SPECTRUM Digital Asset Management

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The Collections Trust is a charitable organisation which champions collections and their positive contribution to public life.

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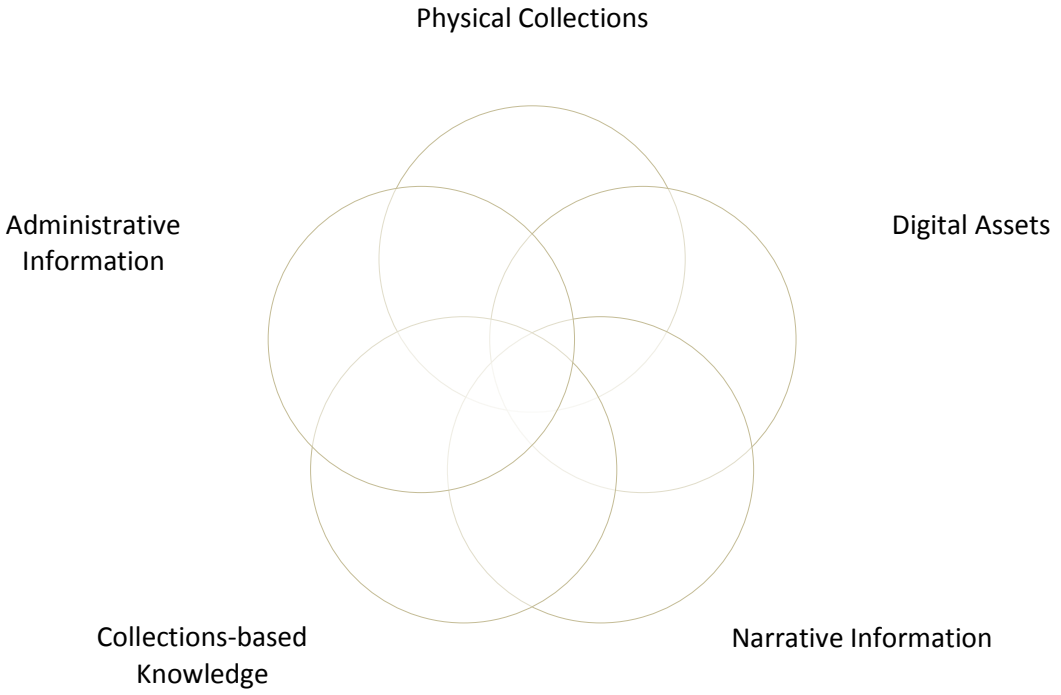
Welcome to SPECTRUM DAM

Welcome to *SPECTRUM Digital Asset Management*. This document is intended as a companion to *SPECTRUM*, the international Collections Management standard which the Collections Trust develops with the support of and on behalf of a global community of museums, galleries, libraries, archives and other cultural heritage organisations.

The creation, management, publication and preservation of digital assets have become core business of cultural organisations. Digital output, whether born-digital or digitised from analogue sources, forms an increasingly significant proportion of the heritage of future generations.

The Collections Trust believes that in order to be sustainable the management of digital heritage must be brought into the same professional context as the management of tangible physical collections and the information and knowledge assets which connect them. The collections in the care of cultural heritage professionals include 5 key components*:



** Noting that these broad definitions can be subdivided into many different categories, such as documentary heritage, oral history, collections of built environment and heritage sites (such as graves), non-digital recordings (such as tapes, dictabelt or negatives), citations associated with the collections (as separate collections in their own right) and recordings of past exhibitions.*

This concept of *integration* of the management of physical and digital material and the administrative, narrative and scholarly information which bring them to life is central to the principles set out in this document and in the core *SPECTRUM* standard.

The aim of this document is to set out a proposed methodology by which digital asset management can be integrated alongside the existing curatorial and management functions of the organisation to ensure that they are widely adopted and sustained as a core element of practice.

This document provides information and guidance on the development of a Digital Asset Management Strategy (DAM Strategy), associated DAM Policies, the implementation of a Digital Asset Management System (DAMS) and the integration of Digital Asset Management Workflows (DAM Workflows) alongside the existing SPECTRUM Collections Management processes.

Strategic Collections Management

This document, along with the broader *SPECTRUM* standard, should be read in the context of the Collections Trust/BSI *Code of Practice for Collections Management* (BSI Publicly Available Specification 197:2009).

The *Code of Practice for Collections Management* defines a vision of the management and use of collections that is fundamentally connected to the mission and values of the organisation, and which is defined around supporting the needs of its users.

All decisions about the creation, acquisition, management, re-use, distribution and development of collections (whether physical or digital) must be driven by the central purpose of promoting access, proactively enabling engagement and supporting the organisation in delivering its public task.

This user-centric approach to collections management must be underpinned by a commitment to ongoing review, evaluation and improvement if the organisation is to continue to promote the mutual aims of accountability, relevance and sustainability.

A full description of the *Strategic Collections Management Model* is provided in the Appendix to this publication.

About this Guide

The aim of this guide is to support cultural heritage organisations in understanding how to approach the integration of Digital Asset Management (DAM) into their existing collections practice.

This guide has been produced following consultation with the international *SPECTRUM Community.* It is intended to be a work in progress and will be updated periodically to reflect changes in practice.

The guide is intended to support you in working through the development of 5 elements of successful digital asset management in your organisation:

- Considering why and how DAM can benefit your organisation
- Developing a DAM strategy
- Integrating DAM alongside your existing SPECTRUM-based collections practices
- Developing and communicating DAM Policies for your organisation
- Procuring and implementing a Digital Asset Management System (DAMS)

This guide is not intended as a standalone guide to digital asset management and should be read in the context of the *SPECTRUM* standard and the Collections Trust/BSI *Code of Practice for Collections Management*.

This guide is not a standard – it does not set out formal requirements, but instead presents suggestions and recommendations for consideration. You should always seek expert advice and draw on the experience of your peers when undertaking the procurement or integration of a digital asset management into your organisation.

What is Digital Asset Management?

The purpose of this guide is not to provide a standalone definition of digital asset management (DAM). However, it is useful to provide a working definition of DAM in the context of a collecting organisation such as a museum, archive, library, gallery or private collection.

The Canadian Heritage Information Network (CHIN) defines digital assets as[1]:

> *"Digital materials created or owned by your institution.*
>
> *Digital assets exist in a variety of formats, and can include text, web, audio, video and image files. Digital images of objects in your collection are digital assets, as are logo image files, corporate Powerpoint presentations and any other digital resources created by your institution that generate revenue or that provide valuable content to employees or clients.*
>
> *Digital assets may be used in many contexts, including sales, marketing, education, web development, collections management and digital preservation. Sometimes you will see the term 'media asset' used to refer more narrowly to audio or video content."*

In the broadest sense, DAM refers to the processes and practices involved in the creation, description, storage, discovery, re-use and preservation of digital assets.

In the context of the *Strategic Collections Management Model*, your organisation's approach to DAM might include some or all of the following elements:

- A business case, or the identification of key drivers or success criteria
- A content audit, or inventory of your existing digital assets
- A DAM strategy
- Policies and procedures for DAM
- The procurement, implementation & maintenance of a Digital Asset Management System (DAMS)
- Staff training and change management
- Recruitment of additional skilled/specialist staff
- Associated policies for rights, user access control & persistent identification
- A plan or strategy for *Digital Preservation* (including format transition planning)
- Policies for metadata, file-naming conventions and file formats
- Mappings of metadata schemata between inter-dependent/interoperable systems
- Integration of digital asset and collections management workflows
- Updating and/or upgrading of internal IT systems
- Contracting of external systems and capacity (such as cloud or offsite storage and backup)
- Policies on information security, resilience and access control

As with all large-scale infrastructural developments for your organisation, the impetus to implement a DAM strategy should derive from a clear business case, a clear understanding of the strategic context and a careful analysis of the impact of the change on the whole organisation.

[1] *Digital Assets and Museums, an Introduction,* CHIN (http://www.pro.rcip-chin.gc.ca)

In the same way that you should consider all functions and departments of the organisation as clients of the collections and associated knowledge resources, DAM is an issue which cuts across the whole organisation. The implementation of a strategy and DAMS should be undertaken in the context of a clear understanding of the impact and value for all activities across the organisation. It should also be aligned clearly to the strategic direction of the organisation and the resources that are available to support it.

The planning, implementation and subsequent maintenance and development of your DAM strategy and system are classic change management processes – their success depends as much on cultivating clarity and support within the organisation, and ensuring that people feel empowered to embed it into their working practice as it does on the selection of a particular system.

In the long-term, the success of your DAM activity will depend on establishing a *culture* across your whole organisation which values the management, preservation and re-use of digital assets as a core aspect of your work alongside the equivalent management of your collections and the knowledge associated with them. This depends on a clear change management strategy and the effective implementation of a phased rollout across your organisation.

Benefits of Digital Asset Management for your Organisation

Implementing DAM strategy, procedures and system in your organisation requires planning, coordinated effort and the investment of time and resources. It can also deliver significant benefits both in terms of the efficiency of your operations, the sustainability of your digital outputs and their impact and value for your users.

