Media Asset Management

Maximize the value of your media, minimize your costs

By Raoul Cospen and Kevin Savina

Introduction

Funnily enough, we're all Media Asset Managers. There's the pile of LPs under the record player, the CDs on the shelf, the MP4s you (legally no doubt) downloaded during the glorious years of widespread downloads, and then your iTunes collection, rather mysteriously managed somewhere on your disk by Apple. Then there are your photos.

The ones nicely organized on your drive, the ones archived using 6 different directory schemes across 7 backup drives, and the 3 sets you promised to merge in from your spouse and kids. Let's face it, it's wonderful, but it's a mess. Oddly enough, this is not too different from how media is managed in major media companies. Assets are distributed across multiple locations, organized following different schemes, and it can often be hard to find and use an asset in one place if it was created in another. This is because like at home, the organization has grown organically over time to accommodate different needs.

This traditional organization is being challenged by new business realities. The dramatic changes in the market are forcing content producers to re-invent their business models to capture new markets and drive costs out of their production processes. As they turn to their existing infrastructure to deliver, they are finding these ad-hoc arrangements adapted to meet their requirements.

Multiple production islands lead to inefficient resource utilization and repeated tasks. Valuable assets are hidden in inaccessible libraries. Metadata is poorly maintained and not carried through the process. Setting up new business processes requires expensive new investments.

Fortunately the IT revolution that has upended our consumption of media at home also offers solutions to these challenges at work. The first step in this revolution has been the move to file based workflows, a change that is already mature in many facilities. Nonetheless they alone remain cumbersome (see figure 1). They add some efficiency but are not enough to answer today's business challenges.

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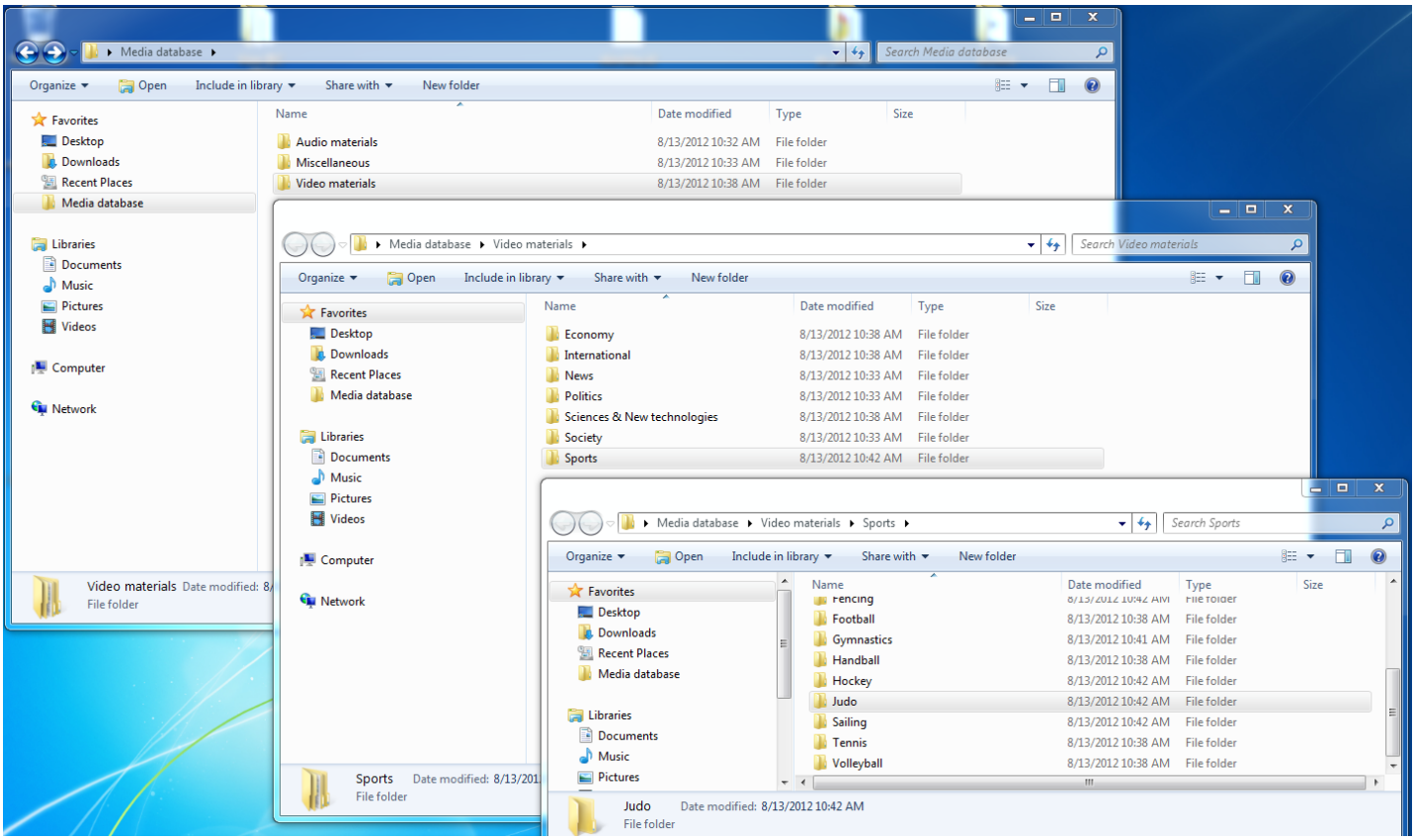

