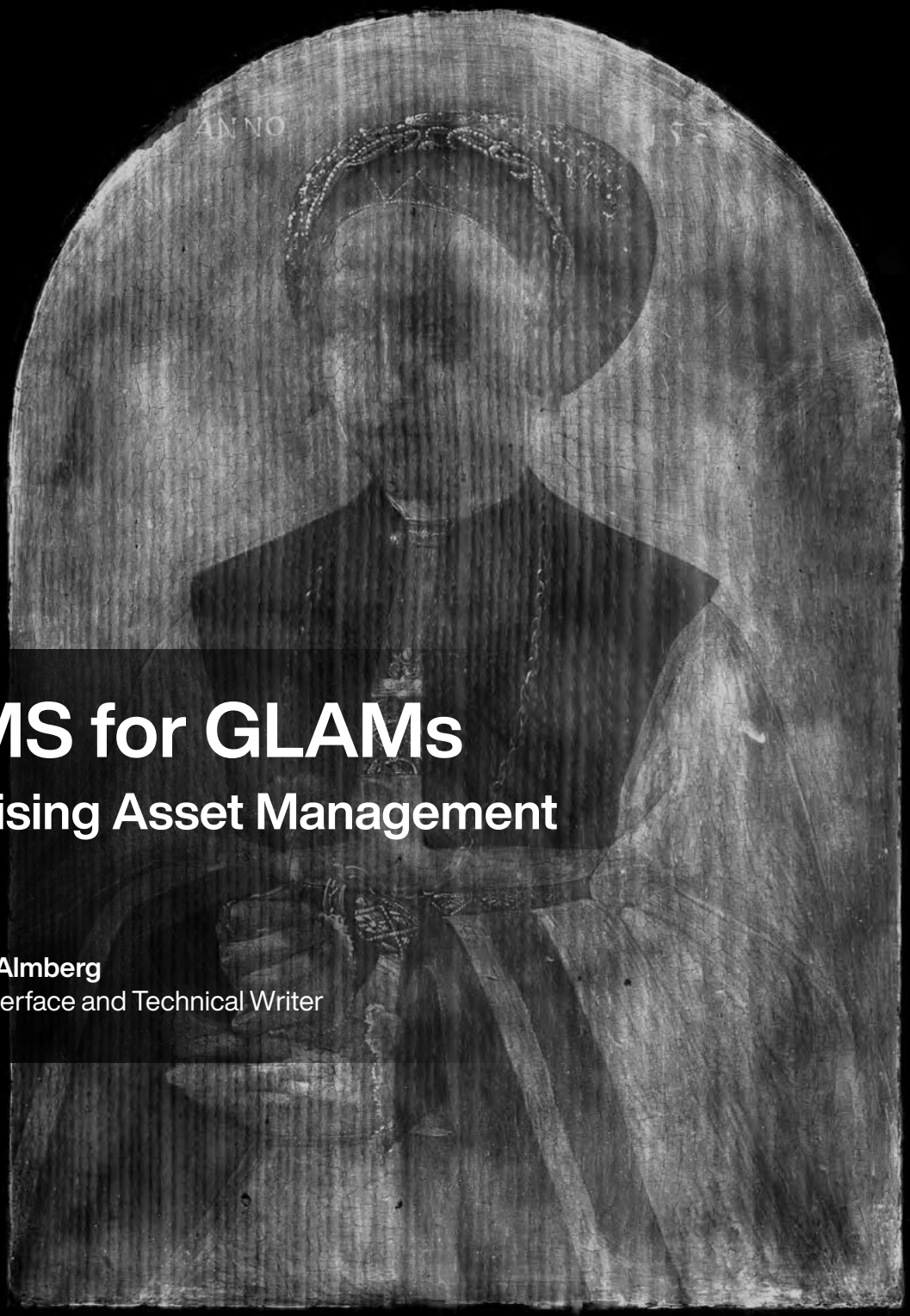
WHITE PAPER
VERSION 1.0 NOV 2026



DAMS for GLAMs

Optimising Asset Management

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
Card Catalogues 3.0 4
So many questions, so little time... 5
Preservation is the Jam 6
Adding Value 7
Solid Foundations 9
Concluding Statements 9

Cover Image: X-radiograph of *Portrait of a Woman*, 1533, Barthel Bruyn the Elder (MET, 62.267.2)

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

Executive Summary

When you have a gigabyte of data, you can throw it in a few folders, manage it yourself and know where everything is. But push that to a billion files and no one knows what's in there anymore. The ability to extract value approaches a vanishing point. A scalable GLAM asset management system must enable intuitive, engaging, publicly accessible narrative building and empower data-rich cultural entities to sustainably preserve and disseminate embodied knowledge.

