

Managing Metadata



...and improving your workflow.



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Metadata - are you keeping up?

You and your customers will soon need to exploit metadata – and you need to prepare now.

The business pressure to streamline processes and, at the same time, maintain quality of content is increasing. To complicate matters, the desire to increase revenue has many organizations exploring new ways to deliver content to their customers – but it is not clear which will be the most compelling or which will be most profitable. This is why everyone is talking about metadata and why many big players are starting to exploit it.

Not another thing to worry about?

As if there isn't enough to worry about, just keeping today's business afloat. But there are continuous pressures to change, which are almost impossible to resist.

To start with, the bandwidth of delivery channels is increasing, making high definition easier to deliver. At the consumer's end, the quality of wide screen display devices is going up and prices are falling. The mixture of high definition, standard definition, broadband and mobile delivery channels is growing more complicated and steadily increasing – and this is a factor over which we have no control.

This all increases the pressure on processes for faster speed, more flexible workflows and maximised reuse of content. To achieve this, many organizations are turning to file based storage and transfer of content. In most cases, these changes are not introduced just for the sake of a new technology. They are driven by the need for new business models and once these plans are implemented, many aspects of managing the content becomes easier.

Of course, it is important to remember that everyone is in the same situation. Decisions are being based on the best information available at the present – and no-one has all the right answers. We are trying to anticipate what direction our industry will take and prepare accordingly, so that we stay in business. For example, a huge amount has been written about how income could be generated by selling content to hand held devices and mobile phones, but today we do not know what the actual take up of this will be. However, any organisation that does not consider this sort of subject runs the risk of being left behind.

The range of program types

Organizations often have to handle a broad range of content type. At one extreme will be high quality drama or natural history programs which have a high re-use and resale value and justify a high cost per hour in their production.

At the other extreme will be fast turnaround programs with a much lower budget and shelf life which could include, for example, some specialist documentary programs.

Programs where there is an urgency for delivery, such as news and sport can capitalize quick, efficient content delivery. The 30 second clip of that really important goal could be a significant revenue source if it can be delivered to the phones of keen supporters!

The range of program types (cont'd)

Alternatively, looking instead at the possible customer base – teenagers, who embrace new technology, are a perfect audience if we can identify content that interests them.

So whether it is the “hand carved” or “factory television” approach that is used, efficiency and cost effectiveness are vital. Effective management of both the content and the processes is key to a company’s success and survival.

The subject of metadata and the help it can bring has been discussed by content owners and product manufacturers for some years in standards committees. However, for many people it is still a new subject. They may have heard the term used by others but have not yet considered the benefits.

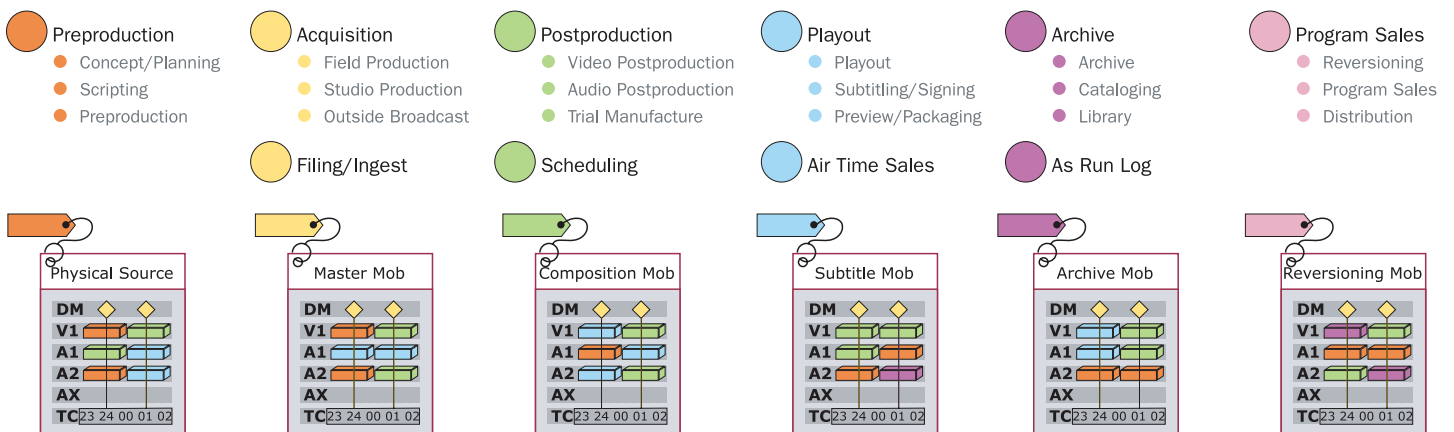
Why metadata?