Benefits of developing a DAM strategy for your organisation could include (prioritised for ease of reference):

Primary Benefits

- Improved discovery of information, both internally and externally
- Providing organisation-wide access to digital assets for all staff/departments
- Supporting more rapid approaches to innovation and prototyping new services
- Promoting collaboration between different organisational functions
- Improved rights management within your organisation

Secondary Benefits

- Promoting the sustainability, longevity and accessibility of your organisation's digital outputs (including created digital content)
- Reducing the opportunity costs arising from lost or inaccessible information
- Improved visibility of value and impact of digital assets
- Improved compliance with legal or statutory responsibilities

Additional Benefits

- Demonstrating the same commitment to the responsible acquisition and management of digital assets as for your physical collections and associated knowledge assets
- Supporting the training and professional development of your staff
- Demonstrating a commitment to long-term value for funders and investors
- Helping your organisation to attract funding opportunities (EU funding, and international projects)

Whatever your motivation in implementing a DAM strategy for your organisation, it is important to be clear about (and to share with your colleagues) the benefits which you are hoping to achieve.

Creating a Digital Asset Management Strategy

Successfully implementing DAM in your organisation is not simply a question of choosing the right technology or capturing the right digital formats. It is a change which affects your whole organisation and everyone in it.

Rather than thinking of it in terms of 'implementing DAM', it is sometimes helpful to think about what it means to become an organisation which creates, collects, preserves and re-uses digital assets in much the same way as you collect and provide access to your physical collections.

There are implications in terms of cost, staffing, changes to your working practice and organisational culture. The way you approach it will have an impact on the services you are able to offer your users and the extent to which these are scalable to take account of long-term changes in technology and behaviour.

It is also important to recognise that the DAM needs of your organisation and users will be unique – you should always guard against adopting a DAM strategy that has been developed for a different context or organisation.

For this reason, tempting though it might be to rush straight in and obtain a digital asset management system for your museum, archive, library or gallery, it is always a good idea to take the time first to understand some basic questions:

- *What* are you hoping to achieve?
- *How* will it benefit your organisation?
- *Who* are the main people who need to be involved?
- *Why* are you doing it now?
- *How* will you ensure that your approach to DAM is viable in the medium to long-term?

Knowing the answers to these questions will save a lot of time and reduce the risk of misunderstanding in the long run.

Managing Change in your Organisation

It is beyond the scope of this publication to provide detailed advice on change management. However, it is important to bear in mind that the implementation of a DAM strategy in your organisation is a significant change, and that there are some simple principles which will help you manage this change and – perhaps more importantly – help your colleagues get behind what you are trying to achieve.

Principle 1. Influence matters

No matter how positive or constructive the changes you are proposing, they need the support and endorsement of the people in your organisation who are in a position to facilitate them.

This commonly includes one or more management or Board-level champions who are not only important in terms of their formal role, but who also carry personal credibility within the organisation. It is sometimes also the case that additional influence is required from outside the Board to secure buy-in.

Principle 2. Communication matters	Everyone that is potentially affected by the change (which in practice is usually everyone in your organisation) needs to receive consistent, ongoing communications which clarify: • Why the change needs to happen (WHY) • What, precisely, you are proposing to do (WHAT) • When the changes will happen (WHEN) • How you propose to make them (HOW) You should never assume that just because you have told people what you are doing, this means that they have engaged with the implications of the change. It needs to be stated and re-iterated consistently so that people have time to consider how it will affect them.
Principle 3. Peer-group matters	In addition to reflecting on the change personally, the people it affects need to see others in their peer-group embrace the change and fit it into their working practice. In practice, this means encouraging teams and departments in your museum, archive, gallery or library to work together to ensure that they understand the change and its implications.
Principle 4. Skills matter	Even when people have acclimatised themselves to the change you are proposing, they will not accept it unless you ensure that they have the knowledge, skills and support that they need to internalise it into their own practice. In practice, this means providing training, technical support, peer-group support and other forms of knowledge and skills-development to help people embrace the change.

These principles are important when thinking about your DAM strategy because the integration of DAM into your working culture is likely to represent a significant change, and potentially a challenge for your colleagues.

A measure of preparation before you begin will help save considerable effort, time and potentially money further down the line!

Where does your DAM Strategy fit?

Once you are comfortable that you understand why you are implementing digital asset management in your organisation and the benefits you hope to achieve, it is worth spending a little time considering where your DAM strategy fits within the overall strategic development of your organisation.

In many cases, your organisation will already have a *Strategic Plan*, or will be part of a larger parent or governing body which sets out strategic aims and objectives which affect you.

It is always preferable for your DAM strategy to be integrated into or closely aligned with the mission, vision and strategic objectives of your organisation. If it isn't, you run the risk of the DAM strategy failing to deliver on your organisation's ambitions, which will eventually result in it being marginalised and ignored.

To be fully effective, your DAM strategy needs to be part of (and owned by the same people as) the overall strategic management and direction of your organisation. This may also mean understanding how it fits into your organisation's performance indicators, or its internal understanding of what constitutes success.
This process of alignment can be critical in ensuring that the whole organisation understands how DAM delivers value for their work, not just in terms of collections and preservation, but also in terms of audience engagement, revenue-generation and strategic planning. Broadly, each department, team or function in the organisation needs to understand how DAM will help them achieve their objectives.

Components of a Digital Asset Management Strategy

Once you have understood the key drivers for implementing DAM and how it fits alongside your existing strategic development it is time to start assembling your overall DAM strategy.

DAM strategies come in all shapes and sizes, and there is no one-size-fits-all model which can be applied to every organisation. There are, however, a number of core elements which tend to feature in common across different strategies:

- Mission – clearly aligned to the mission and vision of the organisation
- Short, medium and long-term goals (eg. 1, 3 and 5 years) – aligned to the broader strategic objectives of the organisation
- Roles & responsibilities of the people who will be responsible for the strategy
- Characterisation of the user community/stakeholders of the outcomes of the strategy
- Success criteria and how they will be evidenced
- A schedule/period over which the strategy will be reviewed and refined

The DAM strategy itself can be a relatively short document – what is important is that it captures a consensus about the strategic purpose and intended outcomes of your DAM activity that is shared with the various stakeholders within your organisation.

The DAM strategy should act as a reference point throughout the planning, selection, implementation and long-term governance of both your DAMS and organisational support mechanisms such as training and IT development.

The DAM strategy is also a key advocacy document, demonstrating to senior stakeholders how your DAM activity feeds into and supports their broader objectives for the organisation.

SPECTRUM Procedures & Digital Asset Management

The *SPECTRUM* standard provides a framework for the management and exchange of collections and their associated information, whether it is narrative, contextual, administrative or interpretive.

SPECTRUM is used by a wide range of museums, libraries, archives and galleries worldwide to develop, review and improve their management processes in order to be more efficient and deliver greater impact for their end-users.

As such, *SPECTRUM* provides a pre-existing foundation within which digital asset management can be integrated. An organisation that has been using *SPECTRUM* for any period of time is likely to have addressed some or all of the following (whether explicitly as documented policies, or implicitly in the form of custom, practice and working culture):

1. The integration of collections (and collecting activity) into their strategic plan
2. The development of policies for collections management
3. The implementation of procedures and workflows for collections management
4. The training and development of staff in collections management practices
5. The development of a *culture* of knowledge capture and management
6. The deployment and use of systems for collections management
7. The generation of performance or value indicators for their collecting activities
8. The integration of policies for collections development (accession and deaccession/disposal)
9. Underlying business processes for the loan and transfer of collections
10. The integration of collections care and preservation into management processes

In other words, *SPECTRUM* promotes a culture of long-term strategic development, review and improvement based on the following elements:

- Mission
- People
- Policy
- Procedures
- Systems
- Information
- Performance

At the same time, *SPECTRUM* encourages organisations to take an holistic and integrated view of the following activities as part of an overall continuum:

- Collections development
- Collections care & preservation
- Learning from and creating new knowledge about collections
- Promoting the use and re-use of collections and knowledge

The use of *SPECTRUM* therefore provides a fertile basis for the integration of DAM as a specialised case of *Collections Management*, both of which enable the museum, archive, library or gallery to achieve its strategic aims.

