

white paper

# EIGHT TRAPS TO AVOID BEFORE STARTING YOUR AI PROJECT

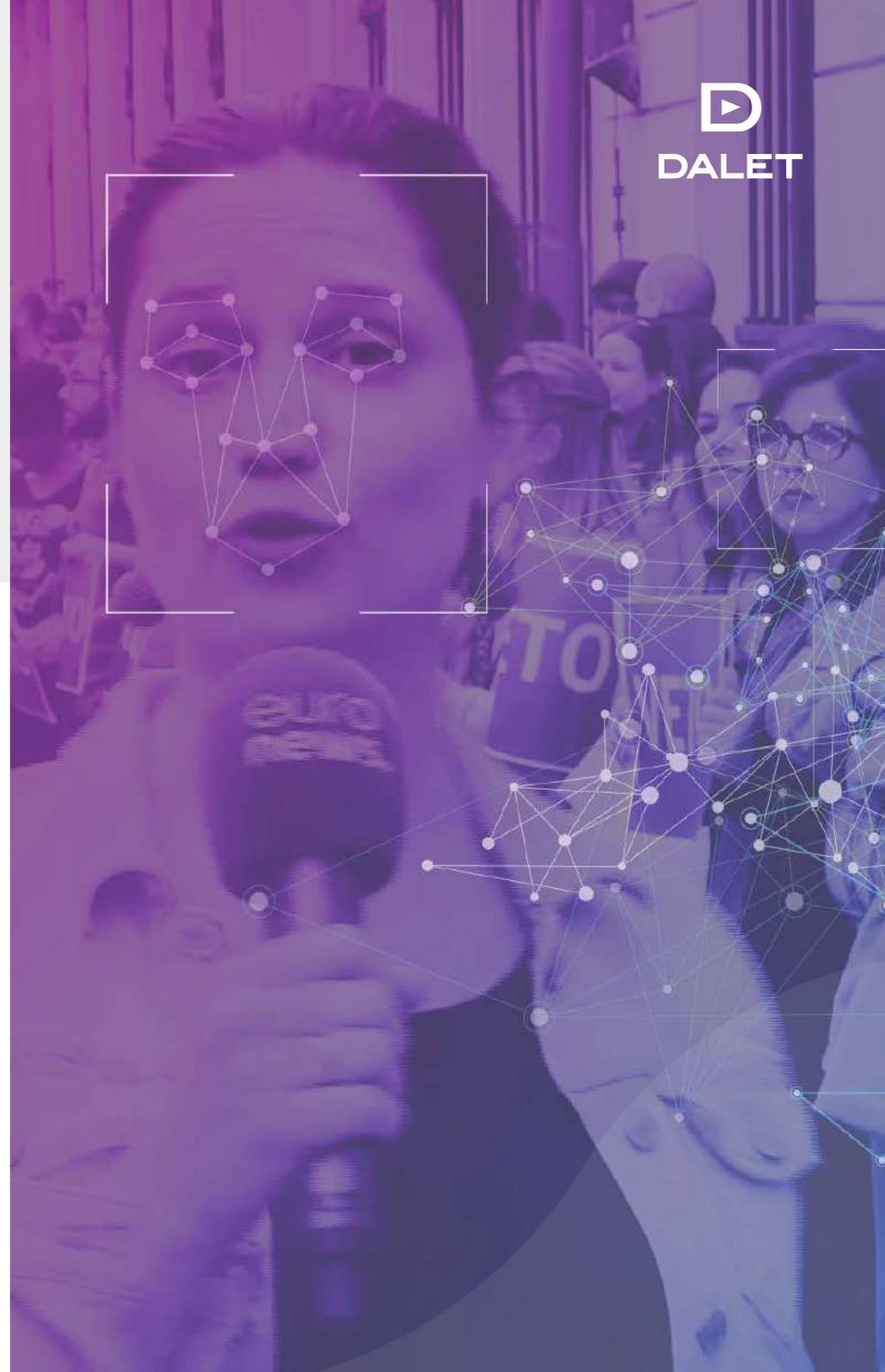
A focus on editorial and production news workflows



DALET

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# THE AUTHORS



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Head of R&D and Co-Founder, Dalet

**Michael Elhadad** is a co-founder of Dalet and serves as a Member of the Management Board and Director. Mr. Elhadad has been Director of Research & Development of the group since 1996. Mr. Elhadad graduated from Ecole Centrale de Paris and has a PhD in Artificial Intelligence from Columbia University. He is the author of over 50 papers on Artificial Intelligence and Computational Linguistics.



