

# Unplugging the DAM: Making Digital Asset Management Business Process Based By Deconstructing It

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## Abstract

*Instituting digital asset management (DAM) in cultural heritage institutions tends to be a major IT initiative. What is often overlooked is that DAM in isolation merely provides a resource intensive organizational tool for digital assets within the institution. The more important aspects of a DAM implementation are the workflow processes and procedures that are integrated into the application, the links the application makes internally and externally to other institutional systems, and ultimately how the implementation changes and enhances the institution's business processes surrounding the use of digital assets. When the Rijksmuseum in Amsterdam, The Netherlands, decided to undertake a DAM implementation as part of their revamped digital imaging program, their final solution combined MediaBin, an enterprise-level DAM product from Autonomy, with data links to their collection management system, AdLib, and Microsoft SharePoint, a collaboration and business process portal toolkit, with an eye toward further integration in the future.*

*I was commissioned as an outside consultant to help the Rijksmuseum Archive conceptualize their internal business workflows and processes involving digital assets; as they existed and how they might change and be enhanced. Working with the ICT Director, Rob Hendriks, we evaluated systems to layer the actual tasks of these workflows and processes on top of the chosen DAM software. The choice of the DAM application was influenced by its ability to connect to possible front ends, SharePoint being only one of the choices evaluated. The museum had prior experience working with SharePoint making its choice a logical decision. The integration that resulted has been in use for about two years, with additional functionality added in subsequent versions. It has allowed the museum to be more efficient and consider new opportunities. Training of users was fast-tracked; most users never see the MediaBin interface which can be confusing for non-imaging personnel. Users interact with a simplified SharePoint interface, trimmed down to basic functionality. SharePoint also serves as the enabler for request forms, project tracking, and order fulfillment.*

*The model we will describe in our presentation is in many ways an evolution of DAM ahead of the actual maturation of DAM applications, especially for the cultural heritage sector. In the future, a traditional DAM application could be best of breed components rather than an integrated system; a file system or repository like Fedora, a metadata container or wrapper within a database, and a digital asset transformation engine like ImageMagick. Interfaces and workflows to suit the audience would be layered on top via products like SharePoint or open source wiki or CMS systems. The key differentiator for each*

*institution would be the business processes and workflows that make the integration truly functional for the organization, and the flexibility to plug in other systems which feed data to, or need access from asset records. What we have accomplished in a still somewhat traditional manner could be pushed toward a more deconstructed, open and agile development environment.*

## Introduction

Digital asset management applications have traditionally fit into three categories: desktop, workgroup, and enterprise. This paper is primarily concerned with the most sophisticated of the categories, enterprise-level applications. These applications allow multiple departments and groups within and outside an organization to access and archive digital assets, tag them with metadata values, search for them via those values, transform them, and disseminate them within the context of business processes and workflows. To date these applications have been of a server and desktop client, or a server and web browser client structure. The server piece is for the most part self-contained with a file structure, security model, transformation engine, business process, and speaks to a SQL database system.

Without minimizing the necessity and transformative power of a DAM to an organization, we would like to posit the greater importance of understanding and implementing workflows and business processes on top of the DAM system to make it truly functional and complete. How an organization gets from the need for a digital asset to the use of that asset, including the cataloguing and metadata tagging of the asset can be a very complicated path. The process in the analog world may not graft well to the embedded digital technologies. Very often workflows and processes have evolved in the analog world over time due to ease of functionality and short-term definition by specific stakeholders. Efficiency is usually not a major factor.

An institution's contemplation of integration of a DAM system should trigger re-definition of stakeholders and re-assessment of their workflows and business processes to optimize the potential efficiencies and new opportunities of a digital flowchart. Here is where the hidden potentials of a DAM system can be realized, not, as is often the unrealized expectation, the ROI of licensing more image files.

## The Rijksmuseum Case Study

In the second quarter of 2006, the museum, with the assistance of Center for Digital Imaging (CDI), began the process of evaluating DAM systems and assessing the stakeholders, workflows, and business processes of their use of digital assets within the institution. We evaluated via onsite vendor visits and demonstrations, six enterprise-level DAM systems. We also evaluated three potential application environments that we referred to as collaboration systems. During the needs assessment phase, we concluded that beyond the DAM system the museum needed a structure to allow collaboration on projects that most often involved some aspect of the digital imaging workflows. Collaboration would break down the barriers between departments and increase the efficiency of project management and successful project completion. The model we used had the creation and organization of digital assets as the center of a wheel with the various departments who had need for those assets as spokes around that center. We recognized that the creation of digital assets involved many departments, including curatorial, conservation, art handling, and photography. More importantly, we acknowledged that many departments used digital assets as part of various aspects of the same project. A planned exhibition spawned the need for marketing, educational, and publishing initiatives, as well as the need for imagery for the exhibition space. Currently these overlapping needs were often duplicated and the vehicles for taking advantage of concurrent needs and timelines were non-existent.

