



White Paper

Why you need a MAM system

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01_ Introduction

Nowadays, competitiveness within Broadcast and Media industries has grown to a point where every second is paramount in content creation and production. Therefore, it is impossible to understand the Broadcast, Audiovisual and Media & Entertainment industries without paying attention to one of the most crucial tools to its daily operations: the Media Asset Management (MAM) systems.

At VSN we want to offer a general vision on this technology, paying attention to how the rise of new video files, with different formats and aimed at different platforms has created a complex environment that makes it necessary for media companies to correctly manage every media asset and automate repetitive tasks as much as possible in order to increase efficiency and avoid mistakes.

02 _ What is a MAM system and how can it help your company?

To begin with, let's first define the concept of a MAM:

A Media Asset Management (MAM) system is a tool that manages, organizes and catalogues any type of assets of a company in a centralized way, with the possibility of associating them one or several files and customized metadata to ease the content searching, retrieving and distribution tasks.

At this point, to fully understand Media Asset Management (MAM) technologies, we need to have a clear knowledge of what media assets are and why it is key to have a MAM tool to manage them.

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So, what is an asset?

In its most basic definition, an asset is a resource. Let's see some examples:

For any person, an asset could be a house, a car, definitely any good that someone appreciates and wants to keep in a safe place, use for gaining a profit, sell or even share with others. In the industry, assets are goods or values on which every business depends for its daily work. For example, in a building factory the assets could be the workers, the raw material, the machinery, etc.

Obviously, every company has different ways of keeping and taking care of its assets. In the

broadcast sector, an asset could be a movie that you buy from some producer; an advertising campaign that you generate for selling more units of your product; news stories created by journalists in the newsroom; ingest of raw footage for editing... Now even closed captions and subtitles, too, have become primary assets. All these assets need to be managed as well, placed in a safe location, with specific permissions, specific metadata to have a complete description of them and of course, they have to be ready for being searched and distributed at any time and from anywhere. In fact, in a multiplatform world like the one in which we live nowadays, an asset sometimes is a more

complicated concept. For example, instead of an asset being just one single episode that needs to go on air at a specific time, it could actually be several episodes or an entire series.



Metadata assignment in VSNEplorer

02.

Generally, all assets need to be managed and protected, in order to extract the most value from them. That's why it is key for companies to count with the best and most advanced systems to handle and correctly manage their own assets.

Now going back to talking about MAM systems, **what advantages does the use of a MAM** give to companies?



Precise media files cataloguing

A **MAM** system gives you a set of tools to catalogue the media assets using custom metadata fields.



Advanced Searches

Allows to define search rules/criteria to have **quick** access to any media content, at anytime and anywhere.



Increased Interoperability

The content management system **is the core** of every deployment. That is why an open system that can be integrated with third-party technology and be customized to meet any specific requirement that users may have is extremely important.



Increased Revenue

More content quality and more efficiency in the management of resources make audiovisual companies more **profitable**.

03 _ Some words on Metadata

We have been talking about the importance of the metadata for the correct management, cataloguing and recovering of digital files. At this point, the natural question before talking about MAM is:

What is Metadata?

“ Metadata is “data about data”, that is, information that allows us to descriptively know data regarding certain file or content and that eases its identification, description and classification, optimizing its management. ”



03 _

Let's see an example. Let's imagine that we work for a sports channel and that we are editing a video about a goal scored by Messi in the World Cup. Together with the editing process, we can introduce information related to that video, in the form of tags, that will help us to find it in the future if needed.

In this case the metadata that we could associate to this video is: Messi goal, World Cup 2018, Argentinian national team, Lionel Messi, far away goal, international match, Messi Argentina... We could even **automatically detect metadata from the media file**, such as its duration, quality, format, objects, emotions, etc.

In this way, if in the future one of our colleagues is making a documentary about this football player, it will only be necessary to put in the search field of its management system keywords such as Messi or goal Messi, in order to immediately find this video (and similar others), saving time and resources and increasing the quality of the final results.

In this way, these metadata, associated to media digital files that the broadcast industry uses, allow us to identify, describe and classify content.

As a conclusion, the more metadata, the more valuable your content management tool and archive are. Metadata has become one of the most important aspects of content management, and

it has a crucial role in the distribution of content between Broadcast and Media & Entertainment companies. That's why its correct design, implementation and development are essential in a world that is being flooded with digital content. Metadata is no longer a technical requirement, but a business and operative one. And, as we will see in the following lines, a **MAM** system uses metadata to find, manage and distribute the media, making it very important for a company.