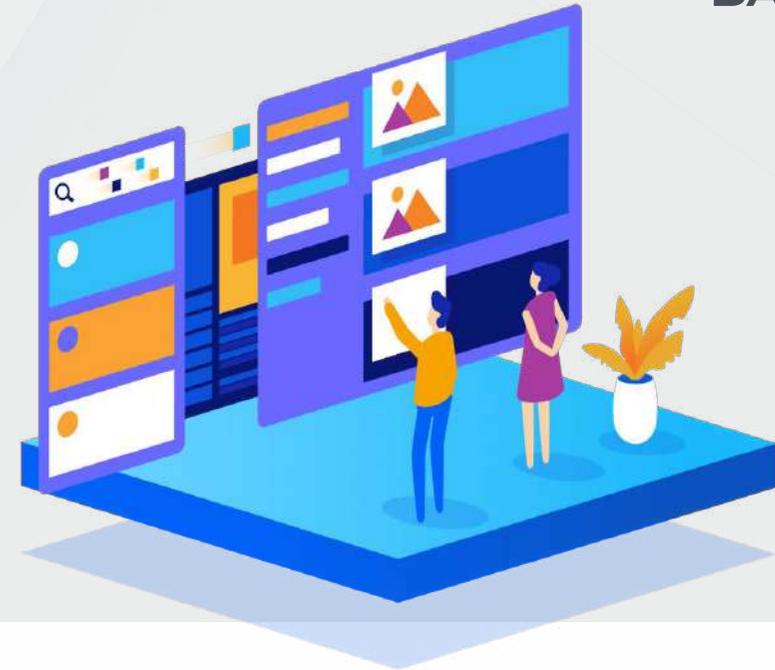
## RAOUL COSPEN

Market Director - News, Dalet

**Raoul Cospen** is a Dalet pioneer, who played an integral role in driving the transformation to IT-based, fully integrated newsrooms for the past two decades. He has always felt passionate about being at the heart of newsroom operations, a passion that has driven his vision across multiple roles at Dalet. In his current role as News Market Director, Raoul is responsible for leading the development of Dalet's solutions for news, sports and fast-paced production workflows, including the implementation of AI-driven tools.



# THE RISE OF AI IN THE MEDIA INDUSTRY



Few corners of any industry will be left untouched by machine learning (ML) and artificial intelligence (AI), but in media the highly programmatic activities surrounding the recording, processing and purposing of information make the appliance of cognitive science particularly suitable.

Indeed AI/ML technology is swiftly moving into practical use across media production workflows and into the heart of content creation.

Its introduction could not be more timely – particularly in the newsroom. The exponential growth of content to be acquired, managed, produced and monetized is a massive challenge.

Most news organizations are drinking from the fire hose but AI has the potential to turn data into action and solve inefficiencies through automation and a new generation of “augmented” user tools.

**AI/ML technology is swiftly moving into practical use across media production workflows**

# THE ADVANTAGE

## AI/ML PROMISES THESE IMMEDIATE BENEFITS TO MEDIA WORKFLOWS

### TO MAKE YOUR ARCHIVE DISCOVERABLE:

The more you know about your content, the more value you can derive from it. With more insights on the content, AI will facilitate your Search work and feed more accurate results back to journalists. Meanwhile, Discovery Search will help you surface compelling content that could not be found before.

### TO INCREASE OPERATIONAL EFFICIENCY:

Refined search is just one part of the equation. AI/ML reduces operational time spent on indexing, searching and producing content at the same time as automating key processes, such as tagging hours of live content, and transcribing text for subtitles.



### TO AUGMENT THE USER EXPERIENCE:

One of the most important factors in bringing AI to your teams is great usability. With potentially vast volumes of AI-generated information, you need to think carefully about how this data is incorporated into user tools so it becomes a benefit not a liability.

Data should be integrated fluently into the user's tools and displayed in an understandable, contextual manner. Insights, recommendations, notifications, alerts, analytics ... all need to be intuitively presented as part of the user experience.

# SAVE YOUR SUBTITLING HOURS



CAPTIONING  
1 MINUTE OF VIDEO  
**TAKES AN AVERAGE OF  
6 MINUTES**

Most out-of-the-box, speech-to-text engines, such as the one of Speechmatics, Google, or Microsoft will provide an excellent transcript, but correctly lining up and timing captions with respect to broadcast standards (refer to [BBC Subtitle Guidelines](#))

**WILL TAKE YOU ABOUT  
2 MINUTES**

Dalet Media Cortex adds an additional layer of caption processing, so that

**THE ENTIRE PROCESS TAKES  
JUST 1 MINUTE.**



**WITH SUBTITLING  
AND CAPTIONING, AI  
WILL SAVE 50% TO  
80% OF YOUR TIME**

Learn more

# TAKE A REAL-CASE SCENARIO



I have been assigned a story about the eruption of the Mount Agung volcano in Bali having severe impact on air traffic. As I start typing my story based on received wires, I can use [Dalet Media Cortex](#) - an AI service platform that leverages cognitive services for content operations - automatically analyses my script to extract its context. Dalet Media Cortex provides a recommendations\* side-panel to review previously covered stories on a similar topic to help guide your editorial, such as the Eyjafjallajökull eruption, blocking air traffic in 2010.

It will also bring up the contact details of volcano expert, David Pyle at the University of Oxford in Britain, with whom we spoke before. In other words, Dalet Media Cortex will save you hours of searching for relevant past content and information sources through automatic AI discovery and recommendation.

As a reporter, I'll also be able to see if anyone else in the team is working on this story, either locally or in a remote office, so we can avoid overlaps.

Whereas standard AI technology is powering these workflows, Dalet Media Cortex has been carefully fine-tuned to meet the specific needs of news production environments.

**THE BENEFITS?**  
**TO FIND RELEVANT CONTENT QUICKLY AND EASILY AND CREATE AND DELIVER RICHER, MORE ENGAGING STORYTELLING.**

\*See all Dalet Media Cortex features [here](#).  
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# THE TECHNOLOGY

There are many great tools offered by AI technology providers. The most robust of these enhance media-centric workflows by orchestrating the combinations of three different approaches:

1. COGNITIVE SERVICES

2. RECOMMENDATION SERVICES

3. PREDICTIVE ANALYTICS





## 1. Cognitive Services

Cognitive services provide metadata enrichment using definable media content analysis, metadata extraction and presentation in a user-friendly form-factor.

The primary AI/ML tools are Computer Vision, Speech to Text and Natural Language Processing.



## 2. Recommendation Services

Recommendation services use enhanced, Cognitive Services-generated metadata, combined with human-generated input in order to provide contextual content to user.



## 3. Predictive Analytics

Predictive analytics leverage historical, data-based metrics from operational workflows and technical results in order to predict (and optimize) the operational and technical behaviour of the underlying platform.



**No AI tool exists in isolation.  
Any benefit will only be derived on  
application to particular datasets  
and in harmony with an organization's  
media management workflows.**

## INTEGRATION WITH YOUR MAM OR NRCS

A platform to connect best-of-breed technologies offering functions such as speech-to-text, computer vision, NLP and recommendation algorithms can deliver the flexibility that your organization needs, but only on the condition that it is well integrated with your day-to-day newsroom tools, such as your MAM, NRCS and content archive.

Dalet Media Cortex, provides a feature-rich transcript/caption editor including search corrections and translation. It also introduces productivity features to cut and annotate raw material based on transcripts - accelerating the editorial process.

**News content, for example, might need a good quality speech-to-text transcript, people identification or OCR\* of graphics.**

*\*Optical Character Recognition*

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# DON'T UNDERESTIMATE MEDIA INDEXING COSTS

One of the main undetermined costs of AI is media indexing. Depending on the extent of your archive and the requirements of your application, indexing databases can run from several hundred thousand dollars into the millions of dollars - something that most organizations cannot afford.

For example, when you need to index tens of thousands of hours of content coming from an archive you will encounter sequences with black frames, non-moving pictures, footage with no audio or no speech. It represents unnecessary cost and time to index this content with a high-end, fully featured video indexing engine.

In this situation, contextual selection of the best algorithm for the job will deliver better metadata quality for a lower cost. Remember, the cost of AI engines can vary greatly from very expensive to affordable. Running your entire archive through an intelligent video indexer, for example, will be costly, perhaps prohibitively so.

The key to success is to have the ability to combine the right mix of AI models for a given content type and outcome expected.



**Dalet Media Cortex orchestrates the use of multiple engines, so before doing the expensive, fully featured computer vision pass, it runs through cheaper processes first and makes automated decisions based on results.**

**Dalet's system obviates unnecessarily high cost by handling this process as a SaaS solution with very specific media knowledge.**



## UNLOCKING VALUE

When looking at the technology capabilities, there are two key enablers to unlock the value of AI for media operations:

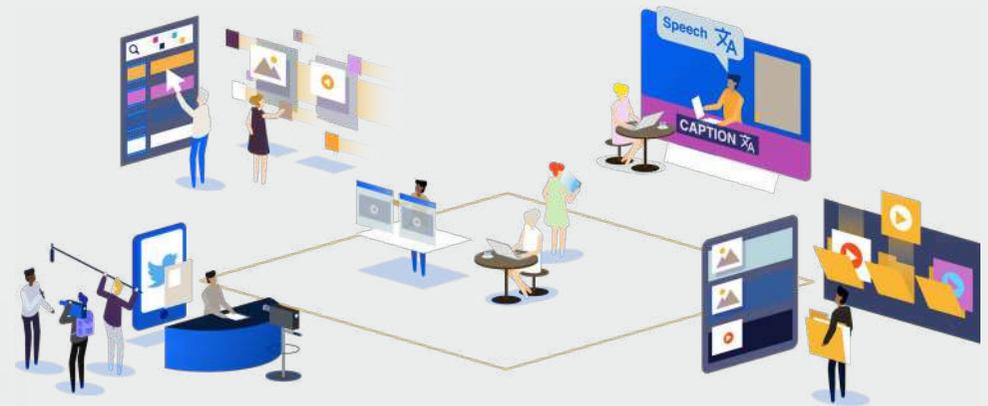
1. The ability to aggregate / orchestrate multiple AI technologies, in order to create the optimal metadata for your needs. There is not one single technology that will deliver value. The value comes from the integration of different technologies and embedding them tightly into your day-to-day operations.

With Dalet Media Cortex for instance, we tested multiple engines to extract key-words and key-phrases. We found out that different technologies were providing poor or good results depending on the length of a story text or a transcript.

2. The ability to provide intuitive AI-driven user interfaces which combine machine and human intelligence. Since most of the value will lie in augmenting the user experience, this means combining ML with human intelligence to do things that couldn't be done before.

# 1 VALUE COMES FROM INTEGRATION

No single AI technology is sufficient today. Orchestrate multiple AI techniques and integrate them into your day-to-day business.



# 2 AUGMENT YOUR USERS' WORK

Combine human and artificial intelligence for greater value

# THE TRAPS

THE AI INDUSTRY IS NASCENT, ADVANCING RAPIDLY AND CHANGING ALL THE TIME. HERE ARE EIGHT PITFALLS YOU MIGHT ENCOUNTER AND HOW TO AVOID THEM

## BUYER BEWARE

Walk around a trade show or search online and almost every media technology product carries an AI/ML badge. That's not to say there aren't genuine AI/ML engines, databases and APIs on the market but consider what it would take to integrate their AI technology into your existing systems and workflows before committing.

With multiple AI engines and models available, do you have the resources to evaluate the market? Would you be integrating the AI in-house and what expertise does this require? If being able to exchange one AI engine for another is important to you, how easy will it be to switch without impacting production? What assurances do you have that the provider will update the AI and release APIs for future upgrades?

A SaaS (Software as a Service) offering on the other hand requires a low initial investment to enable any media organization to get immediate business value from AI with integration maintained by the vendor and without having the complexity of service management.

What's more, you can take advantage of the business agility in working with best-in-class AI engines without disrupting your production workflows.



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**WITH DALET MEDIA CORTEX  
YOU SAVE ON MAINTENANCE,  
INTEGRATION AND OPERATIONS.**

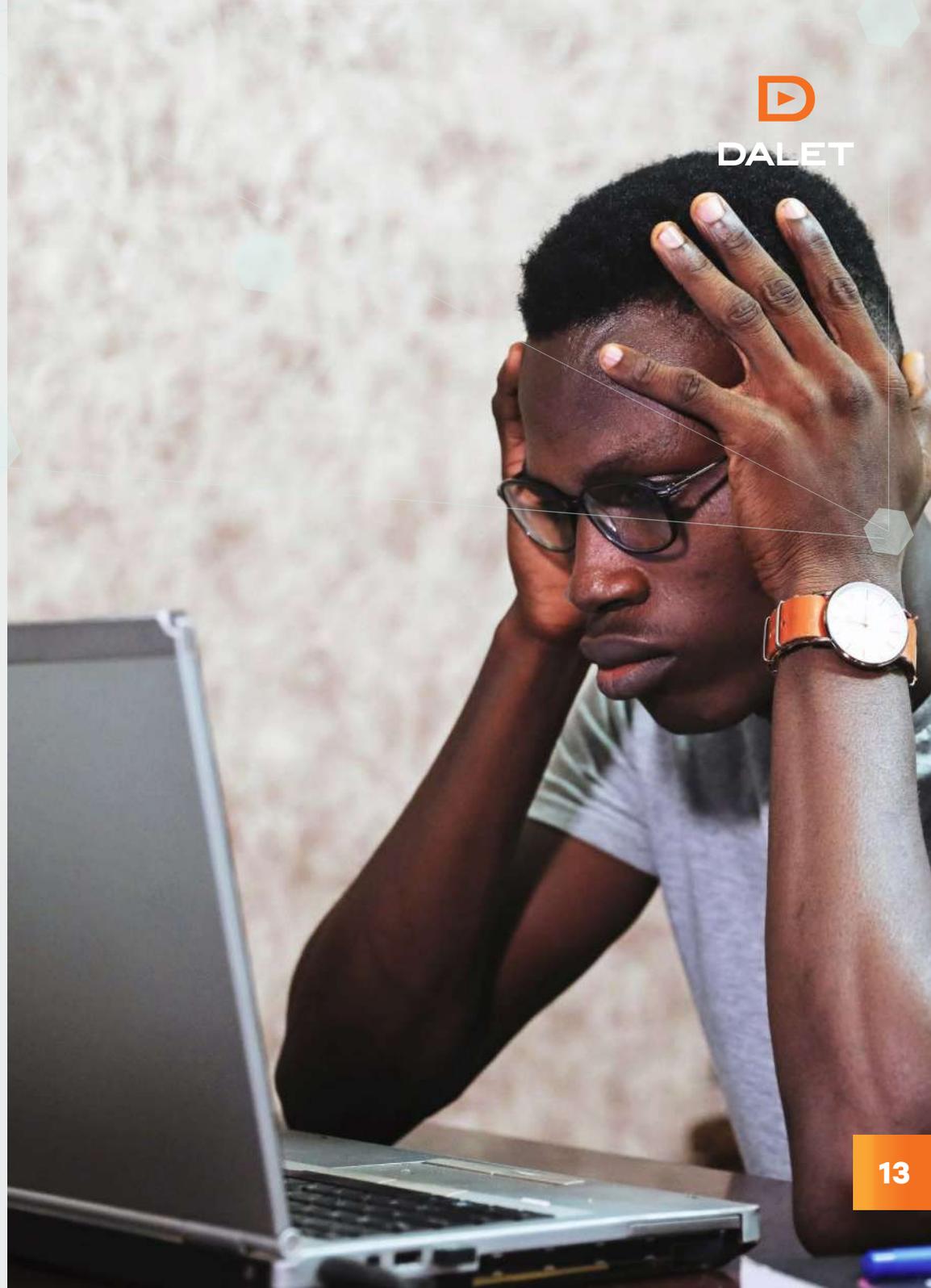
## DON'T POLLUTE YOUR MAM

AI engines can produce a lot of useful data - and a lot of useless data. Metadata generated by general purpose engines frequently contains large volumes of redundