Understanding Need Among Digital Preservation Professionals

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April 2025

1. Introduction

'Critical Cataloguing for Digital Preservation' (Arts and Humanities Research Council, 2023-24) sought to explore commercial models for digital preservation training, support, and advice that foreground the importance of critical documentation practices within the digital preservation lifecycle. As an output of this project, this report focuses on current technology use and working practices relating to digital preservation activities in a small number of UK-based institutions. It seeks to provide a snapshot, evidenced by our research, of current practice in a particular set of contexts, a tool for navigating and characterising digital preservation readiness, and a particular perspective on sectoral trajectory and ambition.

At its heart our research sought to answer the question 'what do digital preservation professionals need now?'. Through site visits at five collecting institutions, surveys, and a community event, our research sought to understand the needs, challenges, and opportunities for stewarding digital assets in UK institutions, as a basis for identifying and developing viable responses to those needs. We did so in context of existing work: the sectoral and workforce development roles played by organisations such as the Digital Preservation Coalition, the Archives & Records Association, and the National Archives; initiatives such as 'Plugged in, Powered Up' and Novice to Know-How; and wider work on valuing roles that enable research, such as The Hidden REF, the Technician Commitment, and the UKRI Digital Research Technical Professional Skills NetworkPlus scheme. As 'outsiders' who are not digital preservation professionals, we sought to adopt a reflexive, humble tone that foregrounded listening over intervention. At the same time, as outsiders

Critical Cataloguing for Digital Preservation: a research commercialisation follow-on project was funded under the Arts and Humanities Research Council (UK) "Arts and Humanities-led Research Commercialisation" scheme. Project Reference AH/Y005546/1.
University of Southampton Ethics and Research Governance Online ID 89012
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who care deeply about the development, resourcing, and recognition of digital preservation work, especially in cultural institutions, we sought to use our commercial and critical perspectives – in relation to cataloguing, social justice-oriented practice, and environmental action – to develop responses that would enable cultural institutions to further their civic commitments and responsibilities.

For a detailed description of project activities and a fair-minded reflection of what the project did well – and less well – readers are encouraged to read the project evaluation report, published by Simon Wilson in August 2024 (doi: 10.5281/zenodo.13327836).

2. What We Found

Three themes stood out from our interactions with digital preservation professionals. First, the interplay between processes relating to, on one hand, 'traditional' and/or 'material' collections and, on the other, digital collections – whether born digital or produced through the process of digitisation – and how that distinction produced a sense that digital collections were of lesser organisational value. Second, the organisational challenges faced by digital preservation professionals in advocating for the resources (financial, infrastructural, staff) that they deemed necessary to manage the digital collections in their care. And third, the evolving roles of professionals tasked with the stewardship of digital collections and the variable levels of support available to them. We discuss each of these in turn.

2.1. Finding Value in Digital Collections

Across the project, digital preservation professionals reported that the relative novelty of digital archives – as things of value, as a category of archivable object, as assets that institutions needed to act upon – meant that different actions were required when considering their stewardship. Those producing, donating, or depositing digital records often managed them and valued them differently from physical records, meaning that digital and physical records were in very different states at points of accession. There was a sense that a preponderance of digital records was being produced without consideration of preservation, and that this was especially true for complex digital objects such as 3D scans or multi-media assets. As a result, rather than 'closing the gap' with established processes for working with physical records, the unique skills required to preserve even seemingly

mundane digital assets – along with the software-dependent solutions emerging to address digital preservation challenges – continue to create a divergence between workflows for preserving digital archives and those for 'traditional' collections.Creating further divergence is the perceived lesser significance of digitised assets to institutions, meaning that workflows for their preservation tended to differ from those used for born-digital assets. Despite the investments made to produce them, digital preservation professionals reported that they continuously needed justify to their institutions the value of digitised assets for purposes other than remote use. Similarly, digital preservation professionals reported that dominant models of paper custodianship – wherein a draft manuscript is understood to contain value as a complement to a published work – often do not retain the same salience for institutions when either or both preparatory and a completed work are born-digital. The value, then, of the digital collections under the care of digital preservation professionals appeared to be far from settled.