Figure 1. For a file-based workflow system, Windows can be considered a file management tool – but it is far from sufficient

File-based workflows add some efficiency but are not enough to answer today's business challenges.

To reap the full benefits of the revolution two further steps are needed: the integration of production islands under a single Media Asset Management (MAM) system, and the orchestration of business processes using Business Process Management (BPM).

This paper will focus on the challenges and solutions for Media Asset Management and follow on to look at how the system can be extended to Business Process Management.

While there are many types of MAM for many types of workflow, the focus here will be on program preparation for multi-platform delivery and content monetization. How can a MAM simplify production and help you win in a three-screen world?

The challenges of today and tomorrow

At home as in business, there's a dual challenge – simplifying the creative process and making the best possible end product. We have to take the costs and complexity out of making and managing media, and we have to make sure we provide the consumer with a rich and satisfying experience.

Look inside a typical content factory, and you will see multiple groups at work such as sales and marketing, producers, editors, technical staff, librarians and business staff.

You will also have multiple production teams working on different content. Each typically has their own VTRs, editing bays, systems, servers, storage and the staff to support them. Each has autonomy for the good reason that technical infrastructure should serve editorial requirements. However, executives are finding that the equipment and staff redundancy are costs they can no longer support, and the vertical production units are not easily repurposed to new business opportunities particularly when it comes to new multi-screen distribution channels.

Not only are the processes inefficient and inflexible, but modern consumers expect their experience to be rich and interactive. To satisfy this, content production systems must handle much richer media and metadata across the whole pipeline – multi-format video, multi-language and 5.1 audio, multi-language subtitles, multiple versions and extensive metadata for connected TV (see figure 2). The complexity of second screen material also demands a high degree of production automation that a MAM system can drive. Legacy systems are simply not built for the challenge. Each new distribution channel has its own characteristics, and you need to adapt fast. You need to be able to create new metadata structures and distribution profiles with minimum disruption to your existing operations.