Galleries, libraries, museums, and other cultural preservation institutions are entering the big data age. Whereas these entities were once concerned with maintaining a few terabytes of data, today they find themselves swallowing an entirely new universe, managing tens of petabytes. Old solutions break at this scale. Data management is no longer a straightforward infrastructure hurdle to leap. It is a cost optimisation problem, a preservation puzzle, and a workflow labyrinth each demanding a simultaneous solution.

Compounding this challenge is the double-edged AI sword: opportunity and risk. Pressures abound to serve diverse audiences in increasingly agile, engaging, and sustainable ways to compete in overly crowded attention markets, whilst harmonising with curation and cultural authority mandates. As institutions embrace AI opportunities, they're discovering the associated costs require new approaches for monetising assets.

Legacy infrastructure relied on institutional knowledge: the librarian/archivist or museum/gallery curator who knew just where to find the item sought. But digitised data volumes and rate at which new 'born digital' content is created has rapidly outstripped human capacity, requiring new tools and pipelines. Large-scale cultural institutions now need to adopt enterprise grade machines and environments, coupled with innovation to suit their unique data landscapes, to optimise their asset management approach.

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

Card Catalogues 3.0

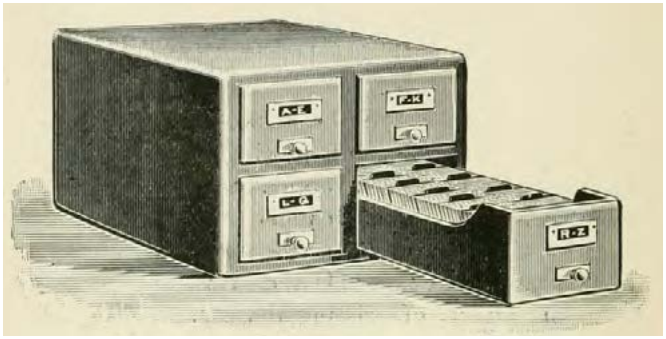


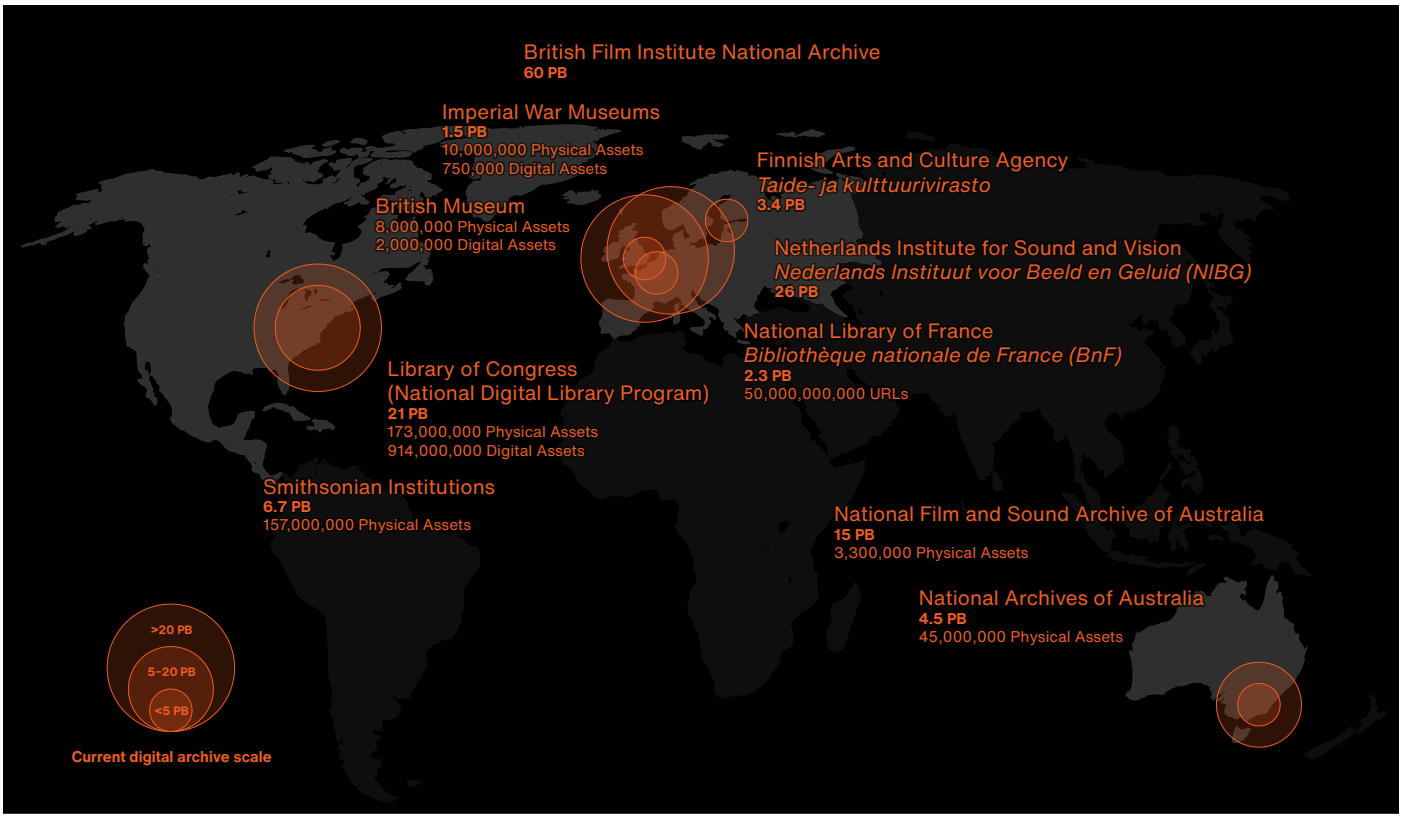
Image from Page 167 of *Manual of library classification and shelf arrangement*, 1898, James Duff Brown (Internet Archive, Robarts Library - University of Toronto)

From clay tablets to parchment scrolls, ledgers to card files, the necessity of organising means for finding what we seek in large collections has evolved over millennia. Introducing computerised cataloguing in the mid-20th century was a great leap forward for search speed (at the expense of the sensory experience of those smooth-sliding drawers). The online public access catalogue (OPAC) matured and was broadly adopted worldwide, with collective library consortiums containing upwards of 900 million records. As wonderous as this digital transformation was, its basic functions were analogous to the analogue catalogue.