The idea is very simple. Metadata is data about the data in the file. It is a set of items of information that describes all the important aspects of the content.

For example, in the case of a location shoot it may include the name of the producer, cameraman and creative personnel involved. Program descriptors such as the working title, transmission title, commissioning editor, transmission date and channel will also be added at some stage. Technical information will be included, like the aspect ratio, video compression scheme, number of audio channels plus multi-language voice-overs or subtitles.

When you consider all the aspects of a piece of content, bearing in mind that it might be destined for delivery to high definition, standard definition, commercial and non-commercial channels, internet, mobile devices, DVD, audio books, clip sales and paper publication with different rights to use for each, it not difficult to total over 100 labels. Once you think about the information required for high quality archiving, the numbers can easily double again.

Metadata in the Program Chain



What should I think about?

So you have planned an end to end, file based system. At what points do you need to consider the metadata?

Let's first consider the program planning stage. Today there are lots of Word documents and Excel spread sheets to describe vital parts of the program. These usually end up crammed into filing systems which are understood only by the administrator and lose value as soon as the production team move to the next project. But the background work has cost a huge amount of money.

Once in the studio or on location, whether it is drama, sport or news, information continues to accumulate in hand written notes and on computers and palm devices.

At the edit, archive or purchased material might also be incorporated and now we realise that we can benefit from using metadata that someone else has generated. The emergence of MXF (and AAF) has been the result of a lot of planning by many manufacturers and content owners to create a new flexible interchange standard. So it is possible to see the pictures and listen to the sound because this has been tightly defined and it is possible to safely mix products from different manufacturers. But it has become very clear that no organisation wants exactly the same metadata as another.

The ability to extract metadata from an MXF or AAF file and compare it against your own requirements is a vital part of ensuring that you can handle the material properly. Equally, the way in which the metadata is packaged with the essence means that nothing ever needs to be thrown away. (So that when that program about elephants has been recorded, edited, transmitted and archived, the name of the local guide in the nature reserve is still kept with the material – and it can be found when his skills are needed next time.) As well as reading existing metadata, each stage needs to bundle new information before passing it on to the next stage.

Equally it is vital to ensure that the HD, SD, 16x9, 14x9, 4x3 versions are all directed to the correct channels along with their (multi-language?) stereo (surround?) sound with subtitles. And that is before you consider the broadband and mobile distribution!

In other words, from the very first stages, there is important information to monitor so that you can be confident that the whole process remains on track. However, the chain of steps that content has to pass through varies widely across the industry. So how do you implement a system that works for your organisation and your business?

How do I start my planning?

This is not difficult, although it can appear daunting at the start. If you have decided where you are going to employ MXF or AAF file transfer, an audit of the labels that you need for the program and those processes is sufficient. This is the beginning of your organisation's schema, which defines how your metadata is organised.

