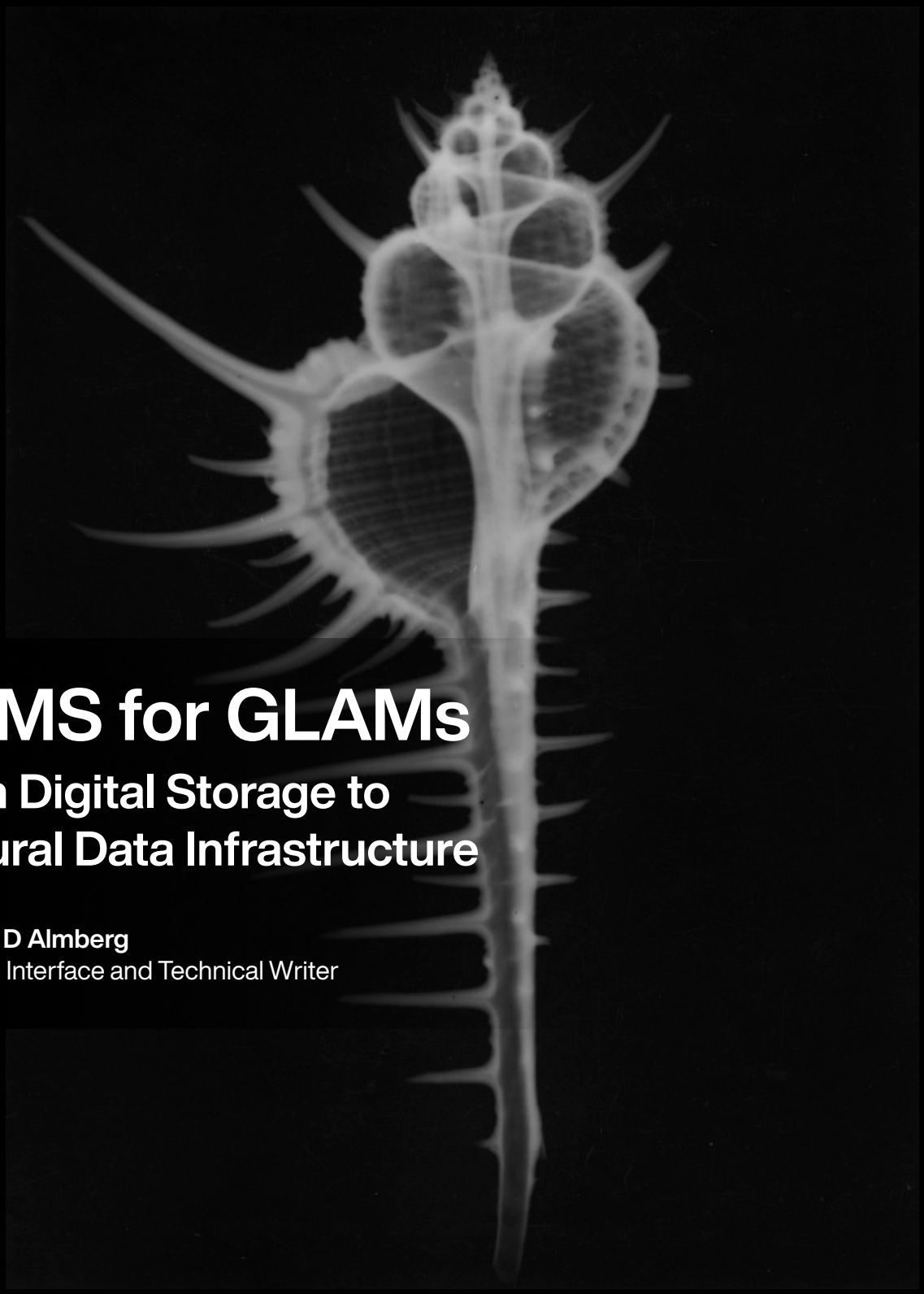
WHITE PAPER
VERSION 1.0 NOV 2026



DAMS for GLAMs

From Digital Storage to Cultural Data Infrastructure

Dr Leslie D Almberg
Research Interface and Technical Writer

ARCITECTA®
OPERATING SYSTEMS FOR META+DATA

Arcitecta®, Mediaflux® and XODB® are registered trademarks of Arcitecta IP Pty. Ltd. All rights reserved worldwide. © Copyright Arcitecta IP Pty. Ltd. 2026
www.arcitecta.com | talk@arcitecta.com