We envisioned a DAM system that would house our digital assets and a collaboration system that would allow for project management in creating and utilizing those digital assets. The two systems would speak to each other to create an environment whereby a user could see what the status of an asset was, either available or needing to be requested for capture, what projects that asset was currently associated with, and if requested, where in the pipeline of availability the creation process stood. The archive staff could keep track of what projects were in process, what assets were requested and if there were duplicate requests, especially for the same project by different departments, and could also plan long-term initiatives so as not to conflict with short-term projects.

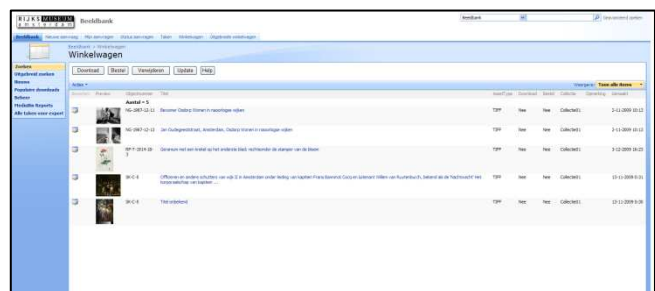
We used a combination of one-on-one interviews and a flowcharting tool to create a complex, yet revealing map of several workflows of the current business processes of the Archive department. The flows showcased request of an im

age or images for some internal or external use and what had to occur for fulfillment of the request. Generally, models highlighted two situations: one, if a digital asset already existed, and two, if a new digital capture was necessary. We noted many tasks often taken for granted as part of the processes. We were also able to analyze the workflows from the point of view of efficiency and productivity, with an eye toward migrating the workflows to the digital space. There was a clear recognition that the digital environment would create decided advantage in not only organizing and viewing digital assets, but also in formalizing aspects of the workflows into database entries which could be searched on and viewed in relation to each other. We knew this

would be a powerful transformation of the business processes, going from resource and time intensive analog tasks to technology driven digital, sometimes automated, tasks. We then extrapolated a wish list for what features and capabilities we would like to see when these workflows were migrated to digital processes rather than the current analog ones. From this wish list we created customizations that would be requested as part of the Request for Proposal from the chosen vendors. The customizations would need to be prioritized by cost and timeline later on.

The Rijksmuseum eventually decided on Interwoven (now Autonomy) MediaBin as the DAM system and Microsoft SharePoint as the collaboration system. SharePoint is a web-based collaboration, process, search, and document management environment. Its concept includes shared workspaces similar to wikis. SharePoint was a good choice as the museum had some experience with it and at the time a third-party had developed a set of web parts to link various aspects of MediaBin directly with SharePoint. Metadata from the museum's collection information system, Adlib, is imported and synced to the DAM on a daily basis automatically. Thumbnail image files are provided for AdLib by MediaBin.

The majority of users in the museum never utilize the MediaBin interface, which can be overwhelming in its capabilities for most users. The SharePoint interface, which offers asset searching, viewing and download, has a simple, efficient look and allows users to quickly and easily perform the tasks they need to. Users also interact with projects through the SharePoint interface, requesting new digital photography where necessary, through online forms, checking status of requests, and other operational workflow elements. New processes and workflows can easily be added to the SharePoint interface when needed, as it is highly configurable and customizable, unlike MediaBin, which tends to be fairly locked down and focused on traditional DAM processes. New capabilities and customization for MediaBin is more difficult to enable or is controlled by the vendor in new releases.



SharePoint DAM Shopping Cart

**Aanvraagformulier** Bonnummer: 20086

1. Geef aan of het om een externe of interne aanvraag gaat.

Interne aanvraag
  Externe aanvraag
 Bevestig keuze

2. Vul de algemene gegevens aan.

Naam aanvrager: Cecile Harten, van der  
 Afdeling: Beeld  
 Email: C.vander.Harten@rijksmuseum.nl  
 Telefoonnummer:   
 Deadline:    
 Gebruikersdoel: \* controle ls

Velden aangeduid met een \* zijn verplichte velden

3. Geef op welk beeldmateriaal u wenst aan te vragen.

[Toon compacte weergave](#)

Objectnummer: \* sk-a-3114 [Objectgegevens ophalen](#) [Zoek](#)  
 Vervaaardiger: Palamedesz., Anthonie  
 Titel: Portret van een jonge vrouw  
 Soort object: schilderij  
 Standplaats: DL-AA-066-R  
 Bijzonderheden:   
 Gewenst formaat in druk cm:

[Toon beeld](#) [Object verwijderen](#)

Beeld aanwezig (JPEG)

