# The Future is Automated

The landscape ahead for M+E looks uncertain. Automation can ease the journey.

## WORKFLOWS AND THE CLOUD

From cloud-based productions to unprecedented storage demands, the supply chain has never been more challenging

## SMART CONTENT

The questions around AI, metadata, and analytics are endless. But we do have many of the answers already

## SECURITY SOLUTIONS:

Cybersecurity and content protection in M&E is always on defense. Can automation can change that?
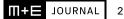
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# AUTOMATING A UNIFIED METADATA REPOSITORY

**Why automation? Operational efficiency. Effective workflow orchestration. Lower costs**

**ABSTRACT:** Automation is a key component of the media industry's use of digital workflows, particularly those in the cloud. Processes are being automated at every step of the supply chain. Whether in post-production or content distribution, automation and orchestration of data workflows create operational efficiencies. Video delivery providers still require greater automation in processing and managing the metadata that is crucial for their efforts to manage, promote, monetize, and deliver video content.

By Peggy Dau, Marketing Director, MetaBroadcast

If there is one thing we know, it's that delivering video to consumers requires an integrated supply chain of technologies. Each technology addresses a unique requirement in the overall workflow. From content packaging to rights management to content distribution, technology continues to evolve. With the adoption of digital workflows and the migration of those workflows to the cloud, the focus is now on automation.

Why automation? Operational efficiency. Effective workflow orchestration. Lower costs. Ability for humans to focus on more complex issues rather than repetitive mundane tasks. Automation in media workflows establishes rules for what, when and how tasks are

**THE KEY OBJECTIVE IN AUTOMATING METADATA MANAGEMENT** is to help video service providers promote their content and engage consumers. The future will advance existing levels of automation through adoption of machine learning to improve content matching, hierarchy healing and genre classification.

performed. By visualizing the end-to-end workflow, identifying interdependencies, and understanding parallel processes we can create more effective and more efficient workflows.

Examples of automation have existed in the media space for decades. We have all used the VCR or DVR to record our favorite programs. In this case, the rules require a combination of date, time, and channel to trigger an action, the recording, to take place. While this now seems quite simplistic, this type of automation is the precursor to today's love affair with video-on-demand services.

With increased demand for operational efficiencies, the media sector has adopted many levels of automation. The cloud enables automated IT centric processes such as CPU provisioning while on-premise automations include file migration across storage tiers. Automated media centric operations include establishing encoding quality levels, asset tagging and speech-to-text transcriptions.

One of the biggest challenges across the media supply chain is still metadata. Metadata is present at every stage of the media supply chain. As content is created, technical metadata is captured and associated with the resulting file(s). As the assets are edited and transformed, additional metadata is added to the file. The importance of metadata shifts within each stage of the supply chain. During post-production it is a necessity for retrieving, editing, and storing relevant files, particularly with increased adoption of cloud-based workflows. Many tools exist to automate the edit workflow itself. Artificial intelligence-based solutions are now facilitating the creation of scene specific descriptive metadata.

When content is ready to be delivered to consumers, automation simplifies metadata ingest by broadcasters and streaming providers. APIs automate the transfer of data files with predefined fields from source to destination. However, this is not enough. Once service providers have acquired the data, it must be reviewed for completeness, quality, and adherence to defined metadata schemas. High quality descriptive metadata is critical to the long-term value of those services delivered by broadcasters and streaming providers.
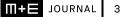
Video service providers need data that helps consumers identify programs they want to watch. For example, car aficionados may want to watch movies with classic cars. Details about the specific cars will have been captured during the post-production process and reside in a MAM or DAM. This is the data that will drive enhanced personalization. Service providers will seek platforms which are leveraging algorithms to identify the necessary descriptive fields and which are using APIs to manage data transfer.

This use case reinforces the existing challenge of unifying metadata from multiple sources. For example, scheduling data may come from one source while synopses, cast and crew data, images or deep links will come from others. At a minimum, the collation of metadata from different sources into a single source of truth for the organization creates a challenge related to mapping Content IDs. Automation is the solution for addressing this challenge and others.

As media owners pursue various delivery models (e.g., linear, on-demand, FAST or other video delivery models yet to be defined), they face challenges of managing the different types of metadata required by each of these services. Video service providers know they have siloed data residing in various internal platforms. Automation is the key to helping them efficiently consolidate and cleanse internal data and create a unified metadata repository to support any delivery platform.

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Yet, consolidating internal data is just the tip of the iceberg. They seek external data to enrich their current databases while acknowledging the limitation that not all platforms allow ingest from multiple sources. Cloud-based metadata management provides the tools to aggregate and manage data from multiple sources. Tasks are automated to accelerate the processing and delivery of high-quality metadata — all aligned to the data schema defined by each video service provider.

Cloud-based metadata management platforms, such as Meta-Broadcast's Atlas, use APIs to manage file ingest, and automate processes to consolidate, cleanse and map data into a unified metadata repository. Algorithms automatically resolve and/or link content IDs, while de-duplicating data. Incomplete or inaccurate files are identified, and new processes are initiated to heal these files.

Workflow orchestration governs these event driven processes. By loosely coupling a series of events, a video service provider gains flexibility to introduce new service features without impacting existing ones. Orchestration also defines dependencies between automated and manual tasks, automatically monitoring progress and providing alerts to trigger required tasks.

The future of automation lies in machine learning and artificial intelligence. Examples of machine learning today are evident in Amazon Prime Video's ability to identify actor names in real-time, while streaming a program or movie. This capability, called X-Ray, uses the Amazon Rekognition API to automate image recognition, leveraging the IMDb database and machine learning models.

The key objective in automating metadata management is to help video service providers promote their content and engage consumers. The future will advance existing levels of automation through adoption of machine learning to improve content matching, hierarchy