SPECTRUM Procedures

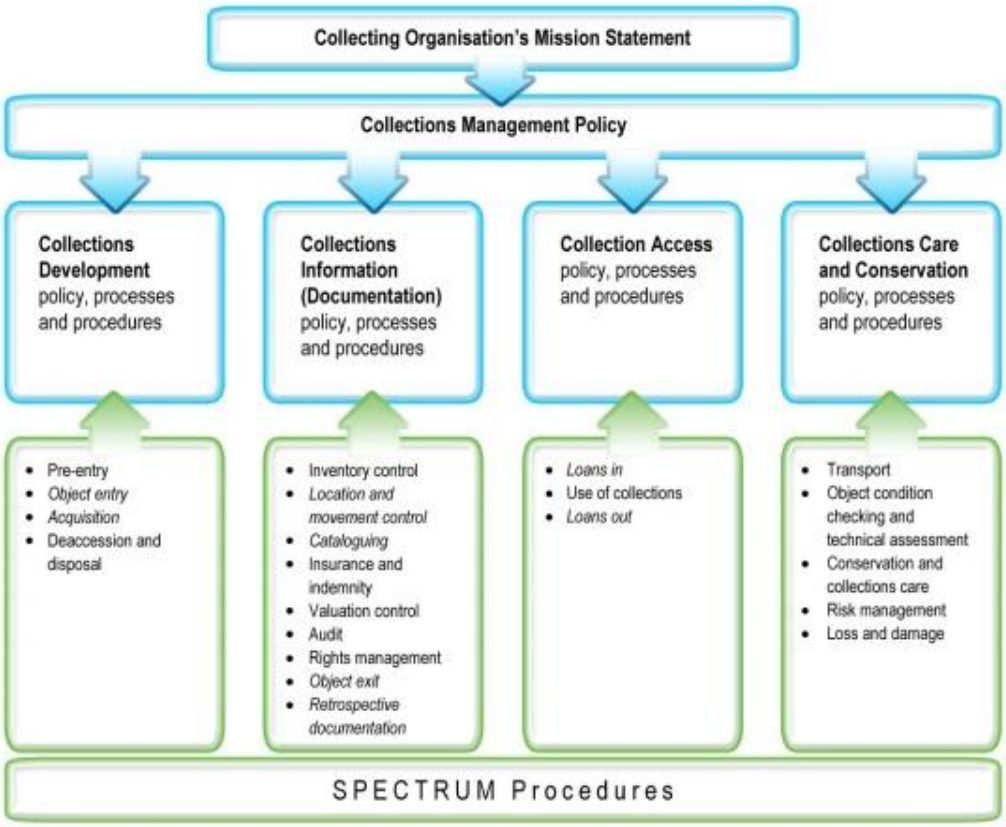
The *SPECTRUM* standard defines 21 *procedures* – essentially consistent, often repeated processes that are commonly used in museums, galleries and other types of organisation for whom the management and use of physical collections is a primary responsibility.

The *SPECTRUM Procedures* are:

1. Pre-entry
2. Object entry
3. Loans In
4. Acquisition
5. Inventory control
6. Location and movement control
7. Transport
8. Cataloguing
9. Object condition checking
10. Conservation and collections care
11. Risk Management
12. Insurance
13. Valuation
14. Audit
15. Rights Management
16. Use of collections
17. Object exit
18. Loans out
19. Loss and damage
20. Deaccession and disposal
21. Retrospective documentation

The figure overleaf shows how the *SPECTRUM* procedures map to the core activities of collections development, collections care, knowledge generation, access and use.

The purpose of *SPECTRUM DAM* is to show how digital asset management activities can be incorporated into an existing organisational culture based on or compatible with *SPECTRUM*, so that they have a better chance of achieving their maximum impact.



Mapping DAM Activity to SPECTRUM Procedures

The following table highlights the *SPECTRUM Procedures* in which digital asset management activity can be integrated alongside existing *Collections Management* practice:

Procedure	SPECTRUM Definition	DAM Activity
Pre-entry	The management and documentation of the assessment of potential acquisitions before their arrival at the organisation.	Increasingly, the acquisition of collections items will also be accompanied by the acquisition of associated digital assets such as data, images, scans and narrative information. Digital assets should be managed and documented alongside potential acquisitions before their arrival at the organisation.
Object entry	The management and documentation of the receipt of objects and associated information which are not currently part of the collections. Any object which does not currently have an object number assigned by the receiving organisation must be dealt with within this procedure.	As with *Pre-entry*, new acquisitions are likely to be accompanied by digital assets (alongside which, new digital surrogates such as photographs and scans may be created during the acquisition process). All digital assets should be managed and documented alongside the receipt of their physical counterparts. The digital assets should be associated permanently with the object number of their corresponding collection item through a scheme of persistent identifiers.
Loans in	Managing and documenting the borrowing of objects for which the organisation is responsible for a specific period of time and for a specified purpose, normally exhibition/display, but including research, conservation, education or photography/publication.	Loan objects will frequently be accompanied by digital assets including data, PDF, images and narrative information. These digital assets will need to be incorporated into the DAMS along with their associated context as part of a loan and their intended use (for example, as part of an exhibition, marketing campaign, mobile app or website).

Acquisition	Documenting and managing the addition of objects and associated information to the collections of the organisation and their possible accession to the permanent collections.	To an extent, the *Acquisition* process already integrates the capture and management of information content associated with the collection item. At the same time as the material object is formally accessioned into the permanent collection, all associated digital assets must be accessioned into the DAMS. Due consideration should be given when acquiring digital assets to their fit with the organisation's *Acquisition and Disposal Policy*, and to ensuring that they are catalogued sufficiently to support their future discovery & re-use.
Inventory control	The maintenance of up-to-date information accounting for and locating all objects for which the organisation has a legal responsibility. This may include objects on loan, un-accessioned or previously undocumented items, temporarily deposited objects and support collections.	Digital assets must be counted as assets of the organisation in the same sense as the physical collections items. The DAMS should serve as a central inventory of digital assets belonging to the organisation in the same context as inventory-level records in the *Collections Management System*. Ideally, the DAMS should fulfil this inventory function for *all* digital assets created, owned, acquired, managed or used across the organisation. In practice, some forms of digital asset may fall outside the scope of collecting activity and may be stored and managed locally.
Location and movement control	The documentation and management of information concerning the current and past locations of all objects or groups of objects in the organisation's care to ensure the organisation can locate any object at any time. A location is a specific place where an object or group of objects is stored or displayed.	In the sense that the purpose of the SPECTRUM Procedure is to promote the *recoverability* of the collection items, the equivalent DAMS activity must ensure that the organisation is able to retrieve associated digital assets as efficiently as possible.

Transport	The management and documentation of the transport of objects for which the organisation is partially or fully responsible.	Digital assets may be created as a result of the transport process (for example scanned waybills, customs clearance forms, transport plans etc). Where digital assets are sent or transferred (for example, by email, cloud storage or FTP service), the organisation should ensure adequate management and documentation of these processes both to promote accountability and to mitigate the risk of infringement or misuse.
Cataloguing	The compilation and maintenance of key information, formally identifying and describing objects. It may include information concerning the provenance of objects and also collections management documentation e.g. details of acquisition, conservation, exhibition and loan history, and location history. It need not bring together in one location everything known about an object, but should provide cross-references to any other relevant information source known to the organisation.	The cataloguing of digital assets is of equal importance as the cataloguing of physical collection items. Where possible, the DAMS and associated policies and practices should support the capturing of information about the provenance, rights, usage, format and preservation requirements of the associated digital assets. The cataloguing of digital assets ought equally to provide information about connections or cross-references between assets. The cataloguing of digital assets should be based on a common taxonomy and controlled vocabularies with those used in the classification of the physical collections. Existing metadata stored within the digital asset can be used as the basis for a catalogue record. If correct terminology is used at the point of creation, then the metadata can be used when the digital assets are ingested into the DAMS.

Object condition checking	The management and documentation of information about the make-up and condition of an object, and recommendations for its use, treatment and surrounding environment.	The process of object condition checking may also involve the creation of digital assets, such as a photograph, scan or other digital media. Where this is the case, the digital assets should formally be entered into the DAMS, and the context of their creation recorded and, where possible, associated with the condition checking event.
Conservation and collections care	The documentation and management of information about interventive and preventive conservation activities.	Conservation investigations and treatment processes commonly generate a range of digital assets including data, images and other digital media. This material forms an important document of the material condition of the collection. Conservation processes ought to be recorded in a SPECTRUM-compliant *Collections Management System*, and any resulting digital assets should be entered into the DAMS and associated persistently with the corresponding conservation event record. Principles of preventive conservation are also relevant to effective digital asset management. It is important to plan the conversion of redundant or non-standard digital asset formats as part of the ongoing maintenance of the DAMS and DAM Strategy. This also relates to the regular assessment of preferred formats when creating new digital assets.

Risk Management	The management and documentation of information relating to potential threats to an organisation's collections and the objects for which it is temporarily responsible. It includes the provision of information enabling preventative measures to be taken as well as documentation supporting disaster planning.	Policies and procedures for backup, recovery and disaster planning in relation to digital assets ought to be clearly linked to associated SPECTRUM policies and procedures for overall risk management.
Insurance	Documenting and managing the insurance needs of objects both in an organisation's permanent collection and those for which it is temporarily responsible.	The process of documenting collection items for insurance will often result in the generation of digital media, which should be integrated into the DAMS and persistently associated with the item(s).
Valuation	The management of information relating to the financial valuations placed on individual objects, or groups of objects, normally for insurance/indemnity purposes.	The process of documenting collection items for valuation will often result in the generation of digital media, which should be integrated into the DAMS and persistently associated with the item(s).
Audit	The examination of objects or object information, in order to verify their location, authenticity, accuracy and relationships.	The DAMS should support the process of audit, including provision for the assessment of authenticity and provenance of digital media as well as the use of digital media to support the auditing of physical collections.
Rights Management	The management and documentation of the rights associated with the objects and information for which the organisation is responsible for, in order to benefit the organisation and to respect the rights of others.	Information about the specific rights management conditions associated with the digital assets should be created, captured and managed within the DAMS. The management of rights in digital assets ought to be considered in the same context, and reflected in the same policies and procedures as the management of rights in physical collections items.