2.2. Recognising Challenging Organisational Contexts

These questions of value feed into and manifest alongside the organisational challenges reported by digital preservation professionals. Perhaps unsurprisingly, limited budgets consistently pose a hurdle for effective digital preservation. Many digital preservation professionals reported feeling both overwhelmed and that they were constantly firefighting. In many cases a lack of resources mean that digital collections often sit in stasis, either unprocessed, part catalogued, or – mostly frustratingly – on the cusp of being made available to users. In response to these challenges, individuals tasked with looking after digital collections are making the case that digital assets need more than management, that they need robust preservation strategies applied to them. Digital preservation professionals reported making cases for investment with varying justifications or points of focus: that investment in digital preservation processes applied to archival collections is a good use of resources because those processes can be reapplied to organisation records; that without investment accreditation by professional bodies is at risk; that a lack of investment would result in poor stewardship of digital assets that would create reputational damage for an organisation; that investment would enable an organisation to be prepared for future donations.

doi: 10.5281/zenodo.15261502

These and other strategies have had varying results in leveraging change. And even in cases where investment has been unlocked, the monetary, infrastructural, personnel, and resources available to digital preservation professionals remains in most cases less than they believe are required (e.g. to reach and maintain their target levels of capacity as benchmarked against DPC RAM and/or NDSA Level of Digital Preservation). Where digital preservation professionals do appear to have had some success is in making the case for control over the ways digital collections are organised, where they are stored, and who has access to them. For those individuals working within larger organisations, they often reported their experiences working with organisational IT. In some cases, digital preservation professionals have good relationships with local IT departments and/or groups and have dedicated significant time to developing lines of communication, clarifying responsibilities, and creating a sense of mutual understanding and purpose. In other cases, IT colleagues appear to have been cautious of digital preservation activities, for example perceiving any activity that presented a risk of cyber-breach as their responsibility and therefore a reason for them to have control over sensitive born-digital archives (even if senior management with a good understanding of digital preservation work later over-ruled them). Elsewhere, the reluctance of organisational IT to host digital collections produced as part of digital preservation work – especially the complex or large-scale assets associated with personal archives – has created drivers for ensuring that digital preservation professionals lead on their stewardship. Despite this, there was a recognition by digital preservation professionals that changes to processes, culture, and personnel in IT departments and/or groups can create substantial and deleterious shifts in how an organisation might support or view digital preservation work. Unlike IT professionals who think in blocks of 3-5 years, digital preservation professionals think hundreds of years into the future. Understanding these differences, supporting IT colleagues in developing a good understanding of digital preservation work, and patiently reasserting the fundamentals of digital preservation good practice as new organisational contexts arise are all, it seems, part of the evolving role of digital preservation professionals.

2.3. Adapting to Evolving Professional Roles

For many digital preservation professionals, the central challenge of doing digital preservation work is that it is one component of a multi-faceted job role, often a component

doi: 10.5281/zenodo.15261502

that is added to their role after joining an organisation. Few digital preservation professionals reported that digital preservation was the main thing they do or – for those who find digital preservation work increasingly central to their role – one of the main things their organisations think they do. This has created several challenges. The time to undertake formal training and self-directed learning is limited. Doing digital preservation tasks on an infrequent basis creates inefficiencies (e.g. in finding that software used previously for a task needs updating when returned to, or in forgetting the intricacies of a software workflow). Digital preservation professionals often feel like imposters but seem to take heart from the knowledge that many fellow professionals – when speaking in private or in community spaces – also admit to lacking full confidence that they know what they are doing. Digital preservation professionals are wary of experimentation, both for fear of wasting time and because of their core professional values: they do not own the collections under their care, they are custodians, and in turn they feel uncomfortable taking risks with "somebody else's" collection. Digital preservation professional regularly reported unease regarding the influence of software and software providers on their work with collections under their care. As the role of digital preservation professionals has evolved, it appears that the ability to manage relationships with and make decisions relating to external providers has taken on a similar salience to the ability to advocate within organisations.

3. Job Roles

Taken together, there appear to be particular pressures on digital preservation professionals: their roles are evolving without a shared organisational sense of their value; attention to advocacy work is required to mitigate the impacts of short-term organisational cycles and the loss of institutional knowledge around digital preservation needs; and the bounds of what is possible within a digital preservation skillset can lead to digital preservation professionals attaining a "miracle worker" (Bonds and Gil, 2017) status that collapses a range of computational, technical, and media theoretical knowledges and capabilities into a single under-resourced role.