04 _ Asset Management through History



80's & 90's

If we go back in time, during the 80's after the disappearance of the **magnetic tapes**, the media assets were usually contained in Betacam tapes, and located in some shelves inside one (or more than one) building. Obviously, as soon as the audiovisual material increases, it becomes impossible to track where the content is, and furthermore, using tapes means having a dependency on the technologic support, with the consequent risk of the obsolescence of technology or the deterioration of the tapes. At this point, some **primitive MAM systems** began to be shown at the NAB meetings (National Association of Broadcasters) around 1995-1996.



1998

The implementation of such a revolutionary and complex system as MAM is difficult to date accurately. However, it seems to be agreed that the very first system to be tested on a significant TV station was Sony/EDS at the well-known US news channel CNN, at CNN-Center, Atlanta, Georgia, USA. The project started in June 1998, and the technology was so new that it did not have even a commercial name back then. The research and articles back then referred to it as a Digital Asset Management or Content Asset Management. During its final implementation, **the MAM would provide hundreds of journalists at CNN** with access to video and audio pieces, greater ease and immediacy to be on air, as well as improved news content for its 6 TV channels broadcasted via cable and satellite, 2 radio

Before having a look at what a MAM looks like and the features it offers, and now that we know what an asset is, let's learn how the assets of media companies have changed through history.

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1010
01

2000's

So, at the end of 90's started the digitalization from tape to file, thanks to the possibilities offered by new technologies. From this moment, we are entering into the "tapeless" world, where tapes will start to be substituted with digital files. It is the time also when the name MAM (Media Asset Management) would start becoming prevalent to refer to this type of systems. But these environments generated also at that time some uncertainty regarding material control.



2005

Due to all the challenges that came with the transition from tape to digital, a new concept was born in the Broadcast industry at the beginning of the 21st century. **Media Asset Management systems were created for the first time to manage the new digital content.** And nowadays, these systems are familiar to all of us in some way. We all process digital assets (files), whether as documents sent to us by email, photos from digital cameras, or files from USB keys. In each example, we follow a system of folder structures, labels, hierarchies,



2011

In this scenario of a digital environment managed by MAM systems, during the last years the concept of **process management and collaborative work** environments has been introduced in our industry. These ideas come from the industrial sector, where from 1945 onwards process management is applied to optimize the tasks and increase productivity.

04.



2013

The problem of having **MAM systems on-site** is mainly that all the material has to be stored in a physical place (Optical Disk Archives, LTO's, etc.) and not all the companies want to assume the cost of acquiring and maintaining this infrastructure. That's why more and more, the companies are looking for Cloud solutions (such as Google, Amazon or Windows Azure) and MAM systems that can actually be deployed in these, providing advanced protocols for transferring content between the clients and the storages located in Cloud.



2015 - 2019

During the last years, the MAM has stopped being a simple archiving and content management tool but it has become the heart and soul of most actions and procedures within a media company. For instance, a MAM is crucial for the multisite and multiplatform access and distribution of content, whether that is on an OTT platform, Web TV or a social media channel. In addition, we live in an era where the more automation, the better. Thanks to the increased development of advanced technologies like Artificial Intelligence engines, now **MAM systems can**

And we have to be ready for the future because as you know, our industry is changing very quickly, so even though no one knows exactly what does the future holds, when we take a look to the last trends in our sector, we can realize that the concept of MAM is converging into more automated workflows, thanks to increased integrations with Artificial intelligence engines, and interoperable ways of working.



05 - 10 + 1 requirements of an advanced MAM system



Ingest and Transcoding

The MAM system is the organizer and manager of the media assets of a company. That is why it must be able to control those assets from the very moment of their ingest in the system. It must also be capable of changing the format of those files (transcode them) depending on the needs of each moment or system that we are planning to use afterwards during the production, editing, delivery and broadcast processes.



File Cataloguing, Retrieval and Distribution

In order to save time and resources, it is essential to have all files correctly organized and easy-to-access for its retrieval and distribution, to offer a clear and transparent vision of the resources of a company and allow its use when necessary. For this, the cataloguing process is paramount and for sure, one of the key features that a MAM system needs to include. The better a MAM system is prepared for cataloguing media (either manually or automatically), the better it will be our performance



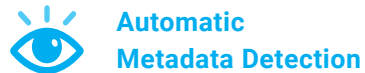
Rights Management

Users from a single company have different needs, so their access to the system and resources must be correctly administered. A good permissions' management allows to organize users, departments and hierarchies in an efficient and productive way.