Contents

Executive Summary 3

The GLAM Challenges:
Scale, Context, Access, and Stewardship 4

Why Storage and First-Generation DAMS
Are No Longer Enough 5

Metadata as Cultural Infrastructure 6

Cultural Sensitivity, Rights and AI Governance 6

Workflow Tools 7

Mediaflux DAMS:
A metadata-driven platform for cultural collections 8

Conclusion 9

Cover Image: *Murex troscheli (Stachelschnecke), Röntgenaufnahme*, 1931, Fritz Block (Deutsche Fotothek, 70982969)

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved

Executive Summary

Digital asset management systems (DAMS) are familiar tools within the GLAM sector, but first-generation DAMS weren't built for the large-scale data ecosystems evolving today.

Cultural data infrastructure is stretched by myriad competing demands to effectively make the whole of human expressive works, sporting achievements, and written documentation readily available and meaningful to anyone on the planet with an internet connection. While endeavouring to surmount this extraordinary hurdle, GLAMS teams must also maintain original artefacts, coordinate large-scale, multi-modal preservation and digitisation efforts, consider and protect copyright and indigenous sovereignty, retain context, and engage the public — all within a budget.

Filing and shelving digital assets following the same protocols developed for physical storage was functional in the era of small digital footprints. This arrangement has broken in the era of millions to billions of assets, storage backups, redundancies, and silos, and the advent of born-digital assets streaming in from every corner. Significant GLAMS institutions are now juggling petabytes of data in systems ill-suited for such a task, a problem that is only becoming trickier as they race to preserve materials before media deteriorate and born-digital assets proliferate, increasing data holdings by upwards of a petabyte per year.

The Mediaflux DAMS is an elegant reconceptualisation of the DAMS concept. Built on a framework purposefully designed for how data is created, shared, and governed today, it enables managing, governing, sharing and working with any data type or scale, across any storage environment, without duplication. Founded on a first-principles approach to inherent big-data challenges and tailored to the requirements of asset management in the digital age, Mediaflux DAMS presents an intuitive interface over a powerful workhorse engine.

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved

The GLAM Challenges: Scale, Context, Access, and Stewardship

The scale and diversity of media, uses, and licencing and access restrictions across the GLAMS sector challenges the standard catalogue model. Modern systems must support rapid ingestion workflows for both digitised and born digital assets coupled with rich, robust and flexible metadata schema and underpinned by bespoke governance and storage policy models. Requirements across the sector range from faithful 3D renderings of complex museum objects to sequential library periodical series, all requiring intimate metadata linkages and detail to facilitate interpretation, organisation, and meaning making (Gooch et al. 2025). Archive and library collections vary by a factor of hundreds to millions from those found in museums, galleries, and heritage sites.

The necessity to archive and make publicly available multi-petabytes of legacy and ever-expanding assets, however, elicits a complex web of challenges.

Providing Context

GLAM institutions are paragons of engaging experiences, layering context and narrative onto their content. The evolving expectations and appetites for entertainment in the digital age, however, with new enthralling customised options every day, are hard to compete with. To retain relevance and societal value, GLAMs must reimagine how they leverage their holdings to build more personalised and meaningful in-person and virtual visitor experiences.