Based on our work with digital preservation professionals, Digital Preservation Southampton developed a role matrix (hereafter DPS-RM) intended to capture the breadth, complexity, and evolving nature of their responsibilities (see Table 1). DPS-RM is divided into three broad areas, with five competencies associated with each.

doi: 10.5281/zenodo.15261502

This is a great deal for one person – or a small group of people – to be competent at, to manage, and to deliver. We are not the first people to observe this. For example, the breakdown of competencies and responsibilities in DPS-RM maps onto existing work on skills, knowledge, and competencies required for successful digital preservation. The DPC Digital Preservation Competency Framework v2.0 (hereafter DPC CAT) specifies 28 skill elements across five competency areas: Governance, Resourcing, and Management [Skill Elements 1-6], Communications and Advocacy [7-13], Information Technology [14-19], Legal and Social Responsibilities [20-23], Digital Preservation Domain Specific [24-28].

Figure 1 uses a Sankey diagram to map between DPS-RM and DPC CAT. Broadly the two align. Only DPC SE12 'Training' ("Can develop and present training and development opportunities using appropriate delivery methodologies") is missing from DPS-RM. The duplication between the two matrices is modest: for example, the six 'Governance, Resourcing, and Management' DPC Skill Elements map to eight competencies in DPS-RM. And where there are misalignments, they are explainable: for example, the six 'Information Technology' DPC Skills Elements map to all three skills areas of DPS-RM because – in our research – technical work was articulated as operating across digital preservation roles.

Similarly, DPS-RM can be expressed through the Archives & Records Association Competency Framework (hereafter ARA-CF) which specifies 40 competencies across three function areas: Organisational, Process, and Customer/Stakeholder. That twenty-one ARA-CF competencies do not map to DPS-RM is expected as ARA-CF encompasses competencies for all archives, conservation, and records management roles. But as Figure 2 shows all DPS-RM competencies map to ARA-CF, with most Foundational Skills and all Technical Skills mapping to the ARA-CF 'Process' function area.

doi: 10.5281/zenodo.15261502

Table 1: Digital Preservation Southampton Role Matrix (DPS-RM)

Skill Area	Competency	Responsibilities
1. Foundational	Appraisal and Selection	Evaluating the long-term value and relevance of digital materials.
	Preservation Planning	Developing strategies to ensure the long-term accessibility and integrity of digital assets.
	Legal and Ethical	Understanding copyright, data protection, and ethical issues related to digital archives.
	Arrangement and Description	Organising and describing digital content using appropriate metadata standards.
	Access and Outreach	Providing access to digital collections and promoting their use for research and education.
2. Technical	Digital Forensics	Retrieving and preserving data from various storage media, including legacy formats.
	Metadata Creation and Management	Applying metadata standards and using tools to manage descriptive and technical metadata.
	Basic Programming Skills	Familiarity with scripting languages such as Python for automating tasks and data manipulation.
	File Format Identification and Analysis	Understanding different file formats and their preservation requirements.
	Digital Preservation Tools and Systems	Utilising software such as Archivematica or Preservica for preservation actions.
3. People	Communication and Collaboration	Effectively communicating with diverse stakeholders, including IT professionals, researchers, and donors.
	Problem Solving	Identifying and addressing technical and logistical challenges related to digital preservation.
	Advocacy	Promoting the importance of digital preservation within the organisation and to external stakeholders.
	Project Management	Planning and executing digital preservation projects within budget and time constraints.
	Adaptability	Staying current with emerging technologies and adapting workflows to meet evolving needs.