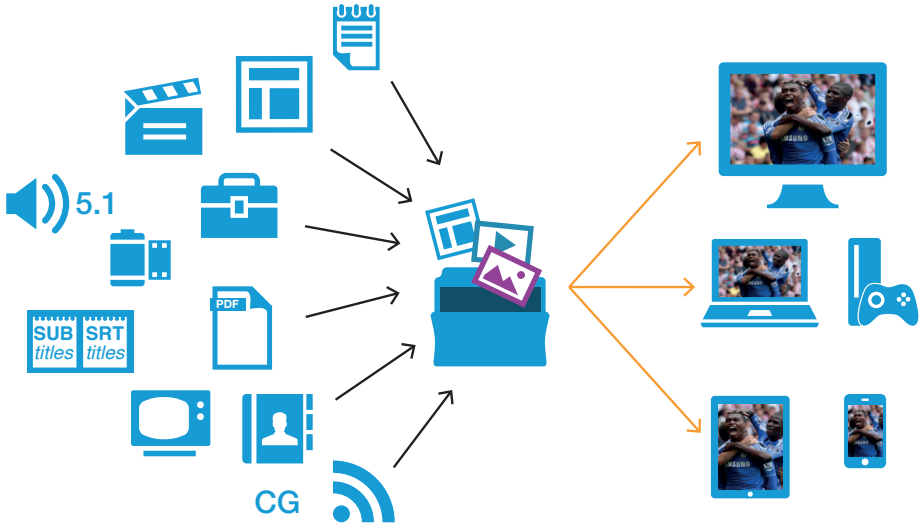

Figure 2. Production systems must handle much richer media and metadata across the whole pipeline

Can I do without a MAM?

File based workflows have been seen as the solution to these challenges for some time with MAM viewed as simple automation for these file based workflows. However, a MAM goes much further. While a file based system is an essential pre-requisite for an efficient workflow, there are multiple limitations that arise if you do not integrate your systems under a MAM:

- Non harvested efficiency gains – copying and transferring files, re-entering metadata, manual revision management and complex review and approval are just some of the costs of retaining islands of production – to avoid these costs you need to share content enterprise wide - a MAM is required to coordinate this.
- Limited agility – an island based infrastructure is less adaptable to address new business opportunities. A flexible MAM lets you reassign resources, assets and processes where they are most needed.
- Limited visibility – to improve the efficiency of a process, you need visibility into its components, where the bottlenecks are and how long different tasks take – an integrated MAM provides you with this facility level visibility.
- Limited access – an island based infrastructure makes it difficult to view assets across islands, reducing the potential value of content and increasing process costs. A MAM provides rights determined access across the entire facility.
- Unconsolidated metadata – within a facility there is all kinds of assets and metadata: video, graphics, PDFs, subtitles, usage rights and much more. In an island infrastructure, all this information exists but is spread across different systems. With a MAM, all of this is managed centrally, simplifying access and ensuring consistency.
- Limited interoperability – multiple legacy systems that have been built independently will inevitably lead to interoperability challenges – video, audio and metadata that cannot be passed between systems leads to multi-step and time consuming manual processes to compensate. A MAM integrates all the processes into a single open framework minimizing interoperability challenges.

Adding a MAM on top of a file-based workflow does not just take away costs associated with redundancy (see figure 3). It opens up a whole new way of working that is much more collaborative, provides access to much richer content, and lets a much broader range of staff contribute at every stage of production for a richer end product. It also substantially reduces maintenance costs – a consistent architecture shared across multiple departments is more easily and reliably maintained than multiple independent islands.