		The management of rights in the digital assets should be sufficiently flexible to support the range of use cases set out in the organisation's strategy.
Use of Collections	The management and documentation of all uses of and services based on collections and objects in the organisation. These include exhibition and display, education handling collections and the operation of objects, research and enquiries, reproduction and the commercial use of objects and associated documentary archives. Users include staff (and volunteers) or the public, whether in person, by letter, telephone or any other means of communication.	The DAM strategy, DAMS, and associated digital asset management policies and procedures should support the full range of use cases and audience needs identified in the organisation's strategy. Where possible, DAM workflows and associated activities should be integrated into the related processes for each different type of use, and the DAMS should be capable of interoperating with a wide range of other systems, such as web publishing and e-commerce platforms.
Object exit	The management and documentation of objects leaving the organisation's premises.	The persistent record of the collection item's status as part of the collection will include digital media. The DAMS should be connected to the *Collections Management System* in such a way as to reflect the context and status of the physical collection item.
Loans out	Documenting and managing the loan of objects to other organisations or individuals for a specific period of time and for a specific purpose, normally exhibition/display, but including research, conservation, photography and education.	The process of preparing and documenting collection items for outgoing loan will often result in the generation of digital media, which should be integrated into the DAMS and persistently associated with the item(s), along with any associated contextual information.
Loss and damage	Managing and documenting an efficient response to the discovery of loss of, or damage to, object(s) whilst in the care of the organisation.	The process of recording incidents of loss of or damage to collection items will often result in the generation of digital media, which should be integrated into the DAMS and persistently associated with the item(s) and any documentation record of the incident.

Deaccession and disposal	The management of disposal (the transfer, or destruction of objects) and of deaccession (the formal sanctioning and documenting of the disposal).	Standard policies and practices should be adopted to ensure that where the organisation retains digital assets that are surrogates of deaccessioned or disposed items, their status and context are recorded.
Retrospective documentation	The improvement of the standard of information about objects and collections to meet SPECTRUM Minimum Standards by the documentation of new information for existing objects and collections	The process of retrospective documentation of collection items will often result in the generation of digital media, which should be integrated into the DAMS and persistently associated with the item(s) and any documentation record in the *Collections Management System*.

Digital Asset Management Policies

Having addressed the integration of digital asset management into your organisation at a strategic and procedural level, it is important to provide a policy framework which ensures that stakeholders in the organisation understand how it will impact on their work.

The implementation of DAM at a *policy* level involves two overlapping sets of activity:

1. The integration of DAM activity into *existing* policies, such as Acquisition & Disposal and Rights Management, and;

2. The provision of new policies that are specific to digital asset management

Where possible, the preference should be to embed digital asset management into the existing policies (and therefore practice) of your organisation. This will help reduce resistance to adopting digital asset management as a core and integrated function of your work.

Acquisition & Disposal

Most museums, archives, libraries and galleries will have in place a *Collecting Policy*, an *Acquisition & Disposal Policy,* or some kind of retention and selection schedule which defines the scope of the collection and how the organisation will develop it strategically over time.

Since the key principle of digital asset management is that the digital assets ought to be considered and valued in the same context as the physical collection items, it is important to ensure that the policies relating to collections development also provide a scope for creation, acquisition, retention and preservation of digital assets.

In some cases, this is likely to involve expanding the scope of collecting activity to address:

- The acquisition of digital surrogates (scans, photographs) into the permanent collection
- The acquisition of born-digital works, such as digital artworks
- The acquisition, selection, management and use of user-generated digital media about the collection

Due consideration should be given to whether the digital media should formally be accessioned into the collection, or should serve as part of the documentation and inventory of physical collection items.

Procedural Manual

Most Accredited museums, and many other types of collecting organisation, maintain a *Staff Handbook* or *Procedural Manual* which acts as a how-to guide for the specific processes and procedures in that organisation.

A *Procedural Manual* is a valuable tool for staff induction and training, as well as ensuring that different stakeholders across the organisation understand their relationship to and responsibility for different aspects of delivery.

In order to ensure that digital asset management is integrated successfully into the organisation, it is important to ensure both that existing procedures in the manual are updated to reflect and refer to the creation and capture of digital assets and that any task-specific procedures (such as format conversion) are also incorporated alongside their physical collection counterparts.

The policy for digital asset creation, capture and format conversions should be reviewed regularly and checked against current standards for DAM. Some DAMS can provide tools and reports to give a breakdown of the digital assets and formats currently being managed.

A revised *Procedural Manual* which sets out integrated processes for physical and digital collections/asset management can be a key tool in ensuring the long-term acceptance of your digital asset management activity.

It is also worth considering *how* the digital assets are entering your organisation – specifically, whether they are created gradually and incrementally as an ongoing outcome of your work, or whether they arise all at once from a specific programme, such as a digitisation project. If the latter, it is important to factor into the project planning how the resulting assets will formally enter the organisation and integrate with the DAM strategy.

Options for aligning digital programme outputs with your DAM strategy might include:

- Defining and including DAM system requirements and workflows within your (digitisation) project specifications;
- Using the existing DAM strategy to plan for the continuity of the digital assets after the completion of the digitisation project;
- Ensure that corporate knowledge and expertise arising from the digitisation project is available to support the migration of project outputs into a DAMS (and that knowledge of the DAMS is integrated into the project infrastructure).

Legal Context

As with all *SPECTRUM* procedures, it is essential to familiarise yourself with the broader legal context and implications of creating, acquiring, managing, preserving and using digital media before implementing your digital asset management policies.

Many of the legal issues pertaining to digital assets will mirror those for physical collections items. However, digital media may also present specific issues which ought to be addressed as part of the custom and practice of the organisation. Examples include:

- Performance rights in digital media
- Privacy and child-protection legislation
- Impact on Data Protection
- Laws relating to access to Public Sector Information

Wherever possible, appropriate legal advice should be sought and relevant policies created, communicated to staff and periodically reviewed and amended.

Ethical Issues

In addition to the specific legal and statutory issues associated with the management, preservation and use of digital media, it is also possible that your digital asset management activity may give rise to specific ethical challenges.

In many cases, these will mirror the issues which arise in the management and interpretation of physical collections. However, due care and consideration should be given to these potential issues, including:

- The digitisation and representation of sacred material
- The digitisation and distribution of material that is defamatory, obscene or offensive
- The digital distribution of personal artefacts
- The risk of perceived censorship or misrepresentation of events or communities
- The misrepresentation of the legal, ownership or ethical status of cultural property

Museums, archives, libraries and galleries are accustomed to behaving with sensitivity and consideration to the material in their care. The best policy is to extend these attitudes and values to encompass digital material which, although less tangible, may equally be distributed more widely and therefore present a greater risk.

Rights Management

The management of rights in a digital asset management context is connected to but not the same as the management of rights in the collection items. In addition to the different context of digital surrogacy, the organisation is likely to have to manage a framework of permissions and rights conditions, dependent on the different models of distribution and re-use which it wishes to support.

Due consideration ought to be given to whether the rights management policy for digital assets supports or inhibits the organisation's strategic aims, its legal status (and any legal obligations in relation to its public task) and the different forms of use which it wishes to support.

The organisation should establish a clear and justifiable policy in relation to the granting of permission (licensing) of rights for open access and re-use (including use of digital assets by 3rd party platforms, services and applications) and the withholding of permission to support commercial activity. In many cases, it is possible to establish a permissive licensing framework which also supports and reinforces the organisation's commercial activities.

User Access Management

User access control is an important element of ensuring the long-term viability of your digital asset management solution. You should define, communicate and periodically review a policy which sets out who is able to access, edit or delete information and assets from the DAMS, and what degree of resilience and version control you will expect your DAMS to provide.

In many cases, it is useful to consider access control for your DAMS in a similar way as key control for security in the physical premises – permission should be granted on a limited basis against identified needs, with as few people as possible in a position to make system-wide changes to promote information security.

Information/Asset Security

In much the same way as it is important to implement appropriate security measures to protect the integrity of your physical collections, it is also important to develop, maintain, review and update policies to ensure the security and integrity of your digital assets.

There are four key elements to ensuring the security and integrity of digital assets in your DAMS:

- User access control
- Technical architecture
- Versioning
- Audit

The weakest point in any system is its users, and it is easy for people to become relaxed about information security over time. It is important to try and foster a *culture* of risk management, in which all staff are aware of the risks to your digital assets and are careful to observe policies on passwords and sharing information. It is useful to build information security into any other frameworks, policies or practices which your organisation has to address the physical security of the building, collections, visitors and staff.

Cybercrime is an ever-increasing risk, and there are several incidents of cultural organisations being targeted, either through denial-of-service attacks or to change, falsify or remove information about collection items. The security of your DAMS should form part of your organisation's broader measures to protect your IT infrastructure, including servers, email and firewalls.

Version control, particularly in multi-site/multi-user systems is an important feature of your DAMS. The system should support session identification (identifying which registered user made which changes to the system) and appropriate functionality to roll back or remove changes made up to a specified point in the past.

