ResourceSpace

A COMPREHENSIVE GUIDE TO

Digital Curation

Tools & Techniques

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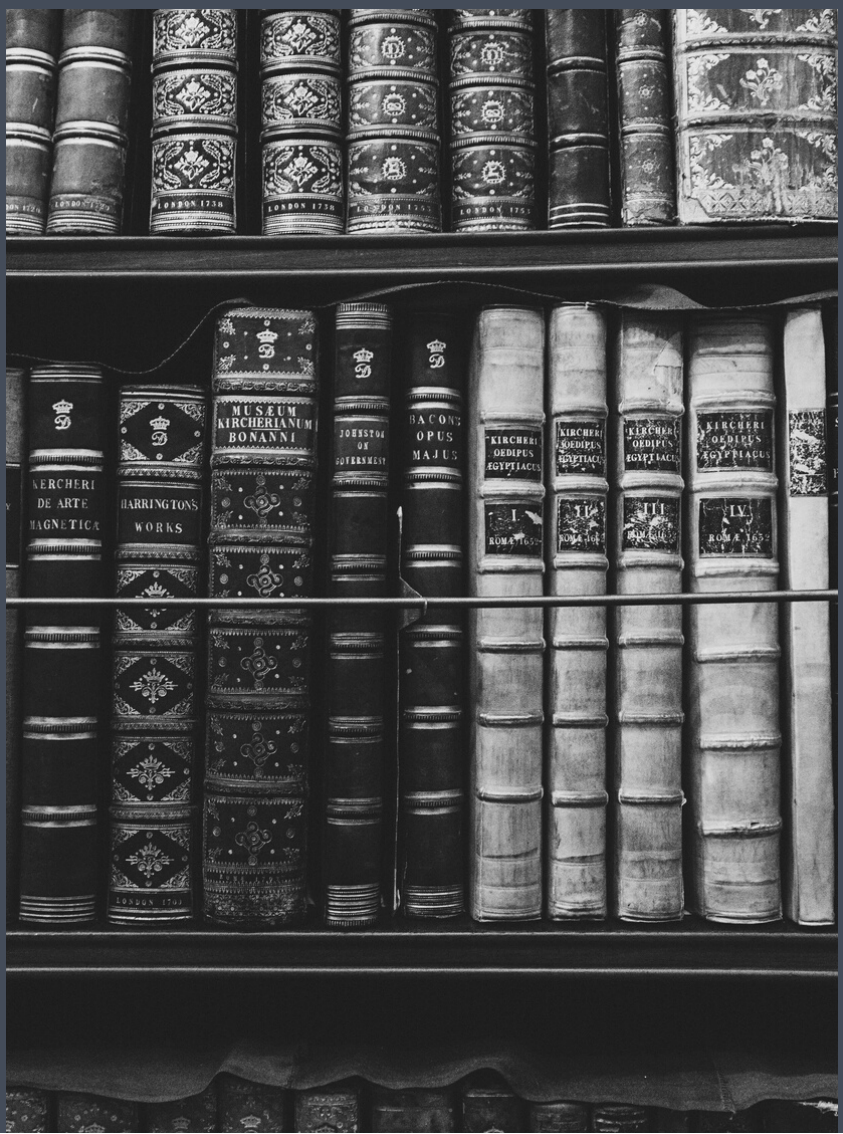