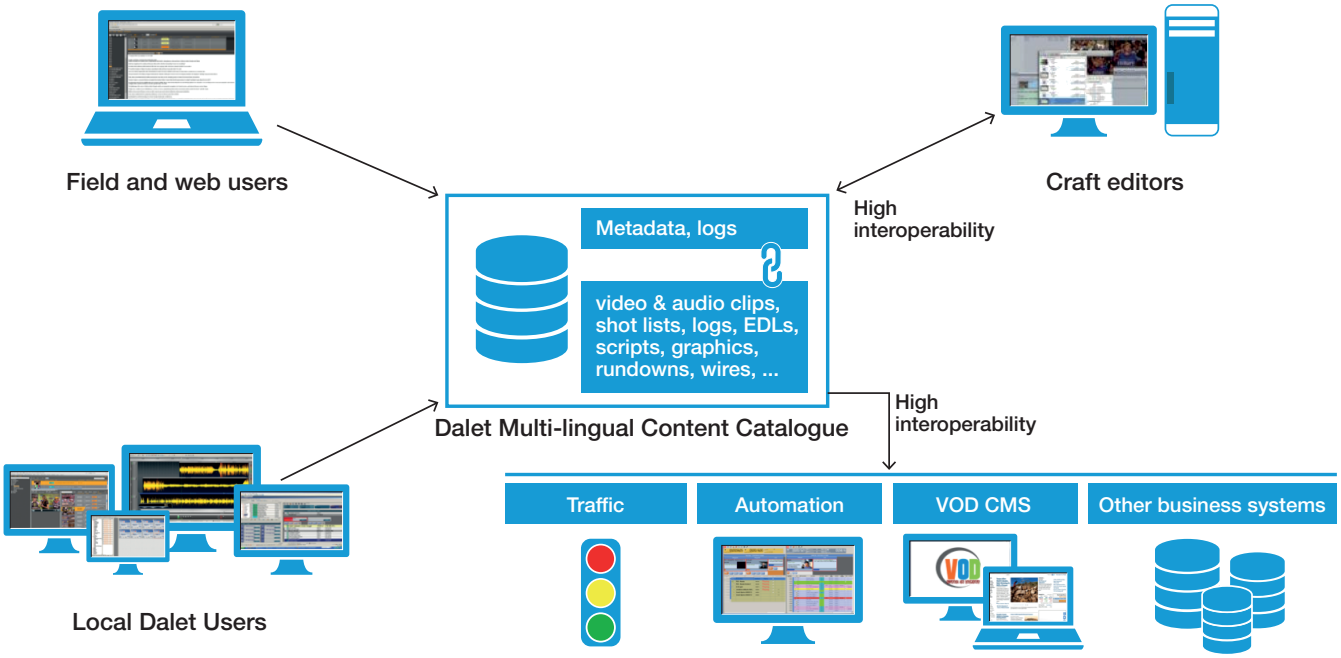

Figure 3. Adding a MAM on top of a file-based workflow does not just take away costs associated with redundancy. It opens up a whole new way of working.

What is a MAM and how can it help?

Having extolled its merits, let's look more carefully at what a MAM actually is. A MAM is made up of multiple components and user tools all integrated into a common system to manage the stock and workflow.

Stock / Inventory

A MAM lets you store and retrieve assets via:

- A shared database. At the heart of the MAM is the database – a repository of all assets of all kinds, with a configurable metadata model.
- Indexing and search. Allows users in any location to find assets in the system based on any criteria and is customizable to the needs of different clients and different departments.
- Proxy viewing. Generates streamable proxies of all video assets that can then be viewed on standard desktop or mobile platforms.
- Back-office services to manipulate "business" objects such as subtitles or videos.

Integration

A MAM connects your different systems via:

- Broadcast system interfaces. Allows the MAM to exchange information and coordinate processes efficiently with key systems such as traffic, automation and post-production.
- Industry standard APIs. Allows for custom integration where an existing integration does not exist.

User Tools

The tight integration of easy to use tools is the key advantage of the system. You don't want the MAM to sit in the basement and be just used by the librarians. You want the MAM to touch and add value to every step of the workflow.

- Integrated editing and production tools. Lets producers, editors, journalists and other staff perform basic or complex editorial from logging to storyboarding to craft editing.
- Newsroom Computer System (NRSC) integration. In News and Sports production, integrates the NRCS story and rundown tools directly with the MAM.
- Task specific tools. Allows users to enter metadata and time based markers (locators), perform QC and review and approve material all within a common integrated environment.

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Workflow Engine

A Business Process Manager (BPM) is an optional addition, allowing the facility to program business processes for consistent and efficient workflow. While a MAM is focused on assets, a Business Process Manager is focused on processes. Many operations in a facility can be broken down to repeatable tasks that can be optimized and automated. Above all, it delivers three key benefits:

- **Productivity:** More deadlines met and less time wasted through more streamlined workflows.
- **Agility:** More business flexibility through an intuitive workflow building interface.
- **Visibility:** More control of your business through increased visibility into the activities of your facility.

From an operational perspective you can embed your experience of best practices into documented and traceable user workflows.

From a business perspective you have a set of reports that can help you optimize your operations and to measure in real time the cost of production.

From a user perspective, it simplifies the work. The BPM and its task list makes it easy to know what needs to be done, what are the deadlines, and what is most urgent.

A flexible MAM will offer an integrated BPM, but also provide options to integrate with external enterprise BPM systems that might already be in operation at the client (see figure 4).

