http://doi.org/10.7207/dpcram24-03

Digital Preservation Coalition Rapid Assessment Model (DPC RAM)

Contents

Document History

Version	Date	Revision notes
1	1st September 2019	First release of DPC RAM
2	31st March 2021	Revision of DPC RAM after community feedback
3	22nd March 2024	Revision of DPC RAM after community feedback

Overview

The Digital Preservation Coalition Rapid Assessment Model (DPC RAM) is a maturity modelling tool that has been designed to enable a rapid assessment of an organization's digital preservation capability whilst remaining agnostic to solutions and strategy. The model provides a set of organizational and service level capabilities that are rated on a simple and consistent set of maturity levels. It enables organizations to monitor their progress as they develop and improve their preservation capability and infrastructure and to set future maturity goals.

Digital preservation is defined as the series of managed activities necessary to ensure continued access to digital materials for as long as necessary. It refers to all of the actions required to maintain access to digital materials beyond the limits of media failure or technological and organizational change.[1]

The model is freely available for anyone to use, but DPC Members will also be offered the opportunity to share their results and compare their progress with other members of the Coalition. This process will also help facilitate DPC Member Support activities, providing DPC staff with an efficient, continuous and standardized approach to capturing information on member needs and issues.

Origins and Acknowledgements

The model draws from an array of existing maturity models and is primarily based on Adrian Brown's Digital Preservation Maturity Model[2]. It was also informed by the NDSA Levels of Preservation[3], the Digital Preservation Capability Maturity Model (DPCMM)[4], the Assessing Organisational Readiness (AOR) Toolkit and the CoreTrustSeal[5]. This wealth of existing work has provided reference points to ensure broad coverage for assessment of digital preservation capability. The model was developed, tested and refined with input from DPC Members including those who make up the Research and Practice Sub-Committee. Particular thanks go to Adrian Brown for providing a starting point for this model and his support in taking this forward. Initial work on this model was carried out as part of a collaborative digital preservation project funded by the UK's Nuclear Decommissioning Authority.

[1] Definition adapted from the Digital Preservation Handbook: https://www.dpconline.org/handbook/glossary#D

[2] Brown, A (2013) Practical Digital Preservation: a how-to guide for organizations of any size, Facet Publishing: London

[3] https://ndsa.org/publications/levels-of-digital-preservation/

[4] https://web.archive.org/web/20230309120649/http://www.securelyrooted.com/dpcmm

[5] https://www.coretrustseal.org/

Version two of DPC RAM was released in March 2021. Revisions to the model were made in response to community feedback and evolving digital preservation good practice. Special thanks go to Hervé L'Hours and Simon Wilson for their detailed feedback and to the DPC's Research and Practice Sub-Committee and Adrian Brown for reviewing the proposed changes.

Version three of DPC RAM was released in March 2024. Revisions to the model once again responded to community feedback received and the continuing evolution of digital preservation good practice. The DPC's Good Practice Sub-Committee provided valuable feedback on the proposed changes. We are very grateful for feedback on the ethical changes to RAM that was sought from a number of experts including Tui Raven, Kirsten Thorpe, Lauren Booker and Sharon Webb.

Guiding Principles

Many of the existing maturity models target particular domains (e.g. data repositories as in the CoreTrustSeal), limit their scope to a specific subset of preservation considerations (e.g. primarily technical in the NDSA Levels) or champion particular preservation approaches (such as migration-based approaches and open file formats in DPCMM).

The DPC membership is diverse, ranging from the heritage sector to finance, science, manufacturing, information technology and beyond. For organizations across the Coalition to be able to usefully benchmark, compare and contrast their maturity, it was necessary to develop a model which could be applied in different kinds of organizations, regardless of their mission, scale and approach. The maturity levels are based on existing good practice and try to be agnostic to particular preservation strategies or approaches. Organizations should find it easy to use the model to assess where they are now and consider where they would like to be in the future.