The second-generation discovery systems wield more sophisticated search technologies, such as relevancy ranking and faceted search options. Leveraging metadata created significant improvements in both search and recommendation capabilities, but still more innovation was required to handle the onslaught of digital collections.

The scale and diversity of media, uses, and licencing and access restrictions across the GLAMS sector challenges the catalogue model. The necessity to archive and make publicly available multi-petabytes of legacy and ever-expanding assets elicits a complex web of questions to address across the sector.

The infographic below illustrates the scope of digital custodianship within leading cultural institutions across North America, Europe and Australia.



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

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

So many questions, so little time...

GLAMs have long been called upon to be the authority on their holdings, with increased public scrutiny of how and why they perform their functions. Mass digitisation programs and an increasing proportion of born-digital assets introduces an entirely new set of additional considerations that do not always sit comfortably with historical approaches. Answering the most deceptively simple questions about an asset is now more complicated than ever.

What is it?

Beyond the basics of *title/ medium/ creator*, the public and AI alike are hungry for more information about culturally significant artefacts.

Who is in it?
What does it represent?
What else is associated with it?

The ability to ask, and confidently answer, these questions using associated metadata is what creates rich, narrative-driven experiences.

When is it?

Does this mean:

When was it added to the collection?
When was it ingested into the digital archive?
When was it modified/moved/duplicated?
When was it recorded?
When was it made?
When was it used/relevant?
When was it set (fictionally)?
All of the above?

Plus, there may be an impetus to associate other important dates: award nominations/wins, bans, dates of sale/ transfer/restoration/loss/destruction/(re)discovery, etc., re-cataloguing, inclusion in research papers. Perhaps approximate date ranges, alternate date formats, or culturally appropriate periods are required as well.

Where is it?