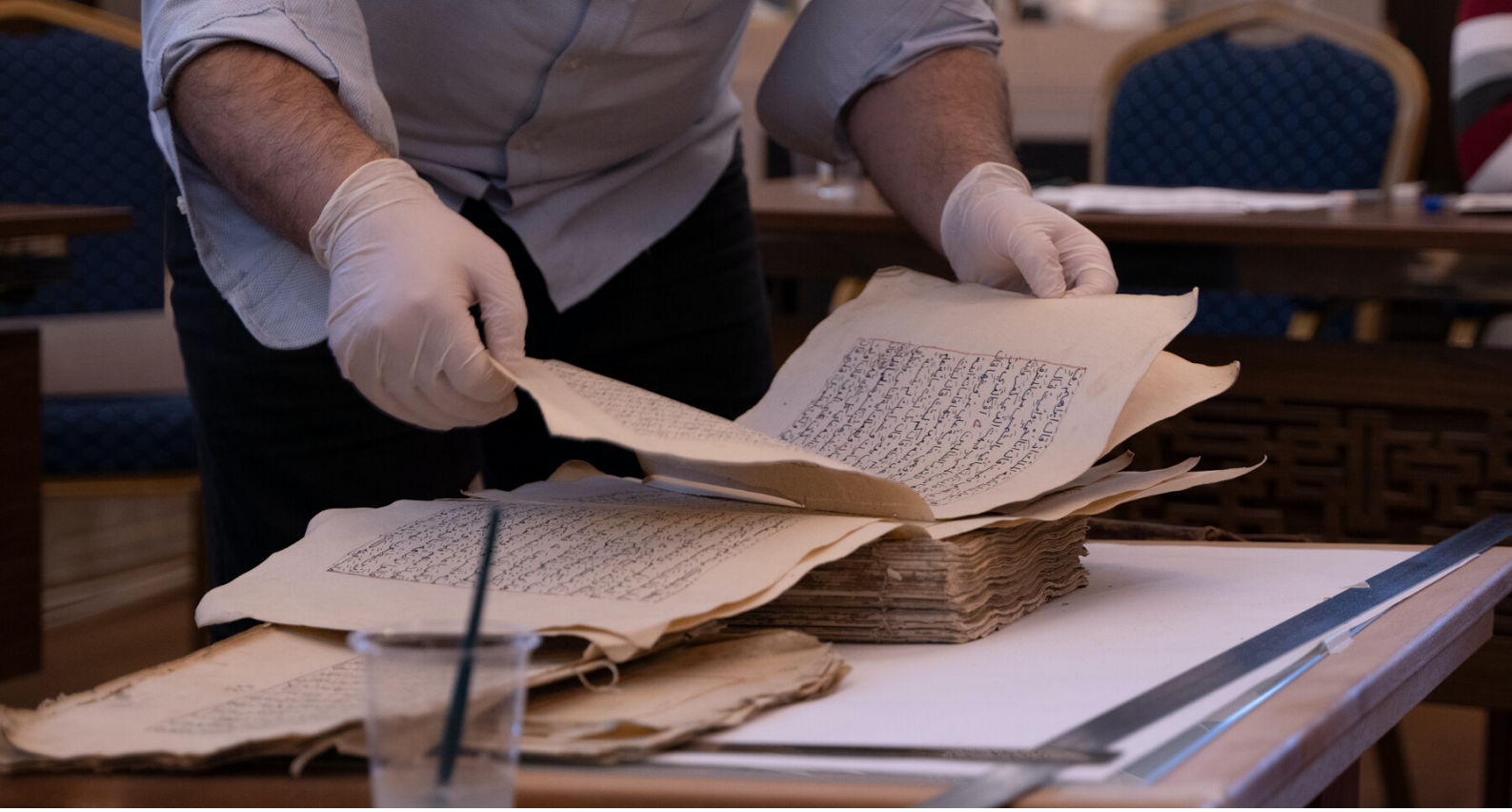
Introduction

Digital curation is a term that's been used much more frequently over the past few years - especially within heritage organisations. But what does it mean? And how can it benefit your organisation - and what are the best practices to follow?

Inside, we'll explore the details of digital curation, including insight into the tools that can help make the process more streamlined.

What is digital curation?

Digital curation refers to the process of collecting, organising and maintaining digital assets like images, videos and documents. In the context of heritage organisations, digital curation involves preserving digital records of historical and cultural significance, making sure that future generations can access and learn from these resources.



Collecting: The start of a digital journey

Collecting is the first step for successful digital curation. It involves creating and sharing a digital asset.

For heritage groups, think of it like turning old manuscripts or precious jewellery into a digital format. It’s not just about safeguarding them, but showcasing them and their rich history for everyone to see.

An effective digitisation process requires more than simply taking a few pictures and uploading them to your DAM or CMS. First of all, a plan is crucial to ensure priorities are assigned and the process is clear. You don’t want to end up with lots of pictures and scanned documents, but unsure of where they came from, where they’re supposed to go and what’s already been digitised and what hasn’t. This plan should also consider the resources (time, money and personnel) required to carry out the project.

Not all curated content has to be digitised though, and some assets are ‘born digital’. For example, digital artwork including animations, visual media or computer-aided design, eBooks and written documents.

Sharing also plays a big part. Heritage groups often share digital assets with each other. It's a simple way to offer more and bring history to life.

Once they've got these digital assets, the experts step in. They go through each one and select the best examples - these are going to be around for a very long time.