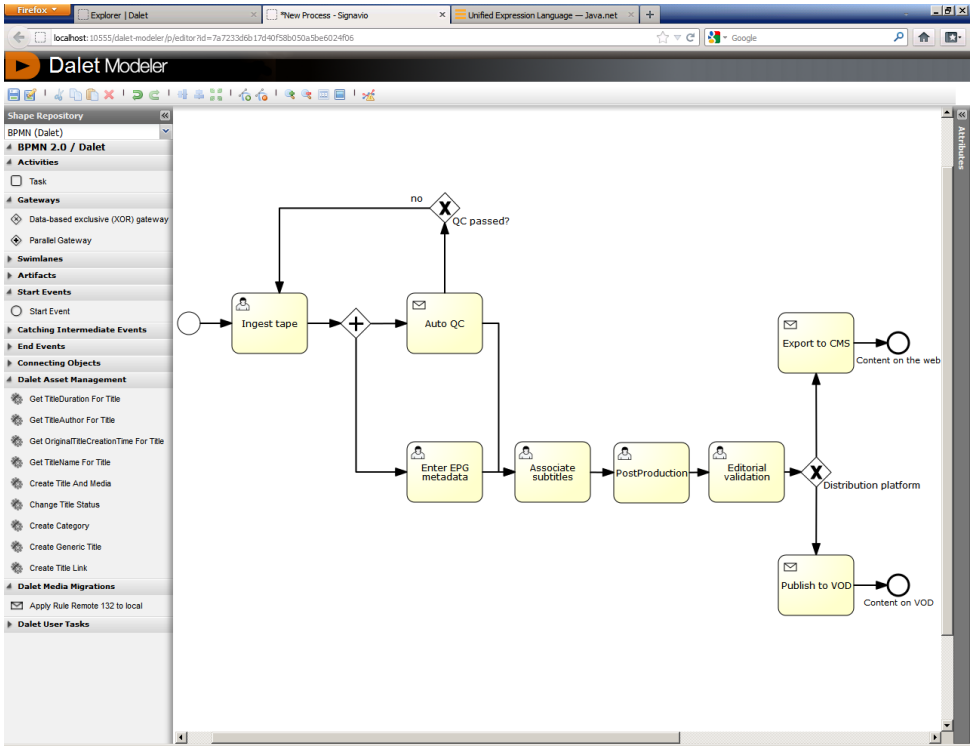

Figure 4. BPMN 2.0 notation is the recognized standard for Business Process Modeling.

What benefits can you expect from a MAM?

Moving to a MAM based infrastructure offers a rapid return on investment, most notably by improving efficiency, visibility, quality and agility. The benefits are both short term and long term. In the short term, you will optimize productivity, efficiency and decrease time to air. In the long term, you will have an agile infrastructure that can better adapt to new requirements without impacting your everyday operations. In addition, using Business Intelligence and the reporting data, you will be able to measure all of this.

Efficiency

A MAM delivers measurable improvements in productivity in multiple areas:

- Process automation – many processes are automatable including ingest, file transfers, format conversion, QC and distribution allowing staff to focus on more value creating activities.
- Ingest media only once – avoid ingesting the same material multiple times, for instance during program production and subsequently to make the promos and marketing material.
- Capture metadata only once – avoid having multiple users capture metadata separately in multiple systems multiple times, as well as the likely incoherences and errors that can arise from this.
- Optimize staff productivity – a business process manager helps ensure that users are working on the tasks that are most important. Tasks are clearly defined, priorities can be set and time and usage can be measured.
- Speed up the editing process – built in logging, storyboard, editing and review and approval tools have been shown to more than double the amount a team can produce without adding staff.
- Collaboration – major productivity improvements can be captured by integrating the work of multiple departments. For instance when a film and its 8 promos are scheduled in the traffic system, the production process can be set up in advance with placeholders for all elements, metadata in place, and easy sharing of media and metadata between the teams.
- Time to air – using fast turn-around workflows thanks to features such as edit while record, you can make material available faster on any platform.

Visibility

A MAM provides a level of visibility into operations that was simply unavailable before. With a MAM, you can see who is working on what, and what is left to do. You can see how much content has been ingested over a period of time, and how much produced. You can see how much time it takes to prepare a program for VOD. You can get custom reports generated every month, or if you prefer, every 15 minutes. You can set up alarms to alert you to issues as they arise.