This model aims to be:

- Applicable for organizations of any size and in any sector.
- Applicable for all content of long-term value.
- Preservation strategy and solution agnostic.
- Based on existing good practice.
- Simple to understand and quick to apply.

How to Use This Model

This model should be used as a rapid benchmarking tool, enabling a quick and simple assessment which can be applied frequently with minimal effort[6]. It is expressly not a strict and comprehensive certification tool that might provide a "deep dive" assessment.

[6] A basic assessment can be carried out in less than two hours by someone with good knowledge of digital preservation and how it is applied in their own organization. For others it may take longer, particularly if multiple stakeholders need to be consulted. Setting future goals and priorities is likely to be a longer process.

The model consists of 11 capabilities covering key areas of digital preservation. The first 6 are the 'Organizational capabilities' which describe how well an organization is set up to manage digital preservation activities (such as resourcing, policy, and support). The remaining 5 are the 'Service capabilities' which describe the preservation processes that are in place within an organization (such as acquisition, bitstream preservation and access). For each capability, an organization must assess themselves on a scale of 0 to 4, with 0 indicating a minimal awareness of the issues highlighted in this area of the model, and 4 where the organization is working at an optimized level.

A guiding statement is supplied for each level of each of the RAM capabilities. For levels 2 to 4, bulleted lists of examples are also supplied. It is important to note that the bulleted lists within each level are provided as **illustrative examples, not a checklist of requirements** that must be met before the respective level is attained. When carrying out a RAM assessment, an organization may find that some examples are not relevant in their context, but there may be other things in place that take them to a similar level. An organization using the tool should consider which level best fits its **current** capability. This should be **an honest and realistic assessment**. Where an organization partially meets a level but feels that more work is required in order to sit comfortably within that level, the score awarded should be the level below. No half marks are given!

An organization should then consider which level they would like to achieve in the future. Setting a target level will increase understanding of gaps and priorities for moving forward. It is important to note that not every organization needs to strive to reach an optimized level for each RAM capability. For some organizations it may be appropriate to aim for a basic or managed level for one or more capabilities. A target is most useful if it is realistic and set with a clear understanding of organizational context and priorities. The time frame used for these target levels should be noted – for some organizations short term targets to be completed in the next 12 months will be appropriate, others may find it more helpful to consider where they would like to be in five or ten years' time.

DPC RAM has continuous improvement at its core, so whilst it can be seen as a one-off exercise it is recommended that it is used on a more regular basis to highlight progress or demonstrate where further resource is required.

An Excel spreadsheet is available which allows organizations to record their maturity levels along with other contextual information.[7] This spreadsheet also generates simple visualizations of the results. Additionally, a basic worksheet for recording RAM results can be found at the end of this document.

Further information about using the model can be found on the DPC RAM website. In particular, 'Level up with DPC RAM' provides tips, helpful resources and case studies that are relevant to moving forward with each RAM capability.[8]

[7] This digital worksheet in Excel format can be downloaded from the DPC RAM website: https://www.dpconline.org/digipres/implement-digipres/dpc-ram
[8] https://www.dpconline.org/digipres/implement-digipres/dpc-ram/level-up

Benefits of Use

By applying this model, an organization will be able to produce evidence-based data on their capability and maturity over time, as well as being able to answer questions such as:

- Where is our organization now?
- Are there any gaps in our organization's preservation capabilities?
- Where would we like to be in the future?
- How close is our organization to reaching the level of preservation maturity we would like?
- What should the priorities be for improving our organization's preservation capability?
- What support and resources do we need in order to help our organization move forward?
- How has our organization's capability improved over time?

Benefits for DPC Members

DPC RAM has been developed as a core DPC Member benefit in order to:

- Target Member Support activities, allowing rapid assessment of current capabilities and highlighting areas where support will be most beneficial.
- Facilitate the sharing of information on maturity levels, allowing organizations to benchmark with results across the DPC or to similar DPC Member organizations.
- Help the DPC to better understand their membership as a whole and use this information to shape ongoing programs of research, training, and resource development in line with member priorities.