For a physical object, this could be the GPS coordinates of the building, the floor/room within the building, a case/rack number, etc.

What if we are instead interested in what is represented: geographic recording location, fictional location depicted, archaeological/paleontological site from which it was originally retrieved, museum it was acquired from/is on loan from, etc.

And beyond that,

Where is its storage location?
Is it on premises, somewhere 'in the cloud', or a dedicated onshore data centre?
Can you find it on an archive tape?

How is it?

Another critical consideration is the state of the artefact. Many institutions have complex workflows for restoration, repair, digitisation, display, and archival, which often require approvals to move from one stage to the next. Retaining the provenance, process and progress through these steps is crucial for authenticity and responsible custodianship.

Beyond questions concerning the state of restoration, an institution must track regroupings into different collections, loans, or if an item is lost or destroyed.

Furthermore:

Is it digitised or born digital?
A component of an asset set?
What are its relationships to other assets?
Is it frequently searched for/accessed/downloaded or rarely seen?
What's its storage resolution/ compression/ format?

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

Preservation is the Jam

What are the key drivers for a cultural institution, *i.e.* their mandates and responsibilities? While this list varies across the sector, with different emphases tied to funding structures, and the nature of collections, there are common themes:

Authenticity:

Maintaining provenance and performing due diligence to ensure the origins of cultural material and prevent the acquisition or display of illegally exported or looted items.

Preventative conservation & preservation:

The primary technical goal is to prolong the life of artefacts and records by minimising physical and chemical deterioration using proper storage, handling, and environmental controls.

First Nations & indigenous cultural rights:

Many countries mandate institutions recognise First Peoples as the primary custodians and interpreters of their own heritage. This involves following Indigenous Cultural and Intellectual Property Principles to ensure consultation, respect, and culturally appropriate handling of secret or sacred knowledge.

Transparency & accountability:

Management practices, including policies on access, loans, and deaccessioning (removing items from a collection), must be documented, transparent, and ethically sound. Maintaining these records through digitisation and storage migration processes requires careful consideration.

Access & education:

Where collections are held in the public interest, institutions balance long-term preservation with the mandate to make cultural material accessible to the public for education, appreciation, and research.



Office Board, 1885, John F. Peto (MET, 55.176)

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

Digitisation

The principles for digital preservation, building on the overarching mandates, are generally designed to ensure digital records remain authentic and accessible to those who wish to access and use them in the future. The timeframe of that 'future' is defined by each institution, with some considering how they will meet their obligations for the next 100 years or more.

Authenticity:

Records must be trusted as accurate representation of the original asset, requiring fully documented preservation strategies, capturing and providing metadata required to describe its content, context and provenance.

Integrity:

Records must be complete and protected against unauthorised or accidental alteration. Institutions must consider how they manage fixity checking digital objects and capturing full audit trail of all preservation actions performed on assets.

Ongoing access and use of records:

To ensure assets remain accessible by users, across time and changing technical environments, records must be locatable and retrievable, assets need to be in formats able to be rendered in a current technical environment and understood and interpreted by users. This requires ongoing:

- Migration or emulation strategies
- Capture and provision of metadata sufficient to allow assets to be located, retrieved and understood
- Limiting restrictions to digital records (unless closed access is justifiable)

Digital preservation strategies:

Futureproofing requires a risk-based approach for digital preservation. Multiple strategies must converge to enable effective preservation of digital collections, including: safeguarding physical media, encoding formats, upgrading preservation software and methods to persistently manage digital assets.

Copyright:

Clear and adhered documentation of appropriate reuse allowances with assets watermarked as necessary maintains ownership rights.

Employing systems capable of capturing rich metadata as part of the acquisition workflow is an essential first step toward maintaining this complex legal and ethical ecosystem.

Evolving media

Anyone old enough to have purchased music before the turn of the century knows the pain and pleasure of media evolution. We've lived, loved, lost, and learned enough to know just having a backup isn't enough if there's no longer a device around to read your storage media.

The GLAM sector exists with mandates not just to save, but preserve, data requiring long-term vision for formats, upgrades, and migration to be baked into the very design, strategy, and storage architecture, hardware, and software.