Organising: Structuring the digital repository

Having decided on the digital assets worth preserving, the next step for a curator is organisation. This phase involves cataloging these treasures in systematic tools like Collection
Management Systems (CMS).

Each asset is enriched with vital information – its date of origin, copyright nuances, and a unique identifier, often termed an accession number.

Imagine an old vase, hundreds of years old. In real life, it's just one object. But digitally, it can be seen in many ways. Different digital images might show it from different angles or next to other historical pieces.

These digital versions are carefully labeled. One might have a tag like 'top view', another 'side view'. These labels matter a lot, especially in a Digital Asset Management (DAM) system. When people use the DAM, these labels, along with detailed information from the CMS (because the DAM works with the CMS), help them find what they're looking for.

Maintaining: Protecting the digital legacy

When digitising heritage artifacts, it's crucial they last.

Staying updated with the digital world is key. Heritage groups need to make sure their digital assets are in formats that everyone can access and use. This means carefully keeping track of file versions and making sure the original is always available.

But digital files can get corrupted. That's when Digital Preservation and Digital Asset Management systems step in.

These tools have special features, like checksum monitoring, to make sure digital assets never change over time.

Four benefits of digital curation

Implementing comprehensive and efficient digital curation processes takes time, but there are four key benefits of getting it right that make the investment worthwhile.

1. Extended accessibility: Breathing new life into historical artifacts

Heritage organisations go to great efforts to preserve objects and reduce the impact of time (and the elements) by storing them in climate-controlled vaults and minimising handling—and digitisation also plays a role here.

For example, if the institution has a comprehensive digital record of an ancient manuscript, this significantly reduces the need to physically interact with it.

Advances in AI technology also mean that old photographs can be digitised and restored to their former glory. AI restoration software works by utilising advanced algorithms and neural networks to analyse a digital image and 'understand' the subject of that image. The software can then accurately estimate what the original 'clean' image looked like.
There are three different types of AI image correction:

- Geometric correction, which rectifies spatial distortion in images, for example identifying elements of a human face—such as eyes, nose and mouth—and applying geometric transformations to align them with a standardised reference.

- Radiometric correction, which adjusts values of pixels to correct the effects of sensor, illumination and atmospheric variations.

- Denoising, an advanced technique used for decreasing grainy spots and discolouration in images to minimise the loss of quality.

2. Bringing History to Life: Interactive digital experiences

The digital world lets heritage groups see their collections in a new light. By turning artifacts into digital formats, they can make engaging online displays using platforms like IIIF. Plus, these digital collections fit perfectly into interactive kiosks, giving visitors a direct interaction with the past.

3. Financial Opportunities: Monetising heritage

Making a digital copy of an artifact can lead to new revenue streams. Heritage organisations can leverage ecommerce opportunities, selling prints of classic art to fans. Plus, digital versions of these pieces can appear on everyday things, like special notepads, keyrings, or t-shirts.

Also, going digital can save money. Online displays often cost less than physical ones, and during uncertain moments, like the COVID-19 lockdowns, these online displays keep people connected.

4. Bridging Boundaries: Collaborative heritage ventures

Going digital makes it easy for heritage groups to work together. They can share their collections with others worldwide quickly and easily.

Whether it's lending a piece for a collaborative online exhibition or sharing resources for research, the digital format makes for seamless and unrestricted collaboration.

Digital curation best practices

We've discussed the benefits of digital curation but to achieve those results, there are some best practices that should be followed.

The power of metadata: Unlocking asset potential

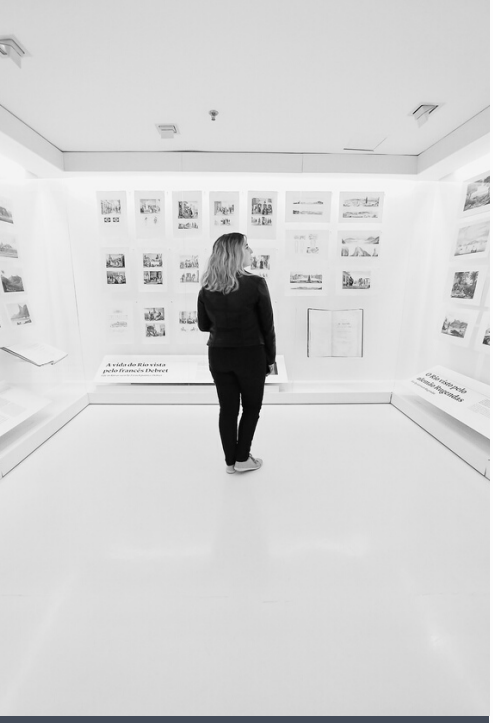
Metadata is all the useful information about these digital assets, for example:

- a description
- individual elements about the asset, for example what it's made from or when it was created
- the artist or photographer who created it
- information relating to usage permissions

Metadata makes it much easier to discover assets because you can search for this information, rather than relying on knowing the name of the file, and it also means all of the asset's most important information is in one place.