The DPC will encourage Members to share their RAM maturity levels on an annual basis. The DPC will collate and analyse this information and report trends and patterns back to Members whilst ensuring the anonymity of individual organizations. This model will further support interactions between DPC staff and Members and will be a key tool in facilitating Member Support activities.

In addition to benefits available to all as listed in the previous section, DPC RAM will allow DPC Members to answer the following questions:

- How does my organization's RAM assessment compare with that of the wider DPC membership?
- How does my organization's RAM assessment compare with that of similar institutions within the DPC?
- Where would we most benefit from DPC support?
- What DPC resources do we need in order to progress?

Explanation of Terms

The term ‘Digital Archive’ is used throughout DPC RAM to refer to a facility where content in digital form with enduring value is stored and managed for long term preservation.

The term ‘Organization’ is used throughout DPC RAM to refer to the unit of an organization that is being measured. Typically, this will be a specific section of an organization that has a remit to manage and preserve digital content, but in some instances it may be appropriate to look at the organization as a whole. Each body using this model will need to establish first which part of their organization they are measuring. There is no one correct way of approaching this and users of this model are encouraged to define organizational scope in the way that best meets their own needs.

Note on Scope

This model specifically excludes IT security issues. Whilst considered extremely important from a capability and resilience standpoint, it is an area that is already well-served by existing IT security guidance (e.g. the ISO/IEC 27000 family of standards[9]). It was also felt that the results of an assessment against such criteria could in itself be sensitive or confidential.

Comments, Feedback and Revisions

While digital preservation activities have been occurring in many organizations for two decades, the discipline as a whole will continue to change and develop in response to external drivers and fresh challenges. New solutions, ways of working and examples of good practice will emerge. For this model to be useful for demonstrating progress, we anticipate that the basic premise of each of the maturity levels will remain the same. However, the examples within each capability may be updated and enhanced over time in line with developments in the field and in response to feedback from DPC Members and the wider digital preservation community. If you have any suggestions for updates or additions, please contact the DPC.[10]

[9] https://www.iso.org/isoiec-27001-information-security.html
[10] https://www.dpconline.org/about/contact-us

The Model

Organizational capabilities		
A	Organizational viability	Governance, organizational structure, staffing and resourcing of digital preservation activities.
B	Policy and strategy	Policies, strategies, and procedures which govern the operation and management of the digital archive.
C	Legal and ethical	Management of legal, social and cultural rights and responsibilities, compliance with relevant regulation and adherence to codes of ethics related to acquiring, preserving and providing access to digital content.
D	IT capability	Information Technology capabilities for supporting digital preservation activities.
E	Continuous improvement	Processes for the assessment of current digital preservation capabilities, the definition of goals and the monitoring of progress.
F	Community	Engagement with and contribution to the wider digital preservation community.
Service capabilities		
G	Acquisition, transfer and ingest	Processes to acquire or transfer content and ingest it into a digital archive.
H	Bitstream preservation	Processes to ensure the storage and integrity of digital content to be preserved.
I	Content preservation	Processes to preserve the meaning, usability and functionality of the digital content over time.
J	Metadata management	Processes to create and maintain sufficient metadata to support preservation, discovery and use of preserved digital content.
K	Discovery and access	Processes to enable discovery of digital content and provide access for users.