Adding Value

Content + Context + Narrative = Engagement

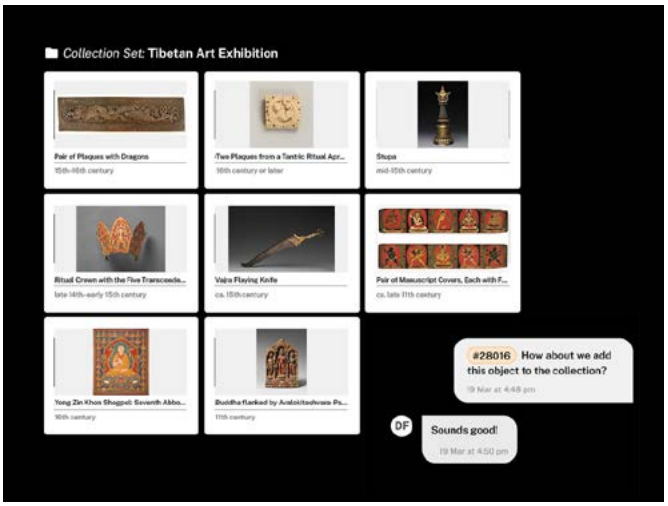
GLAM institutions are paragons of building interesting and engaging experiences by layering context and narrative onto their content. But expectations and appetites for entertainment have evolved dramatically in the digital age, with enthralling customised options cropping up around every corner. To retain relevance and societal value, GLAMs must reimagine how they leverage their content 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 be dynamically woven into a narrative arc from 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, and image. This could be the story of the battalion in which they served, documentary footage of battles, homecoming, or interviews, 3D renderings of physical artefacts worn and used by members of the armed forces in that period, and audio readings of letters from the front.

Or perhaps an author wishes to set a novel in a particular place and period. They might want to immerse themselves in the art, music, fashion, news, politics and gossip of the day, see how cities and transport expanded, when and where land was cleared, or plant species introduced for inspiration and authenticity. Institutions able to provide such intersectional experiences would be a boon for spurring rich new works of art.

Integrating flexible and extensible technologies opens extraordinary opportunities limited only by the (meta)data holdings and our imaginations. Now we turn to the enabling technologies for this vision.

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



Collaboration in custom collections with in-DAMS chat functions.

Loaves & Fishes — Feeding the Masses

Digital asset management systems (DAMS) are a familiar tool for the GLAM sector, but first-generation DAMS weren't built for the large-scale data ecosystems evolving today. The Mediaflux DAMS is an elegant reconceptualisation of the model, 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 environment, without unnecessary duplication.

Developed in iterative consultation with digital curation experts, Mediaflux DAMS is a flexible, extensible and customisable, metadata-driven asset management and engagement system. 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.

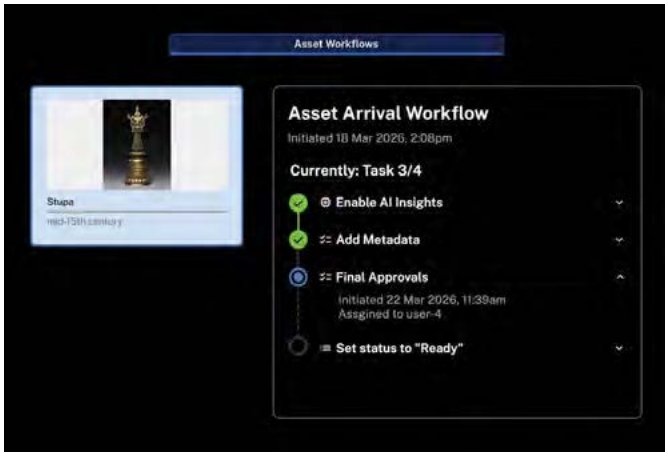
As Mediaflux is built to work seamlessly across distributed environments, the DAMS presents a single view of all assets regardless of where they're stored. It is data location aware, so users don't have to be. Every use case is different; for some, heterogeneous on-prem storage is the only reasonable choice, 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 means to edit specific assets without risk to others outside the workspace and full asset versioning to trace who did what to which when. Collaborators 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...

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 will also appreciate what Mediaflux DAMS does 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.



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

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

Solid Foundations

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.
- **Be prepared to experiment and think forward.** It's great 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.

Concluding Statements

We're in the big data age. That affords us enormous opportunities to enrich the cultural experience 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 was designed to do. It's an actively adapting 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.



Lantern clock, 1691-1702, Peter Stretch (MET, 2023.302a–i)

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