SharePoint DAM Order Form

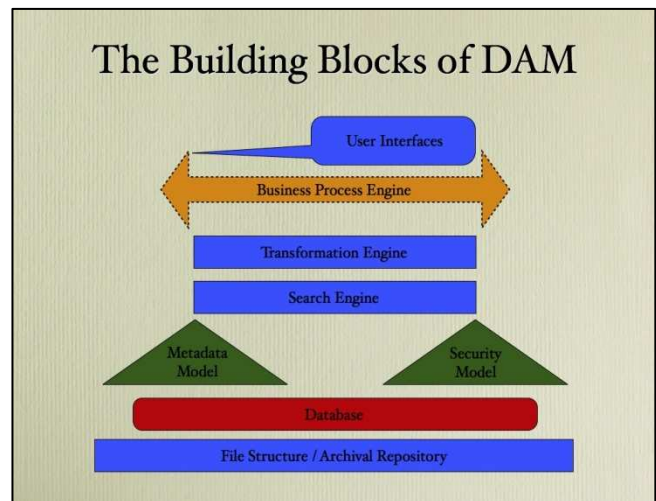
The utilization of the systems has been transformative and highly successful. The museum will fit the DAM within its Enterprise Architecture (EA). The EA has the collection information at the center, with Rijksmuseum facts, and layers of internal and external interpretation around it. On top of this would be the real world and the virtual world, along with a visitor's profile through CRM. Other systems like ERP are at the bottom. The DAM and collaboration environment and its processes and workflows have been designed to plug into, and be connected to other institutional business processes in the future through open standards. This will make it possible to use best of breed components and at the same time present information in an integrated, even personalized, task, or responsibility related way. Possibilities already in discussion include eliminating use of the AdLib client application and utilizing SharePoint as the access point, much as it is used for MediaBin, and connecting to the museum's CMS system which powers the website, which obviously uses many Rijksmuseum collection images. The possibility of incorporating the workflows and processes of other departments that may or may not revolve around digital assets is also under consideration. The integrated, open, flexible environment allows the museum to think in a more global and strategic manner, rather than attempting to target applications specifically to processes within silos. Most importantly, this is the most effective way to let IT support the business and business processes. This is the difference between IT as a "facilitator" and IT as an "enabler". Though these types of solutions often accomplish much in tearing down some silos, we think pushing the boundaries further, as we have outlined, creates the possibility of much greater cross-department functionality.

## DAM Via Lego Building Blocks

Planning for, and ultimately the reality of the Rijksmuseum system, coupled with subsequent analysis and review of the system and integrations at other institutions has led us to formulate a new concept for DAM in context of an organization's overall business functionality. The key consideration should be the workflows and business processes that engender the efficient and productive creation, organization, and dissemination of digital assets. Many tools have evolved to address various aspects of this continuum. These tools differ from an enterprise application in that they tend to be more focused on narrow slices of the workflow and often are more agile in adding new capabilities. Our concept is to certify a set of tools that when connected together can constitute more than the sum of the parts; a fully functional DAM environment that targets the specific workflows and business process needs of, and further integrates into the larger business functionality of the institution.

There are a number of assumed parts of this proposed system:

1. Archival Repository
2. Database
3. Security Model
4. Metadata Model
5. Search Engine
6. Transformation Engine
7. Business Process Engine
8. User Interface



DAM Building Blocks

Enterprise DAM systems are not Archival Repositories (1), though sometimes they can utilize a system like Fedora or DSpace. They mostly access a standard file system but have little or no long-term sustainability built-in. There is much focus today on the long-term viability of all the data being created. One part of the issue involves hardware, while the actual data files themselves make up the other aspect. A system with tools like checksum verification would be a step in the right direction.

Database (2) engines currently supported are the standard offerings of MySQL, Microsoft SQL Server, and Oracle. It is hard to imagine at this time how the SQL standard will evolve, but the ability to connect with any of the current database offerings is an important feature.

Security Models (3) follow the database engine or flow from standards like LDAP or Active Directory. There is great demand for ease of use, multi-level security access beyond the base of an Active Directory single sign-on model. Institutions want to secure assets by user, asset type, and by metadata field values, among other needs.

Metadata Models (4) include Dublin Core, CDWA, CIDOC, and MARC, among many others. These models continue to evolve and the need for custom schemas to address the specific needs of various departments and stakeholders continues to grow.

Search Engines (5) can be open source like Lucene, or commercial offerings from companies or the DAM vendor themselves like Autonomy and Open Text. New and innovative ways to search for assets become reality every day. Visual content, facial, color, and similarity search are some of the current offerings. The ability to easily integrate new forms of search is an important way to keep a DAM system valuable.

Transformation Engines (6) also fall into the open source space like ImageMagick, or commercial offerings like MediaRich from Equilibrium. Falling between transformation and user experience are such capabilities as zooming. There are constantly new open source and commercial products that facilitate new ways to transform digital assets for dissemination or direct viewing.