There are three different types of metadata to be aware of:

1	Descriptive metadata, providing details about the contents or subject of an asset, making it searchable and easily identifiable.
2	Operational metadata, which offers context and helps users understand how and when an asset can be used.
3	Technical metadata, which is embedded into a file and provides information like file size and format, camera model, colour profiles and more.



In theory, the amount of metadata that could be added to a digital asset is unlimited, which in many ways is why it's so powerful for Digital Asset Management. However, this does mean the structure of the metadatacan become inconsistent and difficult to manage.

Without a clearly defined metadata schema the DAM users will label similar assets in different ways. For example, one user might label a picture of a Greek vase with 'vase', 'handles' and 'Greek', while another might label it with 'Amphora', '5th Century', 'Achilles', 'Zeus'.

Fortunately, there are some established metadata schemas that you can use. One of the most popular schemas is Dublin Core which is renowned for its interoperability

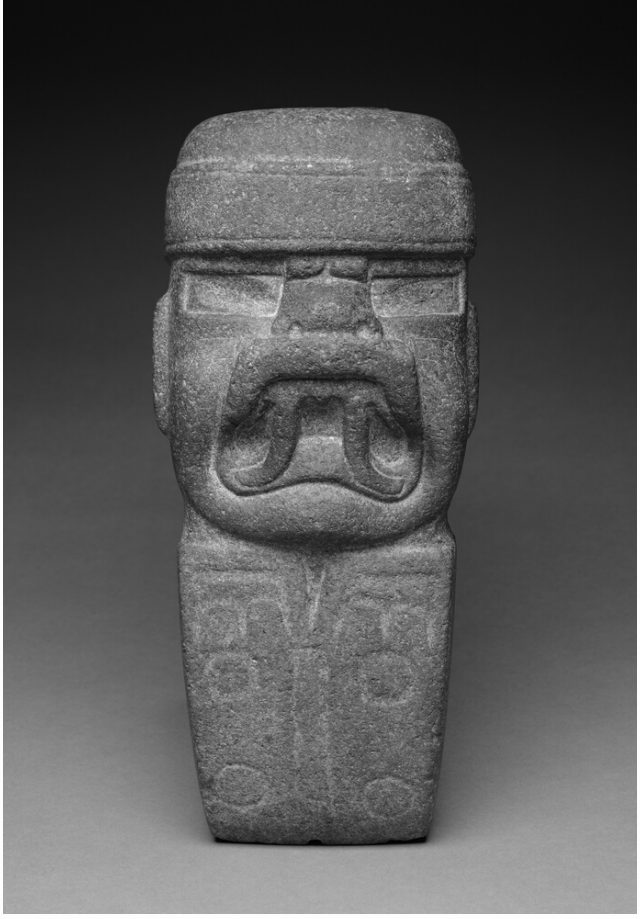
Upholding global standards: The blueprint for digitisation

As well as pre-established structures for metadata, there are also global standards for metadata, digitisation and archival of assets. Examples of some of these standards include:

- ISO OAIS Reference Model - this model was originally developed for space agencies, but it has proved useful for various organisations and institutions that have digital archiving requirements. The OAIS standard has been considered the optimum standard to create and maintain digital repositories since its publication in 2005.
- PREMIS - the PREMIS Data Dictionary for Preservation Metadata is the international standard for metadata, intended to preserve digital objects and ensure long-term usability. The PREMIS standard consists of the Data Dictionary, an XML schema and supporting documentation.
- FADGI - the Federal Agencies Digital Guidelines Initiative is used by US governmental institutions as a common and sustainable set of technical guidelines, methods and best practices for digitised and 'born digital' historical, archival and cultural content.
- Metamorfoze - the Dutch equivalent of FADGI, Metamorfoze is the Netherlands national programme for the conservation of paper heritage, while it is also involved in setting up research, establishing contacts within Dutch and international organisations and is responsible for information dissemination.