You have an unprecedented set of tools at your disposal to optimize your resource usage and constantly improve your processes. The bottom line is that before it was very difficult to measure costs and performance. Now you have a business dashboard to assess your ROI. Especially with the reporting part of BPM, you can implement KPIs and create custom reports (see figure 5). You can track values such as cost or production time at the asset level, or analyze statistics on usage, costs or other metrics.

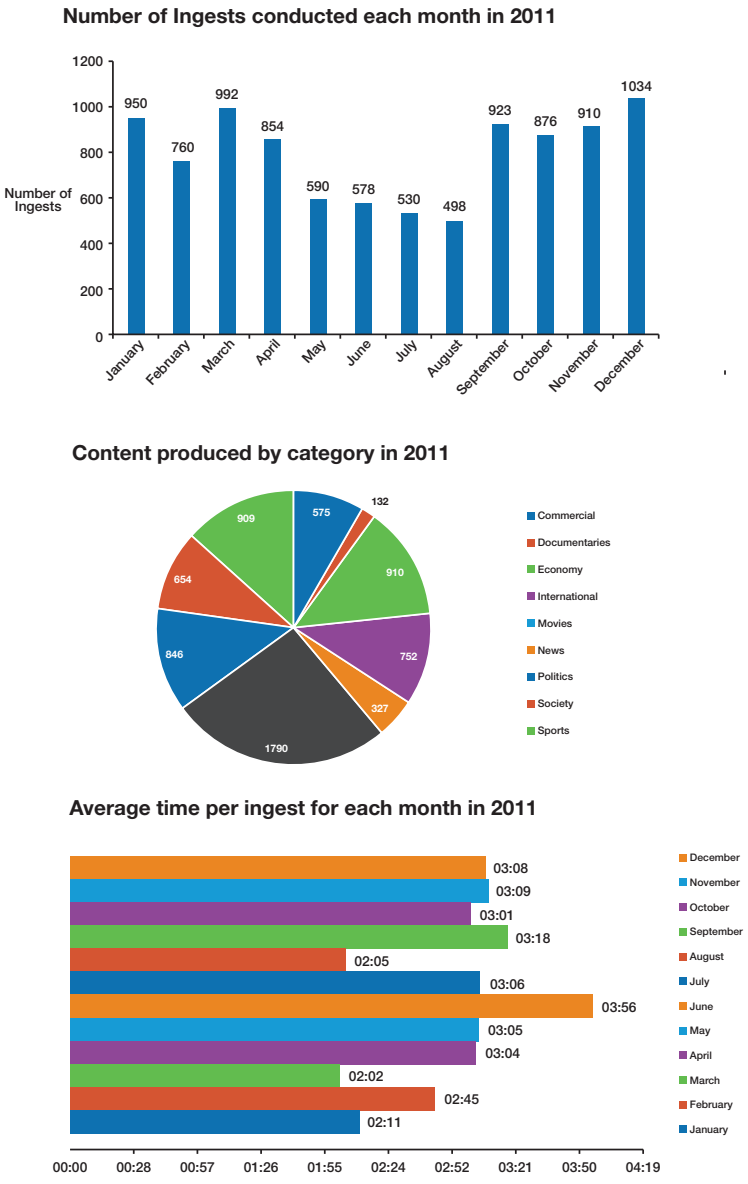

Figure 5. Business Intelligence reports can track values such as cost or production time at the asset level, or analyze statistics on usage, costs or other metrics.

Quality

A MAM increases quality by reducing errors and increasing the amount of material available to users and that can be published to consumers. Errors are reduced by formalizing processes for data entry, minimizing data re-entry and providing tools that implement best practices workflows. Rapid search and immediate access to material across the whole facility increases the quality of programming. Richer metadata and the ability to associate multiple media files, language versions and subtitle files increases the value of the content to the consumer.

With easier access to material you have a wider range of choice for assets, giving you more time to focus on the creative process to create more compelling content, and a MAM will ensure you don't waste time using content for which you have no rights.

Agility

Your business is evolving fast, and you need your technology and workflows to follow. As a content producer or broadcaster, you face new challenges each day, and you need to find new sources of revenue at little or no extra cost. Each new channel and platform brings new publishing requirements. For instance, it might need a new set of metadata, a new video format, a different branding and new overlay graphics and subtitles. To adapt to those new requirements, you need to easily implement those new metadata and formats and you need to adapt the workflow to make sure that it is part of the production process… all of this with minimal impact on the users. The MAM platform gives you this "agility". It lets you design and hook in new business processes in a straightforward manner, whether it be accepting material from a new production company, setting up a new production team internally, or opening up a new publishing channel through traditional channels or to the web or mobile.

