

# Management of Enterprise Multimedia Information

*By Balaji Raghunathan and Balaji Sankaran*

*Managing unstructured Enterprise Information  
in Multimedia formats is a key market enabler  
and differentiator*

## **INTRODUCTION**

Information in the enterprise is present in two forms, namely structured and unstructured information.

Structured Information is stored in databases with a pre-defined structure to cater to the predictable information needs and forms which the life-blood of the enterprise's transactional information needs. This information can be compiled, collated and analyzed to make meaningful decisions.

However, unstructured information is present as bitmap and textual objects, either in written or printed language and does not conform to any data type definition.

Unstructured information is created on an ongoing basis and spans many multimedia file formats like audio, video, podcasts and animations.

What is the potential of unstructured multimedia information? Can they serve needs beyond the simple purpose for which they were created?

## **UNSTRUCTURED INFORMATION - A TREASURE TROVE!**

A significant majority of the enterprise's information, about 80 – 85% [1] is in the form of unstructured information according to studies.

Unstructured information evolves with the strategic direction that the enterprise takes. A set of automated processes and workflows must be implemented to normalize this information in to a structure and enable access to this information for the workforce of the enterprise.

## **VARIOUS FORMS OF ENTERPRISE MULTIMEDIA INFORMATION**

The enterprise has the following types of multimedia information available in an unstructured fashion:

- Videos of product demonstrations, training materials, management communication, client testimonials & strategy sessions in the digital format

- Image files of product brochures, working procedures in bitmaps
- Audio files, podcasts of standard operating procedures
- Text content in the form of email communication, process documents, product sales presentations and marketing collaterals.

### WHY MANAGE MULTIMEDIA INFORMATION?

Poor management of multimedia information results in:

#### LOW REUSABILITY OF INFORMATION

The typical unstructured information candidates for re-use are:

- The exchange of emails by the previous product manager in response to a customer complaint
- Sales proposals made for a product to a similar industry vertical
- CEO's communication detailing key enterprise strategies
- Minutes of meeting held for purchase of capital equipment
- Video recording of training sessions
- Knowledge repositories spanning multiple previous experiences.

In most organizations, the information that is contained in the diverse multimedia content is buried under password protected folders, email boxes and are in most cases inaccessible for re-use. The lack of access could be on account of information being stored in silos or due to overload of information available in the central repository.

#### INADEQUATE INFORMATION SECURITY

Most of the organization's key differentiators are

hidden in unstructured information and hence this has to be secured to maintain the competitive edge. Lack of a systematic management process results in the inability to define who is authorized to access what information.

#### LACK OF VERSION CONTROL

In the absence of a central repository, it is difficult to enforce version control mechanisms. for the information. This is due to the evolving nature of unstructured information.

#### LACK OF DATA PROTECTION

When the information is present in multiple silos across the enterprise, they run the risk of being lost in data outage or corruption. When information is localized and owned by individuals, disciplined backup procedures are not rigorously implemented.

#### REDUNDANCY

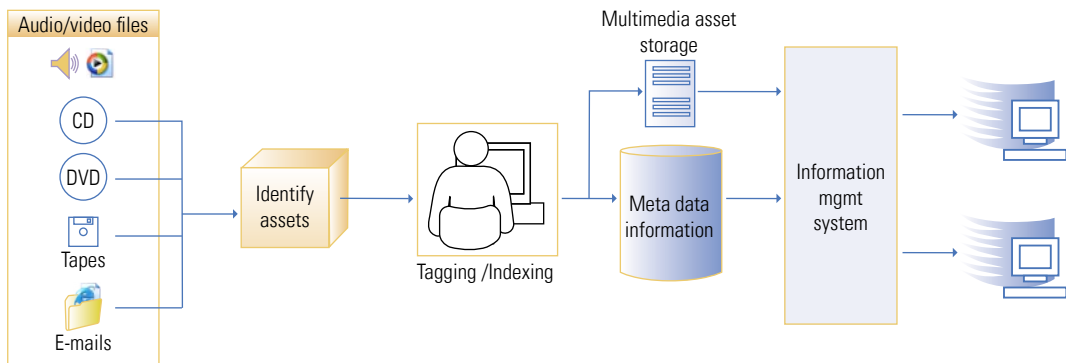
Lack of a central repository will also lead to redundant storage of information across multiple locations.