Safeguarding your digital treasures: Backups and beyond

Digital assets, especially those originating from invaluable artifacts, are both financially and historically significant, so ensuring their safety is paramount. With this in mind, there are some best practices for safeguarding them.



Regular backups

With any type of data, implementing a schedule of regular backups is essential. This doesn't necessarily mean you need to store digital assets on your own physical storage as well as in the cloud, but it does mean that storage should be diversified. For example, geographical redundancy involves storing data across multiple locations, therefore reducing the risk of catastrophic data loss events at a single location.

Checksum monitoring

A checksum is essentially a digital fingerprint - an exact snapshot of an image in a given point in time. Checksum monitoring involves checking these digital fingerprints for changes to a file, with even the smallest change being detected. However, you should note that checksums can only identify if a file has been changed, not where in the file that change has occurred.

The three main uses for checksums are:

- Reporting that a file has been correctly received from a source and successfully transferred to preservation storage.
- To ensure that file 'fixity' has been maintained while that asset has been stored. Fixity is just the expression used to demonstrate how static a file is. Its make up should never change.
- Reporting that a file has been correctly retrieved from storage and delivered to the user.

Version control

Comprehensive version control is essential to keep a clear log of what specific changes have occurred, record them all over time and, when required, to return a file back to a previous state.

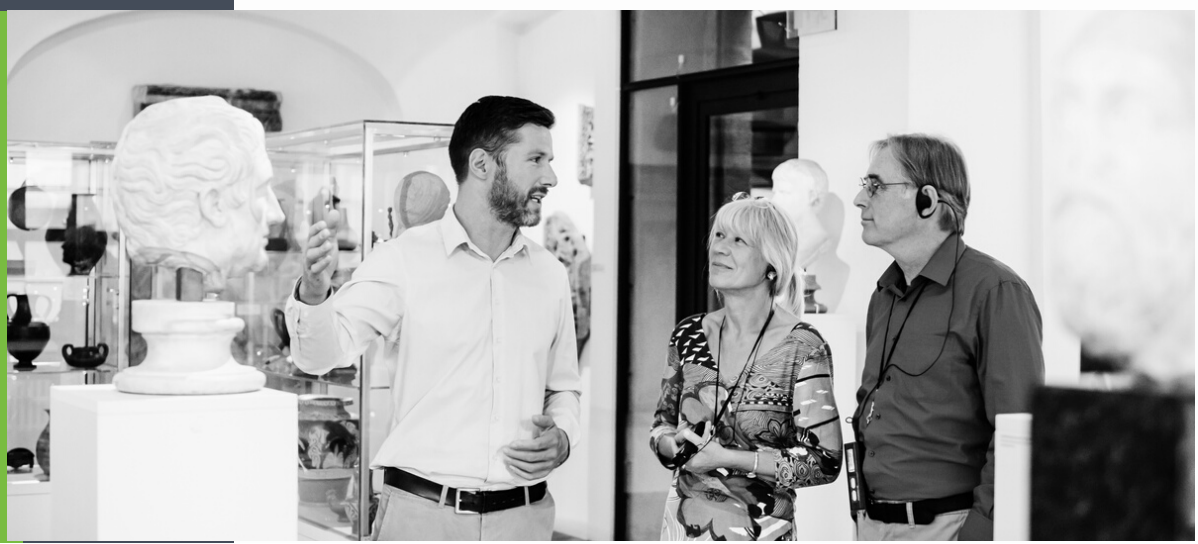
This is particularly important when teams are collaborating on digital assets. If multiple people are editing images or collections of images, each person needs to see what has already been done to help avoid duplicating work or accidentally undoing edits that have already been made.

A robust version control process also helps with storage management because it eliminates the need for multiple versions of the same image. This not only reduces how much storage space an organisation requires, but it also ensures teams are using the most up-to-date versions.