05



HTML-Web interface with a fast and reliable transfer system such as UMP, VSN's acceleration protocol in IP networks, allows to install the whole system (MAM in Cloud) or part of it (Hybrid Cloud) in platforms such as Windows Azure, Amazon or Google Cloud.



The integration with Artificial Intelligence engines is not a mandatory requirement of a MAM system but nowadays, it is acquiring more and more importance and becoming a key tool for media companies. Essentially, it allows for the automatic and comprehensive detection of metadata directly from the media, advanced content search, advanced transcoding to multiple formats in the Cloud, it facilitates content moderation (automatic adult content detection, blurring faces, etc.), content identification through digital footprints, and association of additional information based on metadata, among other features.



Assets are the most valuable resources in an audiovisual company. Their management must be carried out with the most strict security protocols, in order to avoid losses or damages, and with the adequate encryption of the content, to keep it safe at all times.

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Multiplatform access and Distribution

Multiplicity of platforms and screens is a consolidated technological trend. That's why an organization with a multisite and multi platform MAM, which is also integrated with the main social media networks (such as Facebook, YouTube, Twitter, etc) and with online platforms (such as WebTV, OTT, VOD, etc), is key to access and distribute content directly from the media management system and be able to get the most from its assets in all possible devices and platforms.



Maximum Search Features

For a broadcast company, it is essential to locate in a fast and comfortable way all its media assets. A tool for quick and advanced searching allows to save time and to access every asset when it is needed, without losing time.



Customizable Data Models

Different clients have different needs. Classification for areas and the chance to determine different metadata layers depending on the type of asset make it possible to define the system as if it were custom-made, increasing their efficiency and productivity.

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Scalable

When choosing a MAM system it is necessary to be sure that it can grow as the business grows. If not, the risk of having to replace it in the future is very high and costly. That's why a scalable system is not only very beneficial, but sometimes also a crucial component to evaluate.



Open Architecture

It is essential for the system to be open, in order to allow its integration with the company's hardware and software. Being capable of integrating third-party solutions in the system in a simple way is essential to allow, when necessary, to expand the installed solution. Also we need to take into account that MAM systems are becoming the core of all broadcast and media companies, being the technology in charge of managing all video and media files that are being used, produced and broadcasted or distributed from a facility. Therefore, another key aspect of a MAM is to, of course, be able to easily integrate all the existing systems of a client's facilities, in order to become the 'orchestra director' of all workflows taking place in them, making sure that we will not experience any problem or error when transferring all the information and files from one system to the other.

06 _ Our MAM: VSNE Explorer

VSNE Explorer platform, focused on **Media** and **Workflow Management**, consists of four different modules specially designed to meet the highest demands for Broadcast and Media companies, but also for any company or any educational/official institution that needs to manage audiovisual content.

Owning a powerful and robust Media Asset Management (MAM) system has become a major need in order to survive in today's industry. VSN, conscious of that need, has developed a VSNE Explorer MAM, perfectly adapted to the new challenges that companies face in this new context. A MAM that is prepared to get the best from the cloud environment, with a Web interface

accessible from any location, a safe and secure file exchange system, advanced ingest features, metadata detection, cataloging, search and archiving capabilities, easy-to-integrate with third-party systems and the main editors in the market, multi-site and multi-platform for a quick distribution of content, and scalable to grow as the user's needs and business grow.

To sum up, VSNE Explorer makes technology an ally so that professionals in this creative industry can be as efficient as possible and focus on what they do best: creating.



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Some of its main features are:



Advanced player

The low resolution player automatically selects the quality that best adapts to the available network speed, allows for frame accurate marking of segments and automatic keyframes generation. It also supports any type of media files (such as video, images, audios) and allows the user to preview subtitles and Closed Captions.



Advanced Metadata Structures

VSNE Explorer MAM enables the user to create complex custom metadata structures, aimed at solving the needs of the most demanding clients. A hierarchy of metadata areas and classes with inheritable properties allow the user to design a totally versatile system, ready for multi-department companies, and even to serve multiple companies at the same time.



Multiple Integrations

The VSNSPIDER architecture, on which VSNE Explorer MAM is built, is designed to simplify the integration of new systems, thanks to its service oriented architecture, based on SOA connector, and its open API. It allows for the flexible integration with third party systems (such as QC, transcoding, traffic systems, automation, production systems, etc.)