#### INEFFICIENT SEARCH AND RETRIEVAL OF INFORMATION

Search and retrieval of the relevant information from disparate sources places a huge demand on employee's time and effort. In many cases, the search is inconclusive as the user is not certain if all the possible sources of the information have been exhausted or the search process was exhaustive in itself.

### APPROACH TO MANAGE UNSTRUCTURED INFORMATION

To enable seamless access across the enterprise, agnostic of the storage media and the format, the information has to be digitized, normalized and archived.



**Figure 1:** Multimedia Information Management Process **Source:** Infosys Research

The sequence to achieve this transition is to

- Assetize information
- Digitize the asset (existing in non-digital format)
- Add metadata vocabularies
- Store Information Assets
- Update Tags
- Remove unused assets.

### ASSETIZATION OF INFORMATION

Multitude of information is available within the enterprise. Much of this information can service the future needs of the organization. Thus this digital information is like any physical asset in its ability to provide returns for the enterprise over their long lifespan.

Thus information becomes converted into an asset.

It is obvious that all the information in the enterprise's silos would not qualify to be assets. The identification process lays down a set of governing rules to classify information that could be centralized and reused.

The governing rules would be decided based on:

- Originator of the information
- Strategic needs of the Enterprise

### ■ Type of information

- Client Testimonials
- Customer Feedback
- E-learning materials
- Proposal Presentation
- Marketing Collaterals.

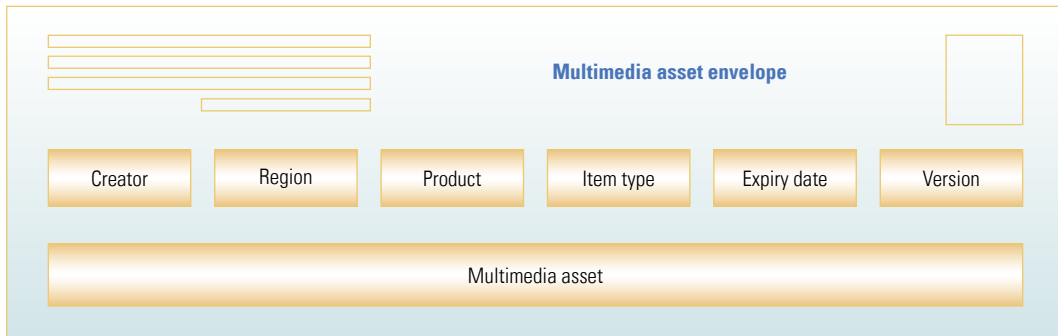
The enterprise should prepare an exhaustive set of rules along the above lines specifying rules to unambiguously ascertain whether the information is to be converted to an asset.

The above list is a suggestive set of items that the organization could seek to manage as an asset. However, the enterprise based on its specific needs could choose to add items other than those mentioned above.

### DIGITIZE THE ASSET (EXISTING IN NON-DIGITAL FORMAT)

Most of the information that is to be converted to information assets is already available in digital format.

However, there are few unstructured assets that are in physical form (documents) or analog (tapes) form. Documents and communications received from statutory authorities and legal communications are typical unstructured information that would need to be digitized.



**Figure 2: Multimedia Asset Envelope**

**Source: Infosys Research**

The process of digitization involves scanning documents and converting them into standardized file formats like PDF. Through OCR readers, the scanned images are converted into machine readable text documents. Many tools are available to do this conversion.

Such digitized documents are amenable to creating of indexes and search.

Digitization enables enterprises to convert the information from the physical form where it is prone to decay and is untenable for search & retrieve.

Digitization is a costly process. Before digitizing any information, the cost-benefit ratio must be estimated as in many cases, the cost of digitizing exceeds the returns.