Organizational capabilities

A - Organizational viability Governance, organizational structure, staffing and resourcing of digital preservation activities.	
0 – Minimal awareness	The organization has minimal awareness of the need to support digital preservation activities.
1 – Awareness	The organization is aware of the need to support digital preservation activities.
2 – Basic	Digital preservation activities are supported and resourced at a basic level within the organization, for example: ● There is some engagement from senior management. ● Staff have assigned responsibilities and the time to undertake them. ● A budget for digital preservation has been allocated (may be time-limited). ● Staff development requirements have been identified.
3 – Managed	Digital preservation activities are managed and supported within the organization, for example: ● There is commitment from senior management. ● Responsibility for digital preservation is clearly owned. ● Staff have the skills they need to carry out digital preservation activities and access to relevant expertise where required. ● A dedicated core budget for digital preservation has been allocated. ● Budgets, staff roles and development needs are regularly assessed. ● Metrics and reports can be generated about the digital archive to help inform reporting, planning and management. ● Sufficient funding is available for staff development. ● Digital preservation has been identified as a strategic priority.
4 – Optimized	Digital preservation activities are proactively managed, enhanced and developed within the organization, for example: ● Benefits of digital preservation are recognized, championed and embedded throughout the organization. ● A cross-departmental digital preservation stakeholder group has been established. ● One or more staff are considered to be experts in their field.

	● Budgets, staff roles, capacity and development needs are proactively assessed in anticipation of future changes. ● Metrics and reports about the digital archive are combined with projections of future needs to proactively inform reporting, planning and management. ● The efficacy of staff development is regularly monitored. ● Continuity and succession plans are in place to ensure ongoing preservation of holdings if the organization can no longer carry out these activities.

B - Policy and strategy Policies, strategies, and procedures which govern the operation and management of the digital archive.	
0 – Minimal awareness	The organization has minimal awareness of the need for a policy framework for digital preservation.
1 – Awareness	The organization is aware of the need to develop a policy framework and may have some relevant policies, but no digital preservation policy or strategy exists.
2 – Basic	The organization has a basic policy framework, for example: ● A high-level digital preservation policy or strategy exists. ● Other policies relating to digital preservation may exist but there are gaps in coverage. ● Some procedures for managing, and providing access to, digital content are in place and may be documented. ● Scope of collection is defined and understood (e.g. collections development policy, retention schedule). ● Development of policy and procedure is informed by a basic understanding of user needs.
3 – Managed	The organization has a comprehensive and managed suite of policies, strategies and procedures, for example: ● The digital preservation policy/strategy is aligned with other organizational policies and is reviewed according to an agreed schedule. ● Relevant ethical issues are identified and addressed in policy and procedure (such as environmental impact, equity and diversity, privacy, cultural protocols). ● A suite of documented processes and procedures exists for managing and providing access to content within the digital archive. ● All relevant staff are aware of digital preservation policies, strategies and procedures. ● Knowledge of current and future use cases for content informs policy and procedure (for example on collecting, preservation approaches, metadata and access).
4 – Optimized	The organization proactively manages its policies, strategies and procedures and has a commitment to continuous process improvement, for example: ● A full suite of policies, strategies and procedures relating to the preservation of, and access to, digital content is in place. ● Policy and strategy is fully implemented and staff actively engage with it.

	● Policy, strategy and procedure is proactively monitored and updated to reflect internal changes, changes in other policies, user needs, or other external factors. ● A process has been established to assess, plan and return content (e.g. where ownership or custodianship is questioned).

C - Legal and ethical Management of legal, social and cultural rights and responsibilities, compliance with relevant regulation and adherence to codes of ethics related to acquiring, preserving and providing access to digital content.	
0 – Minimal awareness	The organization has minimal awareness of the need to manage legal, social, cultural and ethical rights and responsibilities.
1 – Awareness	The organization is aware of the need to manage legal, social, cultural and ethical rights and responsibilities.
2 – Basic	Basic management of legal, social, cultural and ethical rights and responsibilities relating to digital content is carried out, for example: ● Parties with legal, social, cultural and ethical rights and responsibilities have been identified and documented (such as Indigenous rights or community ownership). ● Templates exist for necessary legal agreements and licences. ● Relevant codes of conduct relating to professional ethics are adhered to.
3 – Managed	Legal, social, cultural and ethical rights and responsibilities relating to digital content are managed, for example: ● Information relating to licensing, legal rights and contracts can be easily located and accessed when necessary. ● Legal and ethical issues and risks are managed and regularly reviewed. ● Roles and responsibilities for managing legal and ethical issues and risks are clearly assigned. ● Expert advice can be accessed when necessary (for example from legal, ethical, procurement, contract management or information compliance specialists). ● Actions carried out in response to legal and ethical issues are documented. ● Different preservation or access workflows are in place for content with differing legal, ethical or regulatory requirements. ● Content is accessible to users with disabilities, in line with applicable legislation.

