to implement a lot of new practices fairly quickly - like establishing born-digital accessioning procedures. On a broader scale, it helped me have more meaningful conversations with leaders and make more specific/useful requests. Just knowing what to really address and what specific tools to ask for/concerns to bring up in more concrete ways, helped a ton. I think POWRR really gave me the

> knowledge and language to start making changes - before, it was more nebulous and abstract, which doesn't always lead to productive conversations or real outcomes. (Digital POWRR Peer Assessment Program, 2023)

The POWRR Peer Assessment Program white paper and case studies also indicate that practitioners are more likely to take meaningful action when training environments explicitly foster practitioner confidence in conditions that allow participants to acknowledge uncertainty, articulate risk, and make incremental decisions without fear of failure or judgment (Jones, et al., 2025). One participant noted "Between the knowledge gained and the support received, this program has given me the confidence to start implementing changes ... to advocate for digital preservation ... and to claim a professional identity as an archivist." (Jones et al., 2025, p. 15). Another stated that "I think my involvement in the program has transformed my institution's preservation trajectory .... For the first time, I feel like I can actually visualise our path forward" (Digital POWRR Peer Assessment Program evaluation data, 2023).

Evolution of the POWRR Instructional Model

Across its successive phases, the Digital POWRR Project instructional model evolved in response to practitioner experience and needs, moving from tool-centred training toward a more relational, cohort-based approach emphasising confidence-building, local context, and peer-supported decision-making. While the project initially focused on operationalising a good enough approach to digital preservation via workflow thinking and tool evaluation, subsequent instructional efforts revealed that sustained progress depended on technical knowledge and on opportunities for reflection, consultation, and community-building. Over time, POWRR's instructional activities increasingly foregrounded these elements, resulting in a model that combined hands-on practice with structured peer engagement and incremental planning. The project's early research and white paper translated emerging discussions of good enough digital preservation into a practical framework grounded in workflows rather than comprehensive systems. The initial POWRR workshops built on this foundation by providing practitioners with hands-on experience using individual tools and services, while emphasising advocacy and short-term action planning as mechanisms for institutional change. As workshops expanded into multi-day institutes, the instructional model shifted further toward cohort-based learning and individualised consultation. Institutes created space for participants to discuss their organisational contexts in depth, identify realistic pilot projects, and develop phased implementation plans. These components addressed participants expressed need for guidance in adapting general principles into highly variable local conditions.

The POWRR Peer Assessment Program represents a further evolution of this approach, extending the project's emphasis on communities of practice and consultation into a distributed, peer-led model. Rather than positioning expertise with instructors, the program trained participants to assess digital preservation contexts collaboratively, using shared frameworks to articulate challenges and propose achievable recommendations. Therefore, the program reinforced one of POWRR's core insights: that practitioners often require tools and standards and shared language, confidence, and structured support to move from awareness to action. In combination, these phases illustrate how POWRR's instructional model matured from delivering practical guidance to fostering sustained capacity-building through peer engagement, adaptability, and incremental progress.

Conclusion

As the high susceptibility of digital materials to loss became increasingly evident, leading information professionals developed new standards to help practitioners preserve them. However, many practitioners remained unsure about how to implement them. What did an Open Archival

Information System or Digital Curation Centre Lifecycle Model-compliant practice look like? Must organisations meet all of the standard's requirements at once? Authors promoting a good enough approach to digital preservation argued that practitioners should take action, no matter how seemingly insignificant, to mitigate the risk of a loss. They went on to suggest that information professionals responsible for digital materials, especially those serving under-resourced organisations, consider a provisional, iterative approach to digital preservation. Starting at a small scale with relatively simple technology, practitioners could build a workflow and expand their capacity or reconfigure it entirely over time. The Digital POWRR Project's 2014 white paper suggested that practitioners at medium-sized and smaller organisations lacking ample resources consider good enough digital preservation (Schumacher, et al., 2014, passim). In addition, it emphasised the benefits of a community of practice and advocacy activities within organisations, presenting a well-marked, practical path toward sustainable digital stewardship.

Attempting to reach practitioners at medium-sized and smaller organisations with limited financial resources, the POWRR team members set aside the idea of a conference devoted to discussing their findings. Instead, they began a series of professional development events. Following the Tool Grid's model, the team emphasised evaluating local conditions and available tools and services, with a view toward implementing good enough practices in local workflows. The POWRR workshops emerged while researchers and practitioners called for more professional development opportunities devoted to digital preservation. Library and information schools had developed graduate curricula and professional development programs related to the subject, largely presenting new standards from a conceptual perspective. Although these initiatives provided important information, some practitioners called for more pragmatic forms of instruction. Many who attended POWRR events reported becoming aware of standards in the field but remaining unsure about how to implement them. Digital POWRR workshops and institutes provided experience with individual applications and invited participants to consider how they could fit together in a workflow. In addition, the events discussed advocacy activities to raise funds for digital preservation. Organised in small cohorts, institute participants had the opportunity to establish relationships that formed communities of practice. In addition, project institutes developed a consulting model that allowed practitioners to discuss local conditions and potential workflows in detail with an instructor, as well. After program institutes made one-on-one consulting available, the POWRR Peer Assessment Program brought together the community of practice and consulting models, training participants to assess and evaluate each other's digital preservation contexts and challenges.

Researchers discussing good enough digital preservation took a crucial first step; however, they offered little specific advice on how to move forward with its implementation. The Digital POWRR white paper proposed several combinations of tools and services liable to help practitioners improve local practice in different institutional contexts. However, the research team quickly realised that the wide variety of organisational contexts required a more flexible approach that emphasised customised local workflows (Schumacher, et al., 2014). They found that many practitioners welcomed this perspective. POWRR activities helped practitioners overcome initial hesitation and address the challenge of expanding digital preservation capacity within their organisations. Substantial majorities of participants in each Digital POWRR instructional project reported that their experience helped them improve local practice. Professional development activities have long been an integral part of the library and information science discipline. This case suggests that specifically pragmatic training focusing on a good enough approach to digital preservation, communities of practice, and advocacy activities complemented other instructional programs' more theoretical focus and helped practitioners to begin taking action.

Looking ahead, the Digital POWRR Project experience suggests that effective digital preservation training depends as much on psychological and organisational conditions as on technical content. In a professional landscape marked by uneven access to training, persistent resource constraints, and increasing emotional and cognitive burdens on individual practitioners, the POWRR approach points toward instructional models that center trust, confidence-building, and community as prerequisites for sustainable digital preservation practice. Therefore, POWRR offers a transferable framework for future digital preservation education efforts, one that recognises capacity-building as a technical and human process.

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