doi: 10.5281/zenodo.15261502

Figure 1: DPC CAT mapped to DPS-RM

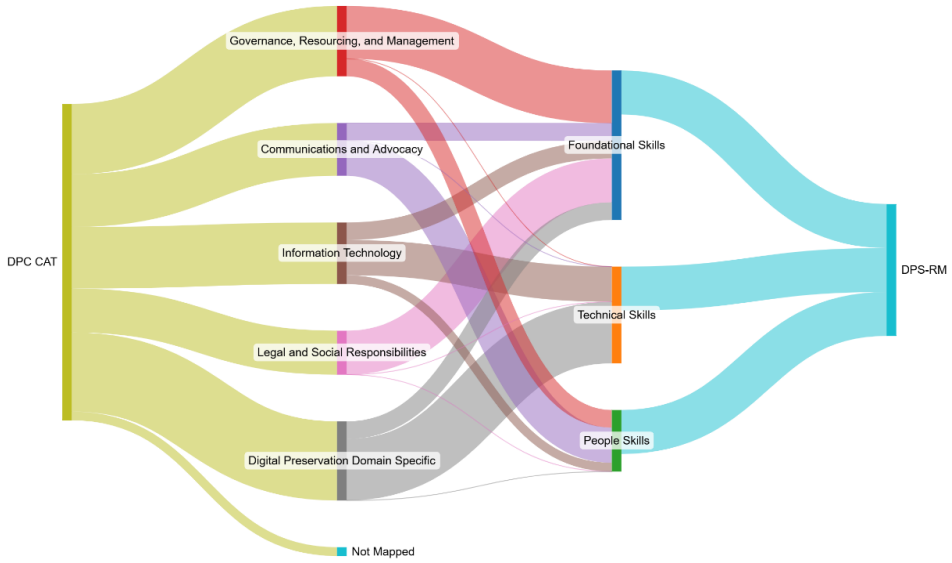

Figure 2: ARA-CF mapped to DPS-RM

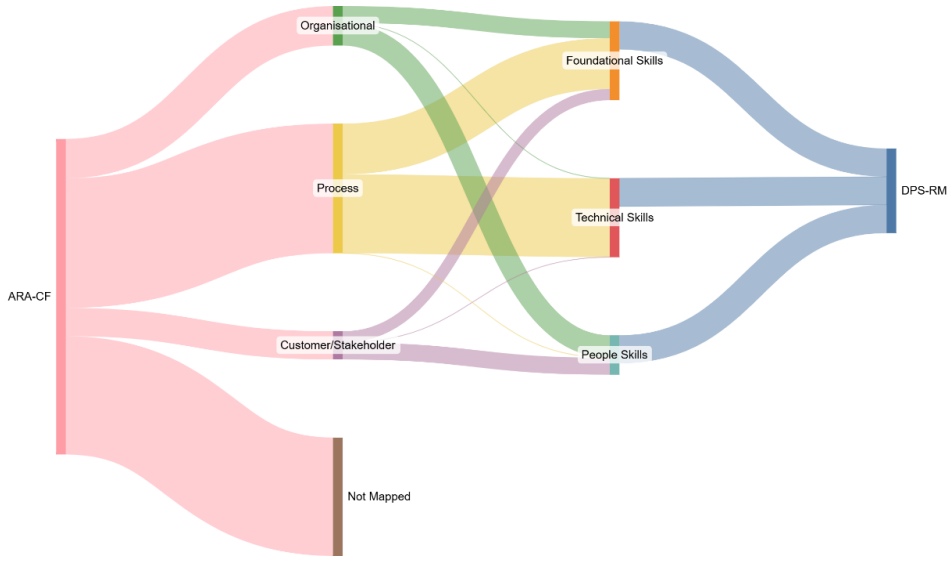

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Table 2: Competencies 11 and 14 from ARA-CF