Many DAMS contain tens of thousands of digital assets, which can make it difficult to audit their contents effectively. You should incorporate an audit of your DAMS alongside the periodic audit of your collections (or your organisational audit or stockcheck if you do one) and ensure that the DAMS provides reporting tools which support this activity.

It is also useful to consider any security measures that need to be incorporated into or supported by your DAMS for output formats. For example, if you need your DAMS to integrate watermarking of images into the supply process, you should factor this into the specification for your system.

Digital Fingerprinting

With multiple users, it is likely that your users will attempt to ingest an asset into the DAMS which has already been imported by another user. Good file naming practices are important but should not be the only method of reducing duplication.

Every digital asset has its own digital fingerprint. A commonly used digital fingerprint algorithm is an MD5 Checksum or MD5 Hash. The DAMS should generate an MD5 Hash for every asset that is ingested. The DAMS should then check for any duplicates based on the MD5 Hash and alert the user if a copy of the asset already exists. This method works irrespective of the filename and ensures only unique digital asset files are ingested.

From a preventative conservation perspective, MD5 Hashes can also be used to check for potential corruption of a digital asset (which can occur when files are copied, moved or tampered with). Some DAMS provide comparison reports to verify that a file's MD5 Hash has not changed.

Formats

The selection of appropriate formats for your digital assets is an important factor in their medium to long-term sustainability, as well as the expense and complexity of migrating to new formats in future.

Most DAMS will support current industry-standard formats for images, video, audio and other media. If your audit of digital assets reveals that you have non-standard formats (such as 3D LIDAR point-cloud scans of objects or buildings), you should work with the DAMS supplier to identify how best these can be supported.

Where you have a body of digital assets in deprecated formats (legacy formats that are no longer supported), you should consider updating these assets - where possible – to industry-standard formats prior to inclusion in the DAMS.

When considering formats, it is also important to consider the range of output formats which your DAMS is expected to support. For example, you may wish to integrate your DAMS with a web content management system such that it can provide low-resolution JPEG thumbnail images derived from high-quality TIFF images. While it is important to avoid over-specifying your DAMS requirements, it is equally important to ensure that you have taken into account both specific formats and specific use cases which your DAMS needs to support.

File Naming Conventions

As DAMS have evolved to support metadata for management, discovery and use, the use of file naming conventions (standard approaches to naming files) has become less of a critical issue in asset management.

However, good file naming practices are still useful in reducing duplication and managing the preservation and re-use of your digital assets, particularly where your DAMS is operating in a multi-site or multi-user environment.

An example of a simple filenaming convention in a multi-user environment might be:

This convention would yield filenames in a consistent sequence, e.g:

12022013_adawson_0001.jpg
12022013_adawson_0002.jpg

In establishing your file naming conventions, it is important to bear in mind that they should be compatible across platforms. Some IT systems support non-alphanumeric characters such as punctuation marks and spaces in their file names, but many do not. Some are case-sensitive (e.g. Linux systems); others (e.g. Windows) are not. This can cause problems when providing files that can be used reliably in a variety of different environments.

In general, it is best to keep to standard alphanumeric characters separated (where necessary) by the underscore (_) rather than anything more exotic, and to stick either to lower case or upper case throughout.

Choosing appropriate filenames depends both on the potential application of the digital assets and on the nature of the content of the assets. Hence, if you are digitising a large quantity of books, you may want to establish a file naming convention that represents the book title, chapters and pages. If digitising images which form parts of a whole (such as sequential images of a scroll or large map) it might be useful to adopt a convention which identifies both the whole and the placement of the part in a sequence or grid.

It is also important to consider how your use of file names will impact on the different output formats which your DAMS will need to support. If, for example, your DAMS supports the rendering of different sizes or resolutions for the images, then you may wish to develop a file naming convention which allows for the identification of these different versions.

Whatever the convention you adopt for file naming, it is important to ensure that it is adopted consistently across the different users of your DAMS. This can involve:

- Creating and publishing a *File naming policy* for your organisation
- Training DAMS users in the use of the file naming convention (and why it is important)
- Providing support and guidance to users with queries about file naming

Further information and guidance on selecting consistent file names is provided by JISC Digital Media in their article *Choosing a File Name*[2].

Backup, Recovery & Disaster Planning

Although it can support digital preservation and archiving, your DAMS is not *in itself* an archive. The purpose of the DAMS is to enable your organisation to maximise the value and use of your digital assets. It is a 'live' system, in which the assets and metadata will be subject to change and amendment on an ongoing basis.

It is important to make this distinction clear to the users of your DAMS – users are often tempted to treat the DAMS as a store for *all* of their digital output, and to regard the act of submitting something to a DAMS as being the same as archiving it.

It is beyond the scope of this publication to cover the policies and practices of Digital Preservation in detail, however, it is useful when specifying, procuring and implementing a DAMS to understand how it will contribute to your Digital Preservation Strategy and how it aligns with your Disaster Recovery and Emergency Planning.

[2] http://www.jiscdigitalmedia.ac.uk/crossmedia/advice/choosing-a-file-name

Metadata for Museum Digital Asset Management

As with the documentation of your physical collections, a standards-compliant, structured approach to recording, managing and sharing metadata about your digital assets is essential to ensure that they are discoverable and usable in the long-term.

The way in which your DAMS supports the creation, management and re-use of metadata is the most important factor in how well it supports your organisation's needs. As your use of DAM develops, the quality and consistency of your metadata will make a critical difference to the benefit you can derive from your digital assets.

There are 6 main categories of metadata which your DAMS will need to support

Category	Description
Administrative metadata	Provides information to help manage a digital asset, such as when and how it was created and who can access it.
Descriptive metadata	Describes a digital asset for purposes such as discovery and identification. It can include elements such as title, abstract, author, and keywords.
Technical metadata	Provides information about the technical features of the digital asset
Rights Management metadata	Provides information about the copyright status of the digital asset, any associated licensing provisions such as how it can be used, for what purpose and under what circumstances.
Preservation metadata	Provides information needed to archive and preserve a resource.
Embedded metadata	Information that is embedded within the digital asset (usually an image) which supports discovery, management and reuse – usually a composite of management, descriptive, technical, rights and preservation metadata.

Increasingly, your DAMS may also support the creation, capture, management and use of *Process metadata* – information which helps you to understand what processes your digital asset is undergoing/has undergone and where it is in the overall management lifecycle.

Metadata Schemata for DAM

Selecting and implementing an appropriate metadata schema for your DAMS is a function of several factors:

- The nature of your digital assets
- The uses envisaged for digital assets across your organisation
- The relationship between the DAMS and the Collections Management System
- The relationship between the DAMS and other management/information systems in the organisation

While the metadata structure in a *SPECTRUM* collections management system is relatively complex – reflecting the broad range of management activities which take place during the lifetime of the physical collections item – the metadata which is created, stored and managed in the DAMS (or in the DAM functionality of your collections system, if using an integrated platform) should be correspondingly simple.

An example of a common metadata framework for your DAMS might include:

- *Dublin Core* for descriptive, technical and rights metadata
- XMP/IPTC for metadata embedded in images
- EXIF for embedded metadata from the capture device
- A locally-defined schema for administrative metadata

Where your DAMS is handling more complex formats, such as video, audio, datasets or other media, you should ensure that it is capable of supporting the most appropriate industry-standard metadata scheme for that format.

The *Embedded Metadata Working Group* (EMDaWG) of the Smithsonian Institution defined a useful set of recommendations[3] for the minimum descriptive metadata to be embedded in digital image files as follows:

- Document title
- Copyright notice
- Source
- Creator
- Date
- Description
- Keywords
- Credit
- Job identifier
- Headline (caption)

A key function of embedded metadata is to support the retrieval/discovery of the system. Many services such as Flickr (www.flickr.com) automatically extract embedded metadata to support the search and display of images. It is therefore important not only to consider the *structure* of your metadata, but also the use of controlled vocabularies to support different types of use – a common example is the use of non-technical or thematic keywords to support use in picture libraries for internal and external audiences.

For more information on selecting the appropriate metadata schema for your DAMS (or verifying your DAMS for compliance with the appropriate schema), refer to the JISC Digital Media guide on *Metadata and Digital Images*[4].

SPECTRUM & Metadata for Digital Asset Management

Selecting the right approach to metadata for your DAMS is complex, and requires technical knowledge of your organisation, its assets and the various uses to which they will be put. A key criterion in the selection of appropriate metadata policies is the degree of integration with the organisation's *Collections Management System*.

The content of your *Collections Management System* essentially represents *metadata* about your physical collections. This metadata is structured around a combination of two types of information:

[3] http://www.digitizationguidelines.gov/guidelines/digitize-core_embedded_metadata.html
[4] http://www.jiscdigitalmedia.ac.uk/stillimages/advice/metadata-and-digital-images

- The *Units of Information* defined in *SPECTRUM* and;
- User-defined fields

SPECTRUM Units of Information[5] provide a metadata structure for capturing and managing the knowledge and administrative information that arises during the process of collections management. This structure consists of 46 'groups' of information, structured around 11 'categories':

1. Object groups
2. Procedure groups
3. Address information
4. Date information
5. Location information
6. Organisation information
7. People information
8. Person information
9. Place information
10. Record Management groups
11. Reference information

A full list of the *SPECTRUM Information Groups* and their associated categories is provided in Appendix 2.