As specific components need upgrading, you can replace them as needed without needing to replace the whole system, and often without even stopping the system. Future standards such as FIMS or MXF AS02 promise even greater flexibility to be able to replace one component with another with minimal disruption.

Questions to ask when evaluating a MAM

The MAM will be at the core of your business and central to your business reorganization. It is therefore essential that you fully assess the capabilities of different solutions to ensure your choice will carry your facility successfully into the future. A number of criteria should be evaluated:

- Is the solution open? Will I be able to interface it to other systems? Make sure that your choice is based around industry standards and APIs.
- Is the solution scalable? Can I grow it as my business needs evolve? Make sure that the solution is based around a distributed architecture and you can easily scale your user base, functions, and processing as you require. Ask the vendor for different scale reference sites.
- Is the solution extensible? Make sure you can easily update the metadata scheme and add new asset types when you want to add new business processes. Make sure you add new functions and customize and configure the system to your needs.
- Is there one or multiple databases? Make sure you choose a system that ensures data coherence across all functions.
- What range of services are integrated? Make sure the solution includes all the tools you need:
  - Web and rich client based user tools for ingest, search, viewing, logging, storyboarding, editing and metadata management to provide you with fast and efficient end to end workflows.
  - Digital rights management letting you add static or time based markers that can document key information and that this information can flow non-destructively through editorial ensuring that all rights information in the sources remains available in the finished composition.
  - Security – make sure you can configure access rights exactly as you need and that you get an audit trail to trace possible infractions.
  - Glossaries that can help you control vocabulary, integrate cataloging in your workflow, and integrate production with archiving to sharply reduce your archive creation costs.
  - Media file management that ensures you can link multiple media assets of multiple formats on multiple file systems to a media asset with automated monitoring of the status of the file (online/offline) and HSM support.
  - Automated media processes that let you configure rules to trigger different actions based on asset or media status changes. For instance triggering a file transfer at the end of an ingest, or based on a rundown, or time of day criteria.
  - Multi-site support to let you integrate and coordinate multiple geographically distributed operations.

- Does the solution provide the reliability & maintainability you require? Look for a distributed architecture and high availability in the individual agents so the overall solution is highly resilient to failures of different parts of the system. Ensure there are strong system monitoring and logging tools so problems can be rapidly detected and tracked down.

- Does the solution data model represent the types of media content production workflows you are building your business around? How are videos, subtitles, metadata and composition EDLs related to each other?

- Does the solution include a BPM component and is it well integrated? Ensure that you can optimize your workflows as easily as your asset lifecycles, and that the BPM acts as a complement to the MAM, embedding broadcast knowledge in the combined workflows.

- Is the BPM open? Make sure it is compliant with the latest standards such as BPMN 2.0, and that it offers integration points with emerging interface standards such as FIMS.

- What is the vendor's roadmap, do they have a similar vision of the future as you do?

The key question to ask is whether the MAM will respond to the business requirements of your facility. Can it deliver the true integration of different islands of production? Can it offer you the services that you need in such a way that the cost savings can be established without compromising the quality of the content produced? Is it sufficiently scalable and extensible so that it can deliver the agility required to respond to new business models? What would be required to add a new broadcast channel? What would it take to deliver content out to a new Content Distribution Network? What would it take to integrate a new content production unit? What would it take to rapidly scale up the number of users? These are the essential features that will ensure you are truly future-proofing your facility (see figure 6).