4 – Optimized	Legal, social, cultural and ethical rights and responsibilities relating to digital content are proactively managed, for example: ● Legal and ethical issues and risks are proactively monitored and mitigated. ● The organization engages in dialogue on ethical responsibilities, and/or legal and judicial processes that create regulation. ● Trusted and collaborative relationships are established with custodians of Indigenous or community content. ● An appropriate forum is in place to address critical ethical issues (such as environmental sustainability, Indigenous data sovereignty, equity and diversity).

D - IT capability Information Technology capabilities for supporting digital preservation activities.	
0 – Minimal awareness	The organization has minimal awareness of either the need for IT capability to support the digital archive or basic principles for applying it.
1 – Awareness	The organization is aware of the need for IT capability to support the digital archive, and has an understanding of basic principles.
2 – Basic	The organization has access to basic IT facilities including technical infrastructure and support, for example: ● Basic IT support is available to the digital archive. ● Staff with IT responsibilities have a basic understanding of their role in supporting digital preservation. ● IT systems are documented at a basic level.
3 – Managed	The organization has access to comprehensively managed IT facilities including technical infrastructure and support, for example: ● Adequate IT support is available to the digital archive. ● IT roles and responsibilities relating to digital preservation are documented and regularly reviewed. ● IT systems are regularly patched and updated. ● New tools and systems are deployed when required. ● IT systems are comprehensively documented. ● Contracts and services with third party service providers (e.g. cloud suppliers) are well managed and documented.
4 – Optimized	The organization has access to proactively managed IT facilities that are continually evolving and improving, for example: ● An enhanced level of IT support is available to the digital archive. ● IT demonstrates good understanding of, and engagement with, digital preservation issues. ● A roadmap exists for future development of IT systems. ● Potential new tools and systems are proactively identified and tested. ● Digital preservation requirements are taken into account when procuring other IT systems (such as those that may contain records of long-term value).

E - Continuous improvement Processes for the assessment of current digital preservation capabilities, the definition of goals and the monitoring of progress.	
0 – Minimal awareness	The organization has minimal awareness of current capability or goals.
1 – Awareness	The organization is aware of the need to understand current capability and define goals.
2 – Basic	The organization has a basic understanding of current digital preservation capabilities and areas for improvement, for example: ● A capability assessment has been carried out. ● Gaps in digital preservation capability have been identified.
3 – Managed	The organization has a managed process for capability assessment and establishing goals, for example: ● Goals have been established and agreed with senior managers. ● Roadmap is in place to reach goals. ● Capability assessment is repeated periodically. ● Capability assessment is shared with colleagues. ● There is an understanding of where the organization is relative to others.
4 – Optimized	The organization undertakes continuous process improvement, with proactive management, for example: ● Relevant stakeholders across the organization provide input into capability assessment and plan for next steps. ● Certification/external review has been achieved if a specific need for this has been identified. ● Recommendations for improvement are acted upon. ● Goals and roadmap are reviewed periodically.