There are genuine opportunities for cultural centres to co-create deeply engaging user experiences around their digital assets. Leveraging enriched metadata and AI tools, content and context can form dynamically interwoven narratives under a patron's direction. They might submit a photograph and basic information about a relative to a war history museum, which in turn generates a curated personalised digital exhibition of all artefacts related to that person, period, place, and image. This could be the story of their service battalion, documentary footage of battles, homecoming, or interviews, 3D renderings of physical objects used by the armed forces in that period, or readings of letters from the front.

Or perhaps an author, striving for authenticity in a novel, wishes to immerse themselves in the art, music, fashion, news, politics



Approximate current digital archive volumes for selected institutions, based on publicly available information.

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved

and gossip of the day. They would draw inspiration from visualising how cities and transport expanded, when and where land was cleared, or plant species were introduced. Their work could avoid technical and linguistic anachronisms aided by institutions able to provide vetted intersectional experiences.

Access vs Ownership

Significant challenges exist at the intersection between providing access to copyrighted works, protecting the legal rights of creators, and financially sustaining the institutions providing access to assets. Further complexities arise where culturally sensitive or personally identifiable data is contained within otherwise public holdings. AI is only compounding these already prickly issues.

Responsible, forward-looking GLAM institutions need to consider not only how to place access controls on particular storage silos, but how governance can follow migrated or replicated assets and be modified universally as needed. They require means for digitally watermarking assets available for download and linking fees where appropriate. Public use embargo periods should be embedded, with access driven by metadata, rather than necessitating manual handling. And, ultimately, data location awareness and robust semantic and conceptual linkages are essential for maintaining access.

Stewardship

Stewardship within the GLAM spaces encompasses a broad landscape of legal, ethical and technical responsibilities. From appraising the authenticity of digital records to maintaining their provenance and integrity, prolonging the life of artefacts and records, respecting and safeguarding indigenous cultural rights, human remains and personally identifiable information, and providing ongoing access and education, institutions need to keep a great many plates spinning. All these activities and responsibilities must be managed and accounted for transparently, even through digitisation and inter-generational storage migrations.

Many GLAMS institutions have mandates to maintain their collections indefinitely. Not only does this require measures to preserve the physical artefacts, but to ensure digital assets and records retain integrity and context and remain discoverable and operable. The rapid evolution of file formats, software and storage hardware requires provisioning indelible records of how to read the data into an unforeseeable future and furthermore presents the issue of environmental and fiscal sustainability for hundreds or even thousands of years.

Why Storage and First-Generation DAMS Are No Longer Enough

Integrating flexible and extensible technologies opens extraordinary opportunities limited only by the (meta)data holdings and our imaginations. It makes logical and business sense to build software able to prevail over the hardware, governance, provenance, and access challenges presented above while provisioning contextual grounding that enables rich user engagement and responsible value creation.

The diversity of the GLAM sector has spawned an industry of DAMS solutions. The first-generation DAMS were primarily designed to showcase collections. Mediaflux DAMS started from a different premise.

Developed in iterative consultation with digital curation experts, Mediaflux DAMS is a flexible, extensible and customisable, metadata-driven asset management and engagement system. Built on the same foundational database underpinning some of the most demanding data environments in the world, the Mediaflux DAMS brings scalable, secure, big data capabilities to GLAMS teams. Not bound by rigid file types, metadata schema or fixed workflows, it remains coherent and powerful at scale. Content and context remain attached to assets, providing fodder for curators and AI alike to create rich, end-user-tailored engagement experiences.