Integrating DAM activity alongside collections management activity in your organisation is key to ensuring widespread adoption and long-term sustainability. Ensuring that your DAM fits with your existing *SPECTRUM* collections management activity means taking one of two possible options:

- Using a Collections Management System which has been extended or developed to offer both DAMS and CMS functionality within the same 'core' (or modular) system – and which therefore use a common metadata structure;

- Ensuring that the metadata structure you adopt for your DAMS can easily be mapped to or associated with your *SPECTRUM*-structured collections information.

Each of these options has its strengths and weaknesses. However, using a system that is already widely used in your organisation will confer significant advantages in terms of rollout, training, change management and user support.

Controlled Vocabularies

As with physical collections management, the consistent classification of digital assets is a key element of ensuring that they are discoverable and usable in the long-term. If metadata provides the structure of your information (like fields in a database), then controlled vocabularies provide the keywords with which these fields can be populated.

A Controlled Vocabulary is defined as "a prescribed set of consistently used and carefully defined terms, which promotes consistency in the indexing of documents and facilitation of searching". There are many controlled vocabularies and term lists available for your organisation to use – some of which form part of commonly-accepted international standards and some of which have been developed for us in specific contexts.

[5] SPECTRUM 4.0 Appendix 1. *SPECTRUM 4.0 Schema* – www.collectionslink.org.uk/spectrum

Wherever possible, your DAMS should repurpose controlled vocabularies already in use in your organisation, such as those in your *Collections Management System*.

Where it is necessary to develop or adopt controlled vocabularies that are specific to the nature of digital assets (such as, for example, in the case of file formats), it is advisable to:

- Make use of an existing vocabulary or term list
- Document clearly the scheme used
- Provide a process for managing proposed changes and amendments to the scheme

Where the use of digital assets also includes crowdsourced activities such as social tagging, folksonomy or transcription (generating keywords), it is important to preserve these alongside the asset with a record of the context under which they were created.

Folksonomic taxonomies should periodically be reviewed to address the scope for new terms to be entered into the 'formal' classification scheme.

Creating Metadata

Whatever approach you choose to the structure of your metadata, you will need to put in place long-term policies and procedures for creating metadata and associating it with your digital assets.

Creating and quality-controlling metadata can be labour-intensive. It takes place throughout the lifecycle of the digital asset, from creation to management, re-use and preservation.

To be effective, your DAM strategy must be supported by a long-term culture of metadata creation and quality control across the whole organisation – everyone, whatever their interaction with your digital assets, needs to be skilled and empowered to create or add to the metadata your organisation holds.

Technical Options

The market for Digital Asset Management systems has grown dramatically in recent years, and now covers a huge variety of different platforms and technical solutions. When considering the most appropriate DAMS for your organisation, you may need to consider some of the following technical options:

- Integrated into a Collections Management System or standalone
- Workflows or no workflows
- Open source or commercial product
- Supplier or partner
- Locally or remotely-hosted

The ideal solution for your needs will depend to a great extent on the specific circumstances of your organisation, your collections, digital assets and the needs of your audiences (both internal and external).

Integrated vs. Standalone

As mentioned above, digital asset management and collections management form part of a continuum of activities which your organisation is likely to need to support. These activities might include:

There are many different approaches to implementing systems which support these activities. It is possible to construct a technical infrastructure based entirely on standalone systems. Equally, it is possible to develop or purchase systems which integrate all of these activities into one software platform.

There are many factors to be taken into account when procuring the best solution for your needs, but a key element is in deciding where to place the *emphasis* on the core functionality of your system. For example, you might choose from the following options:

- A digital asset management system into which SPECTRUM procedures have been integrated, but which might not support your collections management processes as fully as you would like;

- A collections management system with core digital asset management functionality, which might offer good integration into your existing practice, but be less flexible in terms of supported formats.

It is also useful to consider the implementation of a *middleware* system which acts as an intermediary between your DAMS and your Collections Management (and possibly also Web Content Management) system. This can provide a cost-effective strategy to implementing a DAMS over a significant body of material held in legacy systems which enjoy strong organisational support.

Ultimately, the selection of any system is a trade-off between the ideal functionality and your capability to adapt the system to your specific needs. A key question, though, is whether the creation, management and re-use of digital assets is a primary or separate function for your organisation, or whether it is an activity which happens primarily in the context of your collections management.

Workflows or no workflows

The implementation of workflows (also known as *automation*) has become a key feature of next-generation DAMS. A workflow is essentially a structured process represented as a series of steps or interactions.

Legacy systems are *passive* in the sense that they simply provide tools which support specific functionalities. By contract, a system can use workflows to help the user remember the stage of the process that they have reached and to prompt them to complete specific steps.

For example, a workflow-based DAMS would be able to let the user see whether they had completed the creation of metadata before uploading the asset to the system, and could remind them to check rights information before moving on to the next stage of the management process.

Workflows can be particularly useful where the users of a DAMS are spread across multiple sites, teams or departments, or where different teams are responsible for different parts of the process. By part-automating the process of creating and managing metadata, and associated management activities, they can significantly streamline digital asset management in your organisation.

Open Source or Commercial Product

Since the last decade, open source has emerged as a thriving alternative to the costs of commercial ownership of software platforms. However, while open source platforms are widely used to support large-scale organisations and enterprise IT systems, it is important to balance the relative strengths and weaknesses of open source and off-the-shelf commercial solutions when deciding which DAMS to choose.

Critically, it is important not to be distracted by the apparent price differential. Open source products may often be ‘free’ in the sense that there is no commercial restriction to obtaining the software itself, but it is often worth remembering that the lifetime cost of ownership (the total amount you will end up paying over the lifetime of using the software in your organisation) may often be more or less equivalent, depending on how much bespoke development you will need to undertake and on whether you have expert personnel on a permanent basis (or other than contracted staff) to perform any necessary updates and provide ongoing technical support.

Whether you choose to pursue the in-house development of a collections management system with integrated DAMS functionality or a standalone DAMS solution, you also need to consult the community (including personnel with a background and/or understanding and experience in cultural informatics, as well as in DAM) to identify needs and to define your metadata specifications, taking into account recognised European and international standards. In any case, technology alone is not the total solution but a powerful tool to enable you to improve your performance in accordance with the aims and objectives of your organisation.

On the positive side, open source products often offer excellent standards-compliance (because they tend to have been developed by communities with an active technical interest in the field) which will support broader interoperability with other systems.

Nor is it necessarily the case that 'open source' and commercial are mutually exclusive – there is a thriving industry of commercial providers who offer bespoke implementations, support and maintenance of open source platforms.

Ultimately, your decision should not be driven by the licensing model of the software, nor solely by price. Key considerations include:

- Fit of the core product/platform to your requirements
- Fit with your capacity and capabilities
- Whether you have the resource to manage the software internally
- Support community
- Flexibility
- Integration with your existing platforms

Supplier or Partner

Specifying, implementing and running a DAMS is not a precise science – it grows and adapts with the needs of your organisation and the demands of your users. It is often tempting when procuring a DAMS to compare the featuresets of different software platforms against a matrix of your functional requirements.

While this is a useful part of the process, you should also be aware that, unless you plan to obtain and manage the software yourself, a strong partnership with your software supplier is a key factor in the success of your project.

During the procurement process, it is important to meet with the supplier, talk to them about your needs and objectives, and gauge the extent to which they engage with what you are trying to achieve. Is their primary interest in selling you a product, or in ensuring that you get a stable, proportionate solution that genuinely meets your needs? Do they understand the business you are in, and are they able to offer testimonials from previous satisfied clients?

You are likely to have to live with your DAMS for a number of years, and by association with your DAMS supplier. Taking the time to find a supplier you can trust, and who engages with your mission, will reap significant benefits over the long-term.

The importance of this relationship is also a good reason to talk to your existing Collections Management System provider about their integrated DAMS functionality (or partner DAMS suppliers who they can recommend and have worked with before). Most SPECTRUM Partners now offer DAMS functionality as part of their overall support package, and this can significantly simplify the process of procurement, integration, rollout and support.

Locally or Remotely-hosted

With the Cloud now firmly established in the mainstream consumer market, an ever-increasing number of software providers are implementing solutions that you access and interact with remotely via your Web browser. Sometimes called *Software-as-a-Service* solutions, remotely hosted software can offer significant benefits to your organisation, including:

- Reduced software & storage cost
- Reduced demand on your organisation's IT platform
- Improved technical support and upgrades
- Multi-site, multi-user access to a common repository of digital assets
- 'Out of the box' interoperability with other remotely-hosted datasets

However, there are some circumstances which might make a remotely-hosted solution impractical for your organisation – for example where your DAMS needs to integrate with a locally-hosted collections management system, or where you need to develop a large amount of bespoke functionality that does not form part of the 'core' remotely-hosted platform.

Many museums, galleries, archives and libraries have found that remotely-hosted solutions offer an excellent balance of affordability, stability and low technical barrier to entry. The extent to which this is the case for your organisation depends on the complexity of your requirements. However, it is equally possible to implement a fully-bespoke DAMS for your organisation that happens to be hosted and managed remotely on your behalf by a 3rd party.