Competency ---------- Level	11. Preservation management: understanding and assessing needs	14. Digital curation: preserving born-digital and digitised records and archives
1	Describes and applies processes for ensuring preservation of the information	Describes and applies processes relating to safe preservation of born-digital and/or digitised records and/or archives as appropriate to own workplace, appreciating the differences where these apply; those in technical roles (e.g. scanning) undertake simple processes for operating equipment and any products.
2	Discusses/applies best practice in the preservation of records/archives in own service/project; administers/completes surveys of preservation needs with guidance.	Discusses and applies principles and processes (including technical) of digital curation and preservation in relation either to born-digital documents created within the service or to records/archives that have been digitised (e.g. as part of a digitisation project), and the systems that support them, addition of metadata etc.
3	Fully applies service/project preservation policies and practices; can train others in these and monitor the completion of surveys of preservation needs and implementation of resultant priorities and processes; contributes to updating processes.	Assists in the development of preservation policies and processes that impact upon born digital records and/or those generated as part of an archival digitisation project and fully applies these; competent in application of any relevant technical process; assists in training others in their use.
4	Formulates, develops and evaluates preservation policies and practices across the service/project measuring outcomes and impact; ensures the regular assessment of preservation needs; updates policy and processes as appropriate; may contribute to innovation and developments in the sector (nationally and internationally) e.g. by project activity, research and publication, unique technical/expert knowledge.	Formulates, develops, evaluates and updates policies and processes relating to the preservation of born-digital and digitised records, ensuring that appropriate technical and other training is in place, and measuring outcomes and impact; maintains technology watch; may contribute to innovation and developments in the sector (nationally and internationally) e.g. by project activity, research and publication, has unique technical/expert knowledge.
5	Scrutinises and has strategic oversight over service/project's preservation strategy and policies in relation to assessing preservation needs of records/archives in all media and formats and their delivery with evaluation of cost benefit; may demonstrate unique/highly specialist technical/expert knowledge.	Scrutinises and has strategic oversight over the long-term survival of all digital records (born digital or as part of an archive digitisation project) in line with service/project goals, within budget; may demonstrate unique/highly specialist technical/expert knowledge.

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Both DPC CAT and ARA-CF align closely with the variety and complexity of digital preservation roles found through our interactions with digital preservation professionals. Given the depth of research and outreach that produced them, this is to be expected. Where, however, our work sheds interesting light on DPC CAT and ARA-CF is with regards to the associated levels of competency expected. The DPC example role descriptor for a 'Digital Preservation Officer' indicates the level of competency required for this 'junior' role across the twenty-eight DPC CAT skill elements: seven at Skill Level 2 'Basic Application', twelve at Skill Level 1 'Understanding' (including at least two in each of the five DPC CAT competency areas), three at Skill Level 0 'Awareness' (computer programming, environmental impact, and inclusion and diversity), and five that are not required (training, system procurement, and three skill elements in governance, resourcing, and management). Similarly, ARA-CF describes five skills levels for each of its forty competencies. Table 2 shows those distinctions for two ARA-CF digital preservation related competencies: 11. Preservation Management and 14. Digital Curation.

What is striking from our work is how often junior and senior project participants are expected to undertake tasks that require a DPC CAT Skill Level 3 'Advanced Application' or are assumed to have Level 4 ARA-CF proficiency when developing lines of digital preservation work. If we read DPC CAT and the ARA-CF as resources intended to advocate for appropriate professional recognition of digital preservation roles, and as tools for digital preservation professionals to benchmark their labour against international standards, our work suggests that there is mismatch between the reality of digital preservation work and workforce planning in the UK cultural sector. In short, many digital preservation professionals are doing extraordinary work with little time, few resources, inadequate recognition for their tentacular skillset, and insufficient reward for stewarding complex collections into the future.

4. What Do People Need?

The technical challenge of stewarding digital assets has largely been solved. Our work suggests that there are two challenges that make it hard to put solutions into action. First, digital preservation professionals are overstretched and have limited capacity for additional work. This means that priority is given to securing digital assets and in turn that providing access to digital assets – both through describing them for discovery and by creating points

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of access to collections – is deprioritised. Second, insufficient attention is paid to the workplace dynamics required to manage digital assets effectively. This means that digital preservation professionals often became isolated "miracle workers" and fail to benefit from team, community, and collectivised approaches to digital preservation work. Our prototype AI-based digital preservation assistant – DigiPres – is intended as a provocation towards addressing these challenges. Through an open Q&A interface it provides a 'partner' in planning, a sounding board against which to check decision making, and rapid access to information about technical tasks that are repeated insufficiently often to embed learning. It also – by virtue of the 'outsider' skillset that identified it as a response to need, developed it, and deployed it – demonstrates the potential value of an alternative lens on digital preservation work. A commercial perspective is often associated with sales and bottom-lines, but that perspective can also facilitate access to unanticipated and distinctive perspectives on need. This, we hope, is a lesson our work can contribute to the digital preservation sector.

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doi: 10.5281/zenodo.15261502