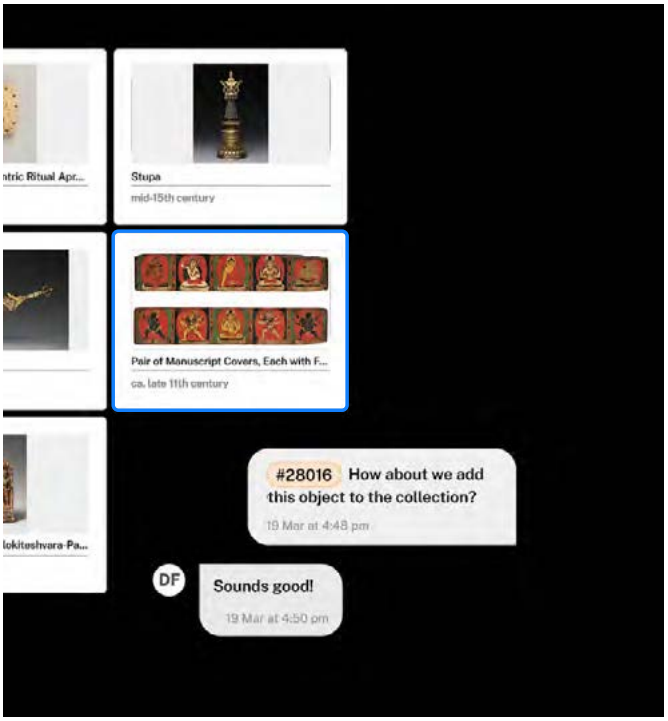
Each DAMS workspace is governed by its own tailored metadata schema, dictating what is captured at ingest, populated on existing assets, or modified with evolving requirements. Where desired, this rich metadata can drive automated AI and HPC workflows for enriching or processing data, ultimately enabling future discovery and reuse. This is critical for large-scale organisations, wherein individuals or teams responsible for managing collections, describing resources, developing interpretations and exhibits, and public engagement may be separated across departments, buildings, regions or countries. McAulay (2021) highlights the effect of professional siloing on the complex workflows necessary to make digital collections publicly available, rendering tools for coordinating efforts and orchestrating asset flows indispensable. Mediaflux DAMS enables each institution to customise their own workflows, guardrails and checkpoints.

As Mediaflux is built to work seamlessly across distributed environments, the DAMS presents a single view of all assets regardless of where they're stored. It is data location aware, so users don't have to be. Every use case is different; for some, heterogeneous on-prem storage is the only reasonable choice,

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved

whereas other business cases dictate using cloud or hybrid options. Regardless of where data assets physically reside, teams can quickly and easily set up bespoke workspaces for internal or cross-institutional collaboration without relinquishing control or exposing unrelated assets.

Critically, these workspaces facilitate external contributions and enable enforcement of customisable metadata schema at ingest. They provide a means to edit specific assets without risk to assets outside the workspace and full versioning to trace who did what to which when. Internally credentialed teams can also discuss customised collections with in-DAMS chat functions to keep the conversations right where the assets live, eliminating application switching and losing track of who said what about which thing when and whether that thing we discussed last Friday afternoon actually got actioned...



Collaboration in custom collections with in-DAMS chat functions.

Metadata as Cultural Infrastructure

Employing systems capable of capturing rich metadata as part of the acquisition workflow is an essential first step toward sustainably maintaining this complex technical, legal, ethical, and educational ecosystem. Keeping this metadata attached inscribes the Rosetta Stone required to make sense of the data down the road.

With Mediaflux, metadata is at the core of every tool we build. It drives automation, bakes in governance rules wherever the data moves, and allows for highly customisable ACLs based on roles or attributes defined by the system administrator. The DAMS enables workspace creators to easily specify additional roles, rules and permissions for the assets and actors included within a particular workspace.

The flexibility and scalability of Mediaflux DAMS taps into the full wealth of an institute's digital holdings and unleashes heretofore unrealised potential sequestered in its metadata. Assets become rapidly discoverable based on any attribute, increasing their potential for reuse and monetisation. Collaboration no longer requires multiple applications, data transfers, granting access to external parties, or losing control of who can do what with your assets. Fully customisable encrypted sharable tokens create a seamless means to invite collaborators into a workspace with defined permissions and access periods.

System administrators and CFOs can also appreciate what this means for budgets and operational overhead. By virtualising all underlying storage, teams can upgrade, diversify, or scale storage hardware without changing a thing for the end-user experience or workflows. Metadata can be leveraged to drive automated data pipelines, tiering, access controls, and other management processes. This is ultimately what digital asset management means in the era of complex, large-scale, heterogeneous distributed data storage environments.

Cultural Sensitivity, Rights and AI Governance

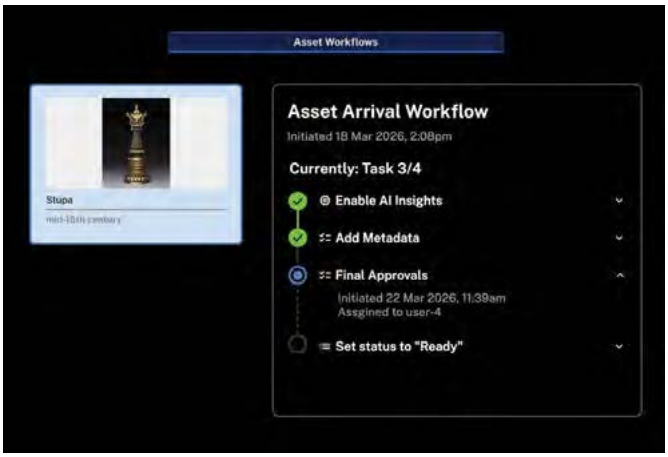
Extensive scholarship and debate have dissected the legal, ethical and philosophical issues facing cultural institutions as their digital assets become increasingly available to the broader public. The most pernicious among these are ownership questions for creative works and indigenous artifacts and how to wield the 'right' edge of AI tools without getting cut.

GLAM institutions often have extensive holdings not on public display. While the reasons for holding items back range from cultural and personal sensitivity to legal protections and insufficient space, the public generally accepts that they don't get to see every single bone, book, basket or badly stuffed bunny in the place. This allowance, however, does not extend as generously into digital collections, where withheld access is viewed with frustration or hostility, with some institutions accused of wrongly hiding public goods. When a search returns a record, users expect immediate access, which leaves curators in the difficult position of granting access to that which should be restricted or deleting records wholesale.

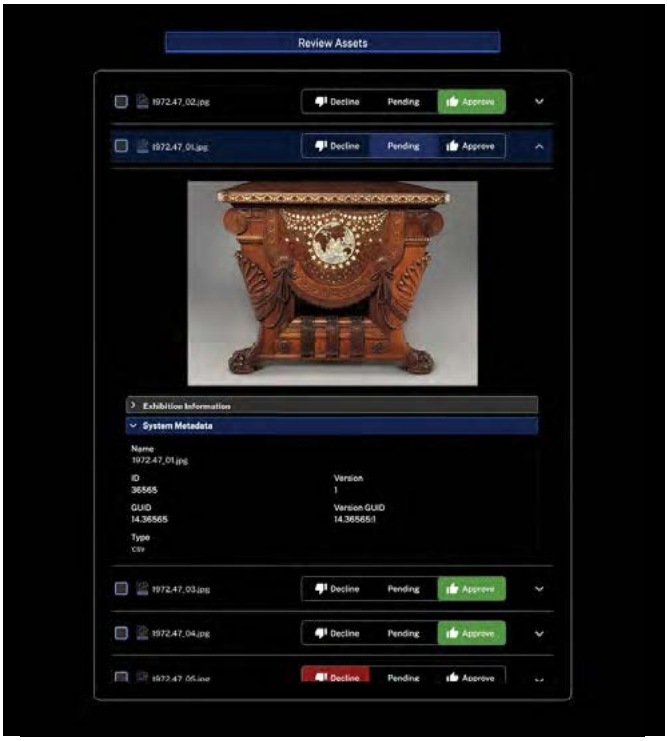
Kahn & Simon (2023) observed that images and records of such sensitive objects as Māori toi moko (preserved and mummified heads used as war trophies in traditional Māori

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved

societies), which are widely deemed inappropriate to display publicly, are accessible in online aggregate galleries populated through bulk actions. Lacking the guardrails to restrict access on sensitive items in the rush to meet the push for FAIR open scholarship, institutions may inadvertently transgress the CARE principles (Collective benefit, Authority to control, Responsibility, and Ethics; Carroll et al. 2020). Retrospectively removing data from databases is a non-trivial act and undesirable from an aggregation and preservation or curatorial perspective. The optimal approach is to provide access to the record and its metadata, which can include a valid explanation of asset restriction, an option within Mediaflux DAMS. Kahn & Simon (2023) furthermore make the case for accommodating digital surrogates of complex and sensitive materials in systems that allow for complex layers of catalogue and specialist human knowledge; our second-generation DAMS makes this possible.



DAMS workflows can contain a combination of automated and human-initiated actions.



Approvals and rejections of incoming assets can be managed by authorised users.

Balancing the tension between making digitised collections open, discoverable, monetised or free to view (or, in many cases, download), while protecting copyright, IP and personal data, in nationally and publicly funded institutions has not fit easily within existing digital ecosystems (Gooch et al., 2025; Wallace, 2022). Mediaflux DAMS enables metadata-driven governance and access controls to streamline institutional practices and working cultures while providing insights to bolster budget targets. Human curators remain central to the decision-making processes, but actionable metadata means those decisions can be attached to the assets and follow them wherever they live.

This is a critical AI preparation step for digital assets, both for leveraging and protecting their value. Without context, meaning evaporates. Enabling digitisation, curation and preservation teams to populate rich metadata at the logical touchpoints within their workflows makes it easy to enhance the context for every asset and ensure it doesn't get lost.

Workflow Tools

The diversity and pace of processes demanded of GLAM digital curation teams necessitates intelligently linking automated actions with user-based checkpoints. Mediaflux DAMS supports an infinitely flexible array of customisable workflows built to suit institutional requirements.

Automated services for evaluating assets, modifying metadata, integrations with third-party software (such as Jira), sending email, flagging issues, or pushing notifications, etc. can be linked to any number of human validation actions. With workflows built for the way teams work, rather than button-holing teams into working the way pre-existing workflows were hard-coded, Mediaflux DAMS introduces significant efficiencies and smooths the bumpier parts of the path. Workflows are by default applied globally across the DAMS, however workspace-, role-, or even asset-specific workflows are also enabled.

Batch workflows are invaluable to teams guiding thousands of assets through complex action chains. Within Mediaflux DAMS, batching is fully audited, tracing who did what to which asset when. This includes all workflow initiations, notes, approvals and rejections, which are useful if a progression gets interrupted or problem is identified at a later stage. It also provides a long lever for managers of large teams to ensure all the gears keep turning even when team members are absent.

The external 'supervisor dashboard' UI provides statistics across all workflows within Mediaflux DAMS. This super-user role provides institution-wide visibility and auditing capabilities, with the ability to reassign tasks to improve efficiency and focus efforts on priority initiatives.

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved

Mediaflux DAMS: A metadata-driven platform for cultural collections

Use Cases

The Mediaflux DAMS is ideal for GLAMs teams undertaking large-scale digitisation projects, provisioning public access to copyright-protected or culturally sensitive digital assets, or exploring AI enrichment to drive public engagement and asset reuse. The suite of customisable tools enables seamless collaboration internally, across storage silos, institutions and external parties, supports licensing options, while retaining the context required for long-term preservation. Mediaflux DAMS is particularly well suited for institutions dealing with petabyte-scale digital asset holdings or looking to scale their operations long term.