If your organisation has not worked with browser-based software (other than webmail or a Content Management System) before, it is advisable to implement a less high-profile pilot project before jumping in with a remotely-hosted DAMS. In terms of change management, some of your colleagues may find it difficult to move directly to a web-based DAMS without first having experienced both the advantages and disadvantages of this approach in a less high-profile context!

Models for DAMS Implementation

How you approach the selection, development, implementation, support and rollout of a DAMS for your organisation will depend on your overall strategy and the resources you have available.

For the sake of simplicity, this guide will focus on 3 potential models of DAMS integration in your organisation. These are by no means the only options, and you should always develop an approach based on your DAM strategy.

The models on which we will focus are:

- The use of a Collections Management system with integrated DAMS functionality
- The partial integration of a Collections Management System with a DAM system
- The use of a standalone DAMS solution

The approach you take to implementing a DAMS in your organisation will also depend on the extent to which the management of digital assets needs to integrate with other systems and processes, such as image licensing, web delivery (whether on your website or for re-use through an API), conservation or exhibition planning.

Factors which you ought to take into account before considering a DAMS implementation project include:

- Your technical capability and knowledge
- Your capacity to manage the specification, tendering and selection of a system
- The short-term implementation costs
- The long-term cost of ownership, management and updating
- Management responsibility & staff capacity for the running of your DAMS
- The IT capacity in your organisation
- The number of users onsite and offsite
- The benefits which you are seeking to achieve
- The other systems with which your DAMS will need to interoperate
- How your use of the DAMS will integrate with your other collections management activities
- Whether you have an existing body of digital assets that need to be transferred into the DAMS
- How you will provide technical support and training to end-users

If you are not clear on any of the above, it is likely either that you may implement a DAMS which fails to meet (or unnecessarily exceeds) your requirements, or which will not be properly embedded into your organisation in the long-term.

If this is the case, it may be worth considering hiring an expert consultant with experience of DAMS implementation in the cultural heritage sector to help you develop your DAM strategy and work towards the procurement of a DAMS.

There is no single template process which will guarantee success when implementing a DAMS. However, best practice indicates that there are two strategies which can achieve results – rapid scaling and planned implementation. A brief summary of the pros and cons of each is presented in the table below:

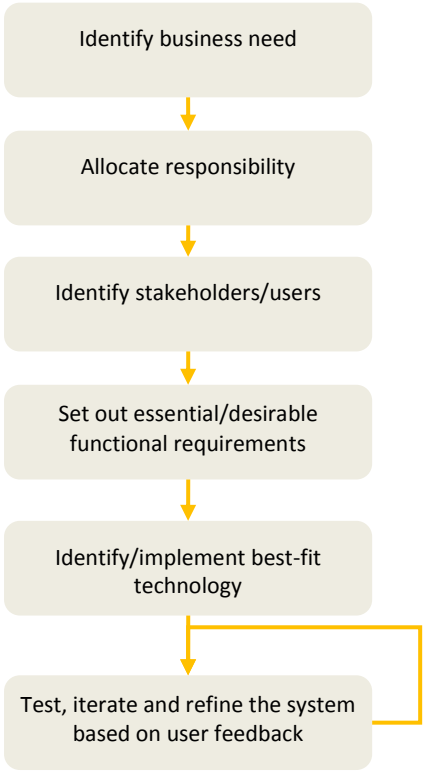
Methodology	How it works	Pro	Con
Rapid scaling	This approach essentially depends on implementing the core elements of a Digital Asset Management system rapidly, then allowing users to experiment with the system and using the resulting knowledge to refine and improve the system over time.	• Quick results • 'Live' testing • Relatively low-cost • Managed long-term investment	• More risk • May alienate stakeholders
Planned implementation	This approach depends on taking a planned, incremental approach (see below), which builds a foundation of knowledge and mutual clarity at each stage of implementation.	• Managed risk • Supports change management • Builds consensus	• May take longer • More resource-intensive

Table 1. Two strategies for DAM implementation

In practice, both of these strategies are variants of the same components. Which you adopt will depend largely on the scale and complexity of your operation and the resources which you are able to allocate to the process.

Typical Rapid Scaling Approach to DAMS

A typical rapid-scaling approach might include the following steps:



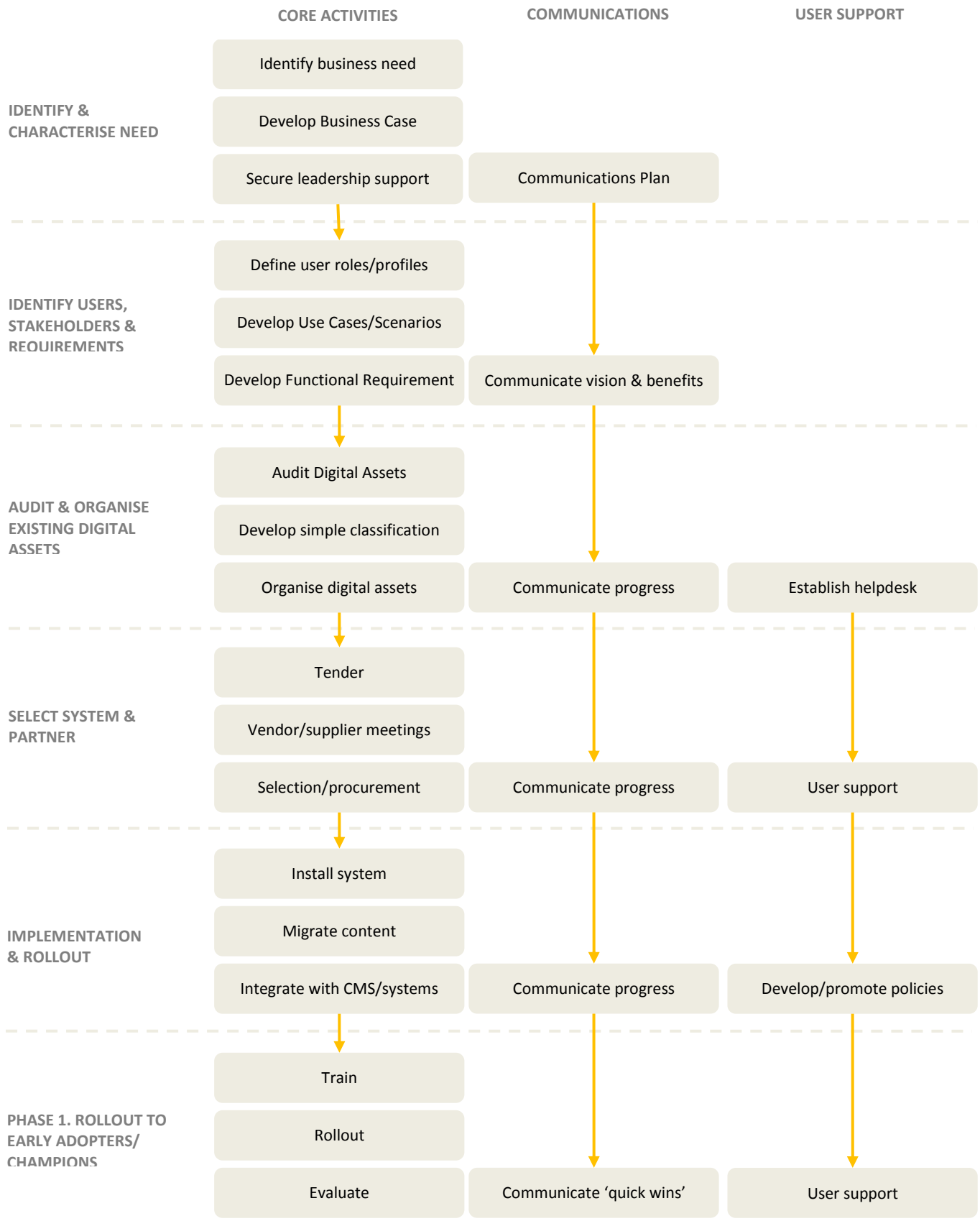
While it offers clear benefits in terms of speed and simplicity of implementation, these advantages can also become disadvantages where they mean that opportunities for integration and change management are missed.

In the long-term, this may result in the system failing to 'bed down' in the organisation or being rejected by its intended users.