F - Community Engagement with and contribution to the wider digital preservation community.	
0 – Minimal awareness	The organization has minimal awareness of the need to engage with the wider digital preservation community.
1 – Awareness	The organization is aware of the benefits of collaboration with the wider digital preservation community.
2 – Basic	The organization engages with the wider digital preservation community at a basic level, for example: ● Network/s of relevant contacts have been established. ● Relevant community events can be accessed. ● There is commitment to learn from the experiences of others.
3 – Managed	Engagement with the wider digital preservation community is supported and managed, for example: ● Relevant networks and communities have been joined. ● An active role is taken in the digital preservation community. ● Expert advice on digital preservation can be accessed as appropriate. ● Successes and lessons learned from own work are shared with the community. ● Engagement with the digital preservation community is supported and encouraged by management and embedded in policy or strategy.
4 – Optimized	The organization takes a leadership role in the digital preservation community and proactively manages these engagements, for example: ● A proactive role is taken in establishing or organizing community networks, collaborative activities or events. ● Contributions are made to expert groups, committees or task forces.

Service capabilities

G - Acquisition, transfer and ingest Processes to acquire or transfer content and ingest it into a digital archive.	
0 – Minimal awareness	The organization has minimal awareness of either the need to acquire or transfer digital content to a digital archive or basic principles for doing so.
1 – Awareness	The organization is aware of the need to acquire or transfer digital content into a digital archive, and has an understanding of basic principles of ingest.
2 – Basic	The organization has implemented a basic process for acquisition, transfer and ingest, for example: ● A documented ingest process exists. ● Basic guidance for donors, depositors and record creators is available where appropriate. ● Documentation and metadata may be received or captured as part of the acquisition or transfer process. ● A documented process exists for selecting and capturing digital content where appropriate (for example for web archives, email archives, digitized content, records within an EDRMS). ● Some content is appraised as part of a manual process in line with relevant policies. ● A working area (physical or virtual) is available for pre-ingest and ingest activities (for example to carry out virus checking and file identification).
3 – Managed	The organization has implemented a comprehensive, managed process for acquisition, transfer and ingest, for example: ● Relationships with stakeholders in the ingest process (such as donors, depositors, owners, data subjects and record creators) are managed through ongoing communication, guidance, and support where required. ● Appraisal is a standard part of the ingest workflow. ● Workflows are efficient and fit for purpose. ● Parts of the ingest process are automated. ● Successful transfer of content is verified by integrity checking.
4 – Optimized	The organization proactively manages and improves the acquisition, transfer and ingest process, for example: ● The organization coordinates with potential donors, depositors, owners, data subjects and record creators to support optimal lifecycle management. ● Internal IT systems that create and hold digital content which will be transferred to the archive, are procured

	and configured with an awareness of requirements for future preservation. ● The ingest process is automated where it is beneficial to do so, with the ability to make manual interventions where necessary. ● Integrations are in place to enable content to be automatically transferred from asset management or record keeping systems. ● Software tools are applied to automate and enhance the process, for example highlighting sensitive information or informing appraisal decisions. ● Reappraisal is carried out periodically, taking into account factors such as value of content, use metrics, and costs of preservation (both financial and environmental).

H - Bitstream preservation Processes to ensure the storage and integrity of digital content to be preserved.	
0 – Minimal awareness	The organization has minimal awareness of either the need for bitstream preservation or basic principles for applying it.
1 – Awareness	The organization is aware of the need for bitstream preservation, and has an understanding of basic principles.
2 – Basic	The organization has implemented a basic process for bitstream preservation, for example: ● Dedicated storage is available to meet current preservation needs. ● The location of content is recorded in an asset register. ● Simple backup regime provides some data redundancy. ● Checksums are generated for all content. ● There is an understanding of which staff members should be authorized to access the content.
3 – Managed	The organization stores content in a managed way consistent with preservation good practice for replication and integrity checking, for example: ● Content is managed with a combination of integrity checking and content replication to one or more locations. ● A process of risk assessment is used to evaluate storage risks and appropriate mitigations (such as the number of copies, location, technologies used, frequency of integrity checking). ● Storage architecture is designed to appropriately mitigate identified risks (such as cyber attack, human error, bit rot, natural or human made disaster) whilst taking into account other requirements (such as value of the content, financial costs and environmental impact). ● Content failing integrity checks is repaired. ● Authorizations to access the content by staff are enforced and documented. ● Tests are routinely carried out to verify the effectiveness of backups, replication and integrity checking. ● Digital content is stored in a geographical location appropriate to policy restrictions, legal constraints and data sovereignty requirements.