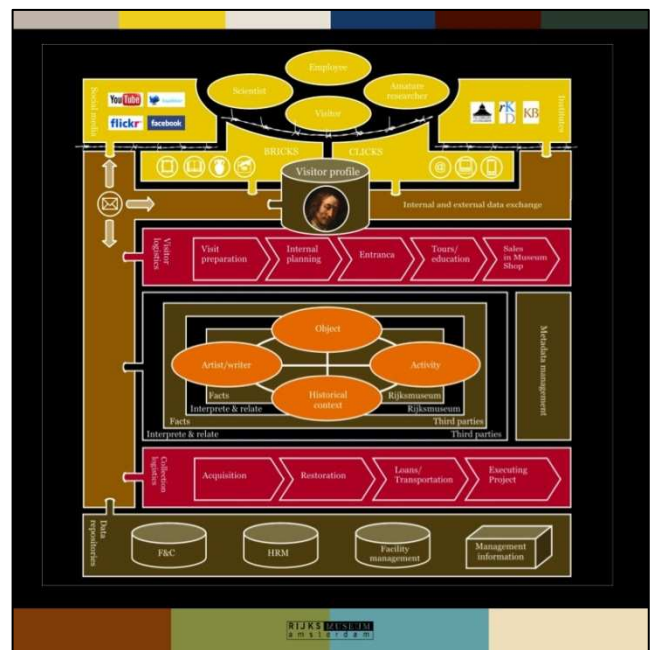
User Interfaces (8) can be client-based applications created from hard code or Java or web-based HTML, PHP, Java, or Adobe Flex. The wave of the future seems to be browser based graphical interfaces, which generally have the advantage of not requiring system configuration on individual computers and thus do not require updates to utilize new features. The institution's view of the user experience will constantly evolve. There is also the need for different, unique experiences for various audiences.

From the list above, the other piece generally missing from enterprise DAM systems is the Business Process Engine (7). A DAM tends to be a database with files and information that due to the fact that the files are multimedia-based, incorporates a vehicle, the Transformation Engine, which facilitates dissemination of derivatives of image, video, audio, or document files. The functionality of all the other parts we have indicated within the

context of actual workflow and business process is what transforms a DAM from an organizational tool into a highly productive and transformational agent of process change. The ability to interact with the DAM system in a way that furthers a task or tasks demonstrates the difference between an organized way to find, view, and access digital assets, and a process tool that enhances project management. Creation, cataloguing, and access of digital assets can now be seen as an integral, logical part of a project. DAM implementations that succeed and are noted by colleagues within a sector, tend to be the latter.

## Conclusions

We believe a modern, adaptable DAM should allow for functionality and connectivity with any of standard applications, systems, or environments for all the parts listed above. Especially in the cultural heritage sector, where archives have to be considered long-term, the ability to adapt and migrate the technologies and environments that house and facilitate the access to the archive is a necessity, both from a budgetary and resource point of view. The ROI for DAM systems in cultural heritage is very hard to analyze, if it exists at all. The resources cultural institutions can bring to bear to DAM implementations are always challenging. The real possibility that a commercial offering might be useful for five to ten years only is disheartening when put in the context of the effort and timeline; generally 2 years or so, needed to implement it in the first place. This should not ignore the reality that certain aspects of the implementation, namely the data embedded in the SQL database itself, is generally portable to a new application, though possibly with great effort.



Rijksmuseum Enterprise Architecture

We propose a more modern, more adaptable model; one that is more plug and play. The environment at the Rijksmuseum is a step in this direction in that it subsumes the DAM application itself to the SharePoint interface and its process flow tools. The next step would be to create the functionalities needed for asset management and workflow from the logical parts, be they open source or commercial. The caveat with both types is to adhere to standards. Standards do change over time, but this only argues for a strong migration plan and the ability to adapt new parts; thus another argument for the overall concept of our proposal.

The strength of this concept and the ultimate success differentiator is capturing the workflow and business processes, and stakeholders, and the ability to reproduce these within a digital environment, hopefully with an evolution that brings more productivity, efficiency and new capabilities. Another reality is

that the technologies involved and the processes should not be seen as static. A strategic plan should be put in place for review and possible migration to new, better ways to accomplish the necessary tasks, both from the embedded technology and process points of view. Modular, agile tools will make this an easier endeavor.

### **Author Biography**

*Howard Goldstein has been a consultant in digital imaging workflows for 15 years, working with photographers, corporations, and cultural institutions around the world, as a partner in Center for Digital Imaging, Inc.*

*Rob Hendriks has been the Manager of ICT at The Rijksmuseum, Amsterdam, The Netherlands since 1999. As project manager, he was responsible for implementation of the DAM, ERP, and CRM systems.*