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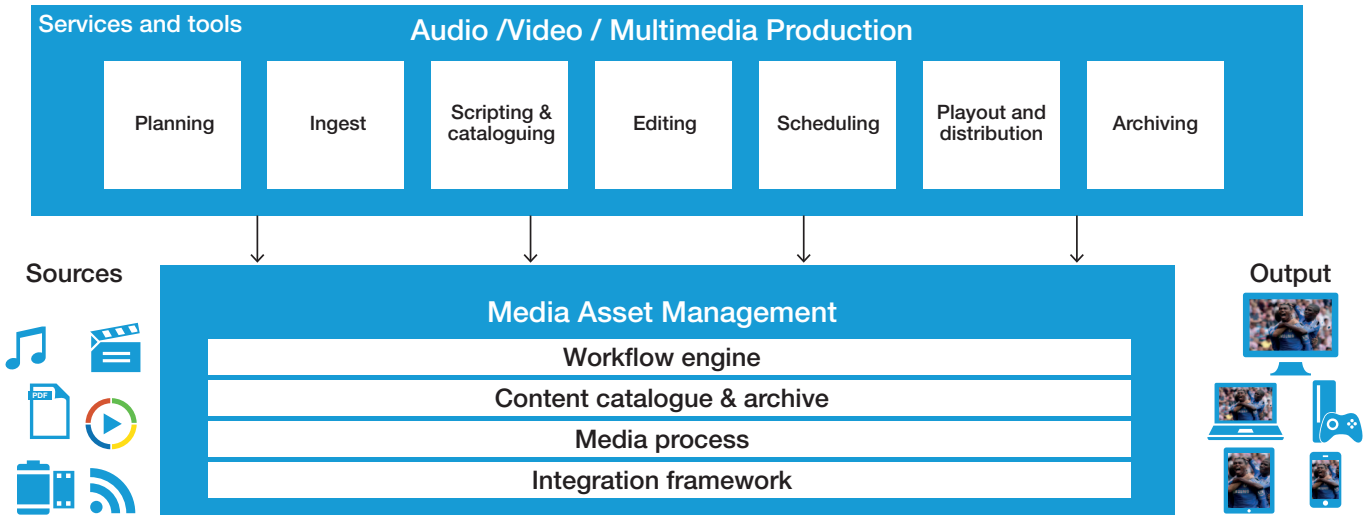

Figure 6. MAM enables organizational re-engineering across your media supply chain

Best practices when implementing a MAM system

A MAM of any scale is a critical investment because it will be at the core of your business. In addition to evaluating the technical capabilities of a solution it is essential to consider the service side of the ledger. A MAM is not an off the shelf purchase, it is an enabling technology that must not only deliver on the capabilities discussed, but also integrate into your existing infrastructure and platforms. A MAM for program production today must respond to a complex and rapidly evolving set of requirements in an environment where there are few standard solutions. Success comes from careful planning and a partnership with the vendor. You need an experienced partner who has a comprehensive project management methodology and a dedicated team of experts with experience in IT and Broadcast integration.

As you look at your project approach, ensure that it includes the following elements:

- Requirements. What do you want to achieve? What are your business, functional and technical goals? Make sure that these specifications are driven by the business requirements and avoid trying to replicate old workflows with new methods.

- Change management. This is key to success. How will you ensure that the solution is embraced by its future users? How will you involve them in the design? How will you train them? How will you address changing job responsibilities and hierarchies? How are you going to communicate the changes?

- Specifications. How do you want to achieve it? Agree in detail and in advance on the functional, technical and business process specifications.

Ensure that all teams are involved: technical, editorial, operations, finance and human resources.

- Planning, budgets and methodology. When will it be completed, how much will it cost, how should we track progress? Agree with the vendor on key milestones, tracking methodology, communications, change management, risks management and dispute resolution.

- Platforms & integration. What test and maintenance platforms will you need in addition to your production platform? Who is responsible for build, integration and maintenance of each system?

- Testing & User Acceptance. What is the procedure for testing and validating that the system meets the agreed to specifications?

- Support. What is the service level agreement?

An experienced service team can add tremendous value in ensuring that a project is successful by using their experience across both IT and Media projects to help you find the best answers to these questions.

Conclusion

In today's market competition is cut-throat and change is constant. Content producers need an advanced IT based infrastructure that will provide them with the agility and efficiency they need to create successful new business operations. File based workflows, Media Asset Management and Business Process Management can transform media production workflows to address these challenges.

A well conceived and implemented MAM project will set you up for a profitable future. It will substantially improve the productivity of your facility, it will increase the value of your existing assets, and it will provide a platform that gives enormous creative freedom to your producers to build new business models to conquer new markets.

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