4 – Optimized	The organization applies a highly managed storage regime with proactive risk management, for example: ● A storage risk assessment is documented and reviewed on a regular basis. ● Future storage needs are regularly predicted and updated and storage capacity is monitored and revised accordingly. ● Content integrity and processes to ascertain integrity are independently reviewed. ● All access to content is logged and reviewed for unauthorized use and/or changes made (for example which content, when and by whom).

I - Content preservation Processes to preserve the meaning, usability and functionality of the digital content over time.	
0 – Minimal awareness	The organization has minimal awareness of either the need for content preservation or basic principles for applying it.
1 – Awareness	The organization is aware of the need for content preservation, and has an understanding of basic principles.
2 – Basic	The organization has implemented a basic process to understand its content, for example: ● File formats are identified. ● Content is characterized and assessed for preservation and quality issues such as encrypted, broken or incomplete content and invalid files. ● There is a basic understanding of current and future users and use cases for the content.
3 – Managed	The organization has implemented a managed process to monitor and plan for the preservation of meaning, usability and functionality of content over time, for example: ● Preservation watch activities are carried out and ‘at risk’ content is identified. ● Technical dependencies are detected and documented. ● Actions are occasionally carried out to ensure preservation and quality of content such as migration, emulation or modification of creation or capture workflows. ● Preservation actions occur with an understanding of the properties of the digital object that should be retained to support current and future use cases. ● Actions resulting in changes to digital content are recorded, including details of when, what, how, why and who.
4 – Optimized	The organization takes a proactive approach to prioritize and mitigate preservation risks to ensure the preservation of the meaning, usability and functionality of content over time, for example:

	● Risks to specific file formats or types of content held are well understood. ● A rigorous preservation planning process identifies appropriate preservation actions for risk mitigation. ● Decisions on whether to enact preservation actions take into account risks, value of content, costs (both financial and environmental) and use cases. ● Format migration, normalization, emulation and other preservation actions are implemented in accordance with preservation plans. ● Quality control is in place to assess (and record) the outcome of preservation actions, ensuring that the meaning and/or functionality of the content has been retained as required. ● Digital content and metadata are version controlled where appropriate.

J - Metadata management Processes to create and maintain sufficient metadata to support preservation, discovery and use of preserved digital content.	
0 – Minimal awareness	The organization has minimal awareness of either the need to manage metadata or basic principles for implementing it.
1 – Awareness	The organization is aware of the need to manage metadata, and has an understanding of basic principles.
2 – Basic	The organization creates and maintains metadata for preservation, discovery and use at a basic level, for example: ● Content is described at collection level in a digital asset register. ● An appropriate minimum descriptive metadata requirement exists. ● Metadata and documentation acquired with content is retained and preserved. ● Basic preservation metadata is captured at item level.
3 – Managed	The organization has implemented a managed process to create and maintain metadata for preservation, discovery and use, for example: ● Appropriate metadata standards are identified. ● Internal guidance and controlled vocabularies are in place to ensure consistency of metadata entry. ● Persistent unique identifiers are assigned and maintained for digital content. ● Structural relationships between the data and metadata elements that form a particular digital object are maintained.
4 – Optimized	The organization undertakes proactive management of metadata for preservation, discovery and use and looks for ways to enhance and improve processes, for example: ● Rich metadata exists for digital content where appropriate. ● Appropriate metadata standards are applied. ● Choice of metadata standards is revisited and reviewed periodically. ● Metadata and documentation can be enhanced throughout the lifetime of the content. ● Metadata enables a richer rendering/reuse experience for the user. ● Metadata is harvestable and reusable. ● Content description of, or about, Indigenous or marginalized communities is authored in collaboration with them. ● Managed exit strategy is facilitated by standardized content packaging and metadata standards.