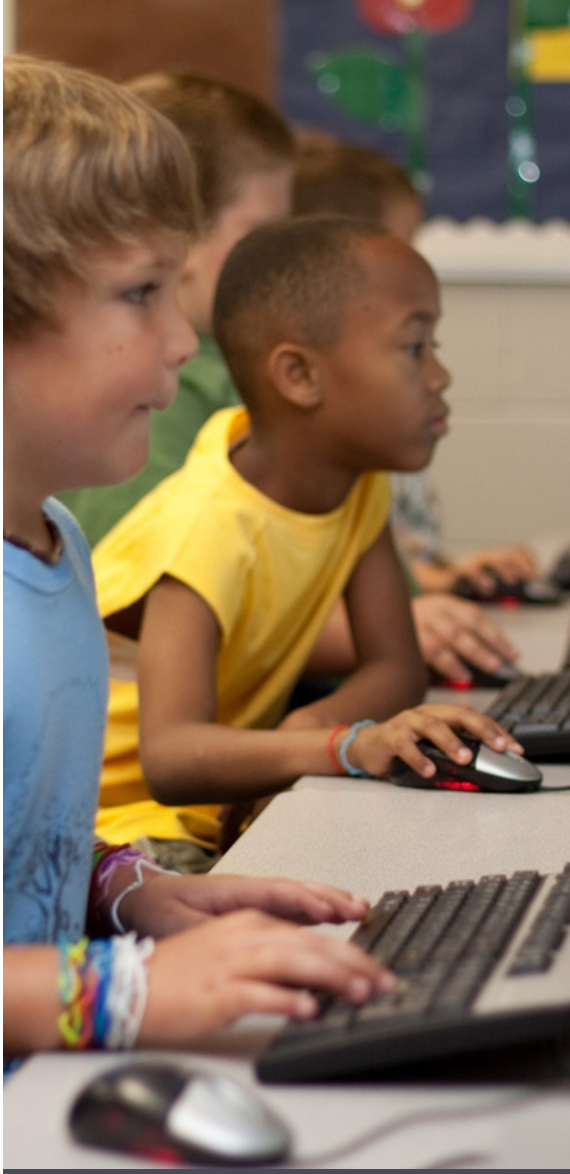
Permissions control

Restricting access and edit permissions to specific users can reduce the likelihood that an asset will be deleted by accident, improperly edited or shared with people who shouldn't have access to it.

Your DAM system should facilitate granular user permissions, and the DAM manager should put in place rules and processes around who has access to which assets, and what they can do with them.



Tools for digital curation



Collections Management System (CMS): The curator's organisational powerhouse

A Collections Management System (CMS) serves as the backbone for heritage organisations, offering a structured approach to managing their vast collections. Here's how it enhances digital curation:

- Cataloging: Easily record detailed information about each artifact, from its origin to its significance.
- Search & retrieval: With a robust CMS, finding a specific item or related items is simple, thanks to advanced search functionality.
- Integration: Many CMS platforms seamlessly integrate with other tools, ensuring smooth data flow and comprehensive digital curation.

Web Publishing Software: Showcasing heritage to the world

Web Publishing Software is the bridge connecting heritage organisations to a global audience. Its role in digital curation is pivotal:

- Online Exhibitions: Effortlessly curate and display collections online, reaching a worldwide audience.
- Interactivity: Engage visitors with multimedia presentations, interactive timelines, and immersive experiences.
- Customisation: Tailor the look and feel of online displays to resonate with the organisation's ethos and the collection's theme.

Digital Preservation Systems: Safeguarding history's digital imprint

Digital Preservation Systems are the guardians of digitised heritage. They ensure that digital assets remain intact, authentic, and accessible for generations to come:

- Format Migration: With evolving technologies, these systems help migrate assets to current formats, ensuring longevity.
- Integrity Checks: Regularly monitor digital assets for potential corruption and rectify anomalies.
- Redundancy: Maintain multiple copies of assets, safeguarding against data loss.

Digital Asset Management System (DAM): Centralising & streamlining

A Digital Asset Management system (DAM) is the hub where all digital assets come to life:

- Central Repository: Store all digital assets, from high-resolution images to multimedia files, in one centralised location.
- Metadata Management: Enrich assets with metadata, enhancing searchability and context.
- Access Control: Define who can access what, ensuring security while promoting collaboration.
- Integration: Integration with Collections Management Systems (CMS) and IIIF allows the DAM to aggregate the information within the digital curation tools and make it publicly accessible.

Since a DAM is central to managing your digital assets, it should easily connect with other key systems. ResourceSpace offers instant connections with many platforms, like EMu and MuseumPlus. This lets you create a complete digital management ecosystem.

Want to see how ResourceSpace works? Click below for a free 30-minute demo.

Get started

ResourceSpace

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