06 _

Some of its main features are:

Segment and layer cataloguing

Segment cataloguing allows for fast and easy access to relevant parts of a media file without having to visualize the full piece. This is specially useful for creating sport event highlights, press conferences, automatic transcriptions, quality check results, censorship, etc. VSNE Explorer also supports layer cataloguing (strata logging), making it possible to assign different thematic metadata layers (technical, documentation, marketing, etc.) to the same asset.

Thesaurus Management

The correct integration and management of a thesaurus is essential for the archivists' work. It allows the user to create a list of standard terms for different usages with the objective of achieving terminological coherence when cataloguing contents, making sure that they can be easily located and avoiding ambiguities. In addition, it allows for the validation of the proposed terms by the users, depending on their permissions.

Storage Management

VSNE Explorer MAM integrates with any Online Storage (Dell, Promise, Avid, ..), the most used HSMs (SGL, Xendata, Front Porch, Active Circle), Cloud Storages, Videoservers, etc. In terms of Archive retrieval, it allows for partial recovery by marking (TC in, TC out) on the proxy version, and returns only the high resolution of the selected segment to the online storage.

06 _

Some of its main features are:

Integration with Artificial Intelligence systems

VSNE Explorer MAM has been integrated with many Artificial Intelligence detection engines such as IBM Watson, Google, Microsoft Azure, Etqmedia, etc. resulting in an improved MAM solution (in the Cloud or on-premise). This integration enables to obtain automatic metadata from media (such as image processing, facial recognition, objects and audio effects detection, sentiment analysis, speech to text, etc.) to help archivists automate their workflows and avoiding repetitive tasks. The VSNE Explorer MAM is key for the supervision of the results and for the application of machine learning algorithms.



07 - Looking for the perfect MAM

What you should have in mind when choosing a MAM system

To wrap up all this information, here are a few ideas that will serve you well when making such an important decision as it is choosing a Media Asset Management (MAM) system:

- Be clear and concise about what is the volume of the company's assets. Clarify the size, value and the main goal of the MAM System before its implementation.
- Rethink the organization's current processes and how IT Systems, such as MAM, can help optimize those processes and automate new ones. The many you automate, the merrier: employees will have more time and resources to increase the quality of their daily work.
- Plan the metadata structure, remember how important metadata is and how the entire company can be structured to have different layers of information.
- Lastly, remember that the environment and the industry will change in a short period of time, and choosing that future-proof solution will give you the peace of mind you need to get the best from your business and to make sure you can scale with ease and add parts according to your needs.

08 _ The Expert's Opinion: VSN's CTO



Manuel Escribano,
Chief Technology Officer

The never-ending evolution of MAM systems

In nowadays' technological environment, the concept of a media asset management tool is no longer applied to only broadcasters and media companies. More and more companies and sectors are using video management tools to maximize the value of their content such as private corporations, universities, government institutions, etc.

That's why the use of a powerful Media Asset Management (**MAM**) that is flexible and able to be customized and adapted to specific requirements, has become not only a necessity, but an obligation to being able to survive in this new digital environment.

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And that's not the only thing: the traditional features of a MAM system have expanded in response to that increasing demand of the market and the irruption of cloud and artificial intelligence technologies as a viable resource in workflows. Due to this multiplicity of functionalities and formats, companies need, more than ever, to manage in an efficient and productive way its media contents in order to distribute them wherever and whenever the public demands it.

This means that, together with a correct management of the archive, media management systems must now carry out an increasing range of activities that are gaining in importance:

transcoding, content exchange, distribution, publishing in social media, collaborative work among different users and locations, centralizing news production workflows, etc. So we could say MAM features are essential at many points of the value chain, making them unavoidable for any company.

Moreover, it is also important to realize that the toolset requirements used by media companies are constantly changing and that it is very rare that a single system will handle all requirements and do so in the best way. That is why, customers looking to invest in new MAM capabilities want to make sure that they are investing in a

interoperable system with open architecture that allows their software to easily integrate with "best of breed" third-party systems and adapt to future requirements.

Traditionally, our industry opposes a strong resistance to change, due to the doubts that these changes may create, especially when occurring at such a great speed, as it is happening today. However, it is safe to say that today, the concept of MAM has evolved and, to be ready to face the amazing workflow orchestration and integration challenges that new technological environment poses us, we need to change, too.

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