K - Discovery and access Processes to enable discovery of digital content and provide access for users.	
0 – Minimal awareness	The organization has minimal awareness of either the need to enable discovery and access for their user community or basic principles for carrying this out.
1 – Awareness	The organization is aware of the need to enable discovery and access for their user community, and has an understanding of basic principles.
2 – Basic	The organization has implemented a basic discovery and access mechanism (where access rights permit), for example: ● Basic resource discovery exists for some digital content. ● Users can view or access digital content and metadata, either remotely or on-site. ● Users' access to digital content is recorded. ● Support is provided to users of digital content. ● Information on the accessibility of digital content for users with disabilities is provided.
3 – Managed	The organization has implemented a comprehensive, managed discovery and access process (where access rights permit), for example: ● Basic resource discovery exists for all digital content. ● Full text search is available for some digital content. ● User access rights are displayed and enforced. ● Clear information is provided to users on permitted uses of the content. ● Statistical reports can be generated about user access to digital content. ● Access mechanisms are updated to reflect feedback from the user community. ● Resource discovery information is available in accessible formats for users with disabilities. ● Access to content of, or about, Indigenous or other communities is informed by relevant social, legal and cultural protocols and is mediated in consultation with the community. ● Access to sensitive or confidential digital content is only provided with full consideration of disclosure risk. ● Established access use case in place for mass extraction of all digital content during invocation of an exit strategy.

4 – Optimized	The organization has implemented an advanced discovery and access mechanism (where access rights permit) which is proactively enhanced and improved, for example: ● Advanced resource discovery and access tools are provided, such as faceted searching, data visualization or custom access via APIs. ● Different options are available for access, rendering or re-use such as migrated, emulated, visualized content. ● The user community is proactively consulted to establish and anticipate needs and expectations. ● Information collected about user discovery and access to digital content is used to improve and enhance the user experience. ● A process is in place for handling take down requests. ● Digital content is available in accessible formats for users with disabilities. ● Access mechanisms are compatible with, or integrate common accessibility tools for users with disabilities. ● Collection specific access systems are designed for longevity.

http://doi.org/10.7207/dpcram24-03

Appendix I – DPC RAM worksheet

Organization:	
Assessment completed by:	
Assessment complete on:	
Notes on scope of assessment (type of content or department):	
Time frame used for target levels (e.g. 1/3/5/10 years)	

ORGANIZATIONAL CAPABILITIES				
	Current Level	**Why did you select this level?**	**Target Level**	**What needs to be in place to get there?**
A. Organizational viability: Governance, organizational structure, staffing and resourcing of digital preservation activities.				
B. Policy and strategy: Policies, strategies, and procedures which govern the operation and management of the digital archive.				

	Current Level	Why did you select this level?	Target Level	What needs to be in place to get there?
C. Legal and ethical: Management of legal, social and cultural rights and responsibilities, compliance with relevant regulation and adherence to codes of ethics related to acquiring, preserving and providing access to digital content.				
D. IT capability: Information Technology capabilities for supporting digital preservation activities.				
E. Continuous Improvement: Processes for the assessment of current digital preservation capabilities, the definition of goals and the monitoring of progress.				
F. Community: Engagement with and contribution to the wider digital preservation community.				

SERVICE CAPABILITIES				
	Current Level	**Why did you select this level?**	**Target Level**	**What needs to be in place to get there?**
G. Acquisition, Transfer and Ingest: Processes to acquire or transfer content and ingest it into a digital archive.				
H. Bitstream Preservation: Processes to ensure the storage and integrity of digital content to be preserved.				
I. Content Preservation: Processes to preserve the meaning, usability and functionality of the digital content over time.				

	Current Level	Why did you select this level?	Target Level	What needs to be in place to get there?
J. Metadata Management: Processes to create and maintain sufficient metadata to support preservation, discovery and use of preserved digital content.				
K. Discovery and Access: Processes to enable discovery of digital content and provide access for users.				