Building the Foundation

Before embarking on an ambitious program, it's essential to look outward and get your technology in order, otherwise, you risk missing out on the richness embodied in your data. The key guidelines for building on a solid foundation:

- **Think about your data in its totality —** not just the number of physical assets or petabytes of storage today or in the near future, but their interrelationships, broader contextual meaning, and long-term projected growth.
- **Treat metadata as infrastructure.** Not a chair or a fax machine that will be replaced or superseded, but the mortar that binds the brickwork. Without it, the whole building comes tumbling down. Certain metadata are the finishings; enable your future teams to remodel to suit their requirements without having to rebuild from the ground up.
- **Be prepared to experiment and think forward.** It's informative to look around at what others are doing and have tried, but each institution is unique in its mandates, stakeholders, resources, and capabilities.
- **Understand the technology and where it might lead;** that it is evolving/growing and be prepared to embrace that.
- **Prioritise integration over replacement —** it may require more time and resources upfront but will generate significant savings in the long run.
- **Build for scale.** Digital archives are only getting bigger faster. If your system can't scale, it will break and send you back to the drawing board.
- **Plan for a staged rollout.** Trying to do too much all at once can lead to chaos or catastrophe. Successful implementations generally take a crawl, walk, run approach, with benchmarks and checkpoints for all stakeholders through a multi-year process.



Bruck Mills, Wangaratta, ca. 1950-51, Wolfgang Sievers (State Library Victoria, H88.40/942)

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved

Arcitecta is working with cultural institutions across the globe to align their data and digital asset management processes with this modern paradigm.

The Australian National Film and Sound Archive and the British Imperial War Museums are two significant organisations adopting these guidelines in stepwise increments. Their vision and strategic approach will provide a solid framework from which to build and grow for decades or more to come.

Conclusion

We're in the big data age. That affords us enormous opportunities to enrich the cultural experiences offered by the institutions that embrace it. And data management is the key.

Vision, collaboration, experimentation, stepwise implementation and iteration are essential. Swallowing the entire universe at once is a grand ambition, but a terrible choking hazard.

Coupling this approach with integrated systems to help manage and leverage the entirety of sprawling data estates will differentiate the GLAM leaders. This is what Mediaflux DAMS was designed to do. It's an actively adaptive solution to a dynamic landscape of big data challenges.

Start a conversation with us today about where you want to go on your cultural data journey.



A young woman drilling parts of a Beaumont bomber with a portable drill, 1942, Douglas Darian Smith (State Library South Australia, B 7798/417)

References

Carroll, S.R., Garba, I., Figueroa-Rodríguez, O.L., Holbrook, J., Lovett, R., Materechera, S., Parsons, M., Raseroka, K., Rodriguez-Lonebear, D., Rowe, R., Sara, R., Walker, J.D., Anderson, J., Hudson, M. (2020) The CARE Principles for Indigenous Data Governance. *Data Science Journal, 19*(1), 43. https://doi.org/10.5334/dsj-2020-043

Eastwood, T. (2012) A contested realm: The nature of archives and the orientation of archival science. *In:* Eastwood, T., MacNeil, H. (eds) *Currents of archival thinking*. Libraries Unlimited, Santa Barbara, pp 3–21

Gooch, M., Kahn, R., Kugeler, E. (2025) Human Perspectives and Social Infrastructures: Prioritising People in GLAM Digitisation. *Journal of Open Humanities Data, 11*(13), 1–12. https://doi.org/10.5334/johd.274

Kahn, R., Simon, R. (2023) Skulls, skin and names: The ethics of managing heritage collections data online. *In* Palladino, C. & Bodard, G. (Eds.), *Can't Touch This: Digital Approaches to Materiality in Cultural Heritage*. London: Ubiquity Press. https://doi.org/10.5334/bcv.k

McAulay, E. (2021) Always be migrating. *Code4Lib Journal*, 50(2021-03-10). https://journal.code4lib.org/articles/15568

Wallace, A.A. (2022) Culture of Copyright: A scoping study on open access to digital cultural heritage collections in the UK. *Arts and Humanities Research Council Commissioned Report* http://dx.doi.org/10.2139/ssrn.4323683

© Copyright 2026 Arcitecta IP Pty. Ltd.
All rights reserved