**ADD METADATA VOCABULARIES**

Once the asset is digitized, it is to be meaningfully marked-up with Meta tags describing the content.

A central, Meta tag managed repository offers the ability to replace older versions with updated newer ones and prevent usage of wrong versions.

Enveloping refers to the process of defining structures for easy search and retrieval of the multimedia content.

The process of creating the envelope

could be automated using a plethora of semantic analytical tools available in the market. These tools would create indexes of the content and facilitate easy search and retrieval. This is useful for converting text based information like emails, presentations etc., and providing easy access

The enterprise needs to put in place a workflow that would add metadata to convert unstructured information into an enveloped asset. This workflow process needs to be mandated for information assets that cannot be indexed by tools. These include information assets like video & clippings where manual metadata need to be added to describe the content through an envelope.

Thus by a combination of indexing tools and a metadata assigning workflow, the information repository is created.

The repository thus created can be employed to overcome all the limitations of information in silos.

**STORE INFORMATION ASSET**

The information asset thus enveloped is ready to be stored in a rights managed information warehouse.

Storage of the digital asset is designed for automated backup redundancies and high availability. The metadata is stored in databases

and the actual rich media content like images and videos are stored in separate repositories with references to the metadata.

The storage databases also have access rights based on the role of the person trying to access the asset and the access permissions for the role described by the metadata.

Thus the storage allows rights administered access to the enterprise's information assets through out the organization through a central repository.

### UPDATE TAGS

As digital assets get used, ratings regarding the relevance of the asset to the present needs of the organization and the accuracy of the metadata in describing the asset it envelopes are assigned. Over time, as usage of asset and the rating of its relevancy mature, the most useful digital assets would be available to be employed for many of the immediate needs.

The updation of metadata for relevance is one of the significant steps in replacing information deluge with information availability.

### REMOVE ASSETS

As the organizations mature, business models and product portfolio changes, the digital assets that are addressing the outdated activities of the enterprise need to be weeded out. This reduces the storage needs in the organization and overload of information.

The items for removal from the information repository could be identified by metadata search for discontinued products or businesses and by low rating in the user feedback for asset effectiveness.

By this process of continuous addition and updation, the value of an information asset keeps improving and is made easy to access and use.

S.No.	Challenge	Solution
01	Low reuse of Information	Centralized repository with definition envelopes
02	Inadequate Information Security	Rights Management
03	Lack of Version control	Version metadata
04	Lack of Data Protection	Centralized repository with systematic backup
05	Redundancy	Centralized repository
06	Inefficient Search and Retrieval of Information	Enveloping, Indexing

**Table 1:** Enterprise Information Management Solution Map

**Source:** Infosys Research

## IMPLEMENTATION OF MULTIMEDIA INFORMATION MANAGEMENT

Solutions like Digital Asset Management (DAM) and Digital Rights Management (DRM) already exist for managing Multimedia information. But the cost of implementing a DAM and DRM solution will have to be carefully weighed. It should be deployed selectively depending on the scale of the assets.

DAM / DRM solutions can be cost-effective once the information needs of the enterprise explode.

The Enterprise Information management solution map (Table 1) gives an overview of the various challenges in managing multimedia information and how these can be addressed.

## CONCLUSION

Creation of multimedia information by organizations is increasing day by day. Most of the information that individuals in the organization are looking for are buried within the organization. This results in "re-inventing the wheel" scenarios across the organization.

Enormous information of strategic value is lost due to a lack of a management system


over this unstructured content. Implementing a management solution over this unstructured information provides enormous benefits to the organization apart from fostering a knowledge sharing culture in the organization.

The collective knowledge of the enterprise can be deployed to shorter turn-around times to market challenges.

This approach follows a process of assetization, indexing and enveloping. The key challenges in such a deployment are the ability to identify the assets, enforcement of rules used for enveloping the assets.

The end state of this information management system is a systematic, robust, scalable architecture for providing easier, faster access to the information that an individual is looking for.

## REFERENCES

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