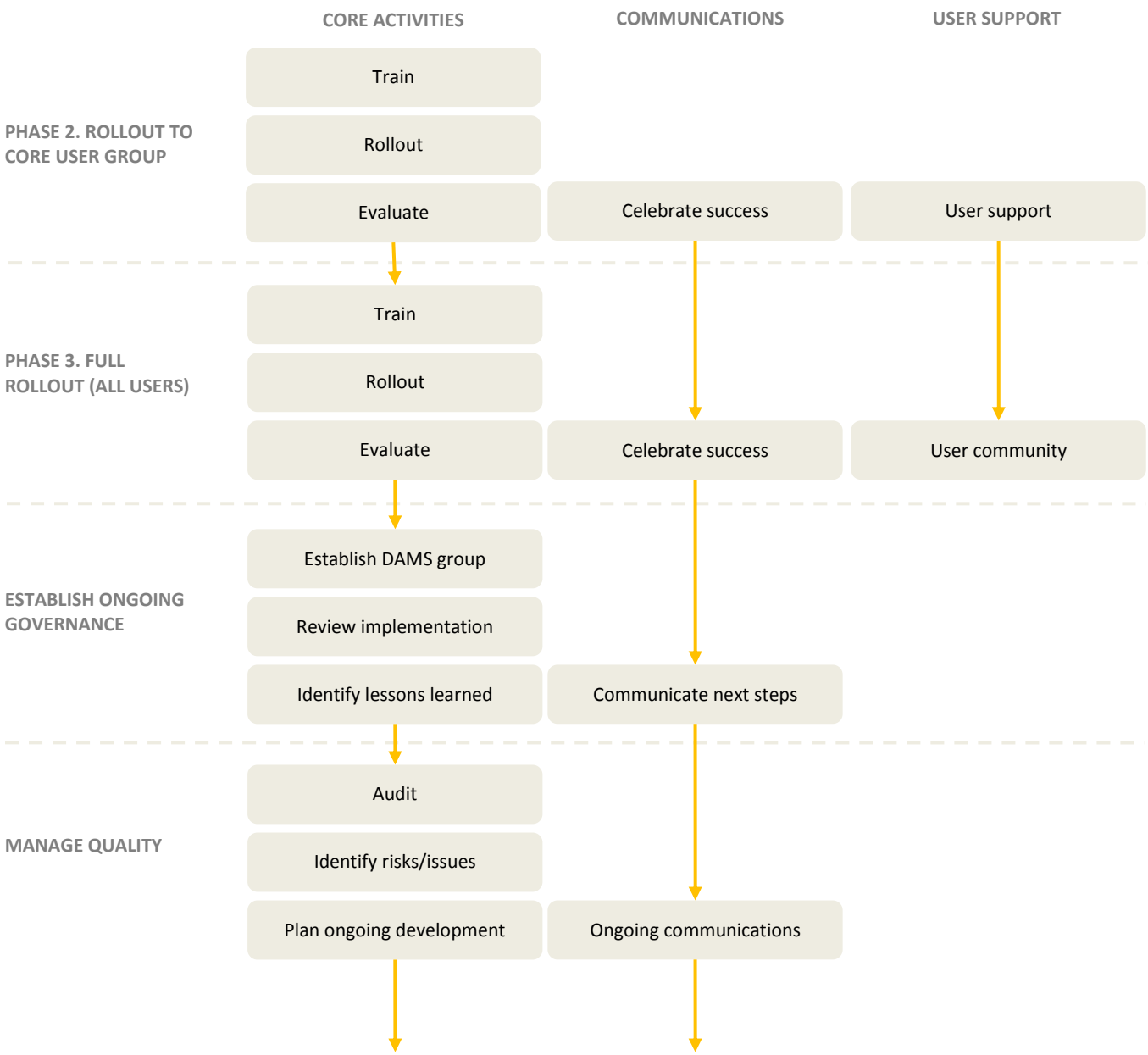
'Typical' Planned Implementation of a DAMS

While rapid scaling can offer a fast and effective means of implementing a DAMS in your organisation, many DAMS implementation projects take place over a number of years, in incremental phases. There is no single approach which will guarantee a successful implementation of your DAMS. The example overleaf is composed from features of a number of successful DAMS implementation projects.

Example of a 'full' DAMS implementation roadmap



Continues over../


CORE ACTIVITIES
COMMUNICATIONS
USER SUPPORT
PHASE 2. ROLLOUT TO CORE USER GROUP
Train
Rollout
Evaluate
Celebrate success
User support
PHASE 3. FULL ROLLOUT (ALL USERS)
Train
Rollout
Evaluate
Celebrate success
User community
ESTABLISH ONGOING GOVERNANCE
Establish DAMS group
Review implementation
Identify lessons learned
Communicate next steps
MANAGE QUALITY
Audit
Identify risks/issues
Plan ongoing development
Ongoing communications

Migration of Digital Assets

It is commonly the case that your organisation will already have developed a number of solutions to the creation, storage, management, access and use of digital media. These might include:

- Using a networked or shared drive
- Using simple DAMS functionality in an existing system (such as a web content management system or collections management system)
- Developing bespoke solutions using Access, FileMaker or an equivalent system

In many instances, the teams responsible for these solutions will feel a strong sense of ownership over them, and in this case it may be more difficult to convince them of the need to change to a common system.

In light of this, it is useful to take a planned, long-term approach to the migration of digital assets from legacy systems into a centralised DAMS. It is often much easier to convince people of the need to change once they can see that there is a viable system in place which will support their needs!

A simple approach to planning the migration of existing digital assets into your DAMS might include the following steps:

Step	Methodology
Audit	There are likely to be digital assets in almost every corner of your organisation. People often develop their own systems, create content and store it in short-term locations, planning to archive it properly later. The process of migrating into a new DAMS should start with a comprehensive audit of your existing assets – whether they are on servers, individual PC's, solid state media (USB, flash drives), optical media (CD, DVD) or elsewhere.
Establish ownership	**Once digital assets become dissociated from the people who own or created them, it can be very difficult to re-establish the connection to their context. Once you have completed your audit, talk to the people who know about the assets, and encourage them to create metadata about them.**
Organise	Once you have audited the assets, try and bring them together into one place (such as a dedicated folder on your server). Put yourself in the place of your end-users and create a simple, easy-to-use structure to house your digital assets.
De-duplicate	Having pulled together your digital assets, try and de-duplicate them – either manually or using a tool such as Adobe Bridge.

Prioritise	Try and prioritise your digital assets on the basis of their currency and/or relevance. If a particular asset or group of assets clearly relates to previous activity, or activities that are no longer current, consider using offline media (such as an external storage drive or optical media) to archive these assets.
Prepare	Once you have identified, structured and prioritised your digital assets, prepare them for migration into your DAMS by mapping the simple metadata schema to the schema for your DAMS.
Migrate	Migrate the assets into your DAMS – either manually or in batches, depending on your DAMS functionality.
Test	Conduct random testing/quality checks to ensure that the migration has been successful.

Appendix 1: Strategic Collections Management Model

All of the Collections Trust's work is structured around a model of strategic Collections Management that is intended to show how the different elements of the organisation come together to achieve the mutual objectives of operational efficiency, end-user value and accountability.

The aim of the *Strategic Collections Management Model* (below) is to promote an holistic view of the management and use of collections to support both the organisation's strategic aims and the long-term needs of its users.

Fig 2. Collections Trust's *Strategic Collections Management Model*

Appendix 2: SPECTRUM Information Groups

The following table provides a reference set of *SPECTRUM Information Groups*. This information is included here for illustrative purposes only. You should always refer to the most recent release of the *SPECTRUM Units of Information* for the current version.

Category	Group
Object groups	Object audit information Object collection information Object condition & technical assessment information Object conservation & treatment information Object description information Object history & association information Object identification information Object location information Object owner's contribution information Object production information Object requirement information Object rights information Object rights in information Object rights out information Object use information Object valuation information Object viewer's contribution information
Procedure groups	Common procedural units Acquisition information Audit information Condition check/technical assessment information Conservation and treatment information Disposal information Indemnity information Insurance information Loan in information Loan out information Loss/damage information Movement information Object entry information Object exit information Process information Valuation information Use of collections information
Address information	See list of *Units of Information*

Date information	**See list of *Units of Information***
Location information	See list of *Units of Information*
Organisation information	See list of *Units of Information*
People information	See list of *Units of Information*
Person information	See list of *Units of Information*
Place information	See list of *Units of Information*
Record Management groups	Amendment history Use and provision of information Record information
Reference information	See list of *Units of Information*

Appendix 3: Links and Resources

This document provides an overview to the procurement, and implementation of a DAM strategy, associated policies and a DAMS alongside your SPECTRUM-compliant Collections Management System and procedures. It cannot provide a comprehensive guide to the technical complexities of digital asset management.

The following sources may be of use to you in developing your knowledge of digital asset management and implementing your DAM strategy.

Organisations

Collections Trust	http://www.collectionstrust.org.uk
JISC Digital Media	http://www.jiscdigitalmedia.ac.uk
Digital Preservation Coalition	http://www.dpconline.org
British Library Preservation Advisory Centre	http://www.bl.uk/blpac
Digital Curation Centre	http://www.dcc.ac.uk
JISC	http://www.jisc.ac.uk

Resources/links

Collections Trust *Collections Management Software Survey*, which includes information about DAMS functionality in SPECTRUM Partner systems (http://www.collectionslink.org.uk)

Collections Trust *Sustaining Digital* resources, including guides on museum metadata and strategies for sustainability of digital assets (http://www.collectionslink.org.uk/discover/sustaining-digital)

Collections Trust's *Digital Benchmarks for the Culture Sector* (http://www.collectionslink.org.uk/discover/sustaining-digital/1608-digital-benchmarks-for-the-culture-sector)

Digital Preservation Coalition *Digital Preservation Handbook*(http://www.dpconline.org/advice/preservationhandbook)

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