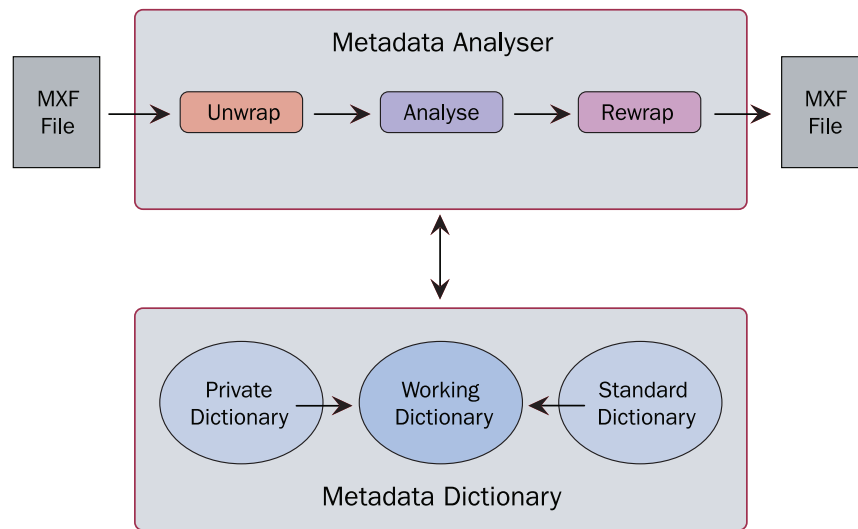
One of the benefits of the past investment by standards organizations is that a basic framework already exists. There is already a standard SMPTE metadata dictionary that can be referenced by anyone. To this end, it is easy to add any metadata keys that are specific to your own company and immediately you have a complete framework that perfectly fits your needs. You may have heard of the Descriptive Metadata Scheme 1 (DMS-1) which is very good start, but not sufficient for many user's needs. However, this is already included within the SMPTE dictionary.

How do I start my planning? (cont'd)

Thus it is easy to start modestly, with one specific project, or on a large scale and learn as you go. This makes it very easy to get one foot on the bottom rung of the metadata ladder. It is vital to bear in mind that no-one knows your organisation as well as its staff. There is no “one size fits all” solution. What suits you today may not suit you next year (or even next month) when you have learned the effect of tomorrow’s development and adjusted your plans based on this knowledge. A sensible choice of solution must allow your metadata to grow and evolve along with your business.

You can explore the potential of metadata management with a single operator system. Once you have defined your needs and have multiple users, a corporate scale system is appropriate and for organizations that are large or operating on several sites, there are hierarchical architectures.

The tools already exist to allow metadata in an MXF file to be extracted, checked, added to and rewrapped back into the MXF file. This can be done at any stage in the “production” process and many manufacturers are building this functionality into their products so that they can also exploit metadata to design the most innovative products.



None of these are difficult to implement. You merely need to know what you want to achieve.

The number of manufacturers whose equipment can accept and generate MXF or AAF files is growing rapidly. They will also be exploiting metadata, sometimes yours and sometimes their own, to control the processes in that equipment.

Where in the production process should I be concerned about metadata?

Eventually metadata will be present from the beginning to the end of the content creation and management chain.

Some of things you might consider are:

- Capture factual information at the planning / storyboarding stage.
- Be confident that metadata created at the shooting stage is present and correct.

Where in the production process should I be concerned about metadata? (cont'd)

- Add any important metadata (if it not already present) at the point of ingest to a storage system.
- Check that content provided from outside of your organisation has metadata that is present and correct.
- Be certain that content which is filed for transmission has exactly the right metadata for playout to the correct destination with the correct components, pictures, sound, subtitles, etc.
- Ensure at the point of archiving that all metadata is added to allow full and complete searching for easy retrieval and resale or repurposing.

You can start simply and capture any metadata that is relevant. Don't make it unnecessarily complex. This will enable you to start cost effectively and expand in the direction that you want at the speed that you want. As I mentioned above, no-one has all the right answers, so you also need a solution that allows you to change direction easily when circumstances require it. Then you have a technology solution that can be driven by your business model and you have minimised both the technical and financial risk.

From where you are today, you may not be able to see the top of the metadata ladder but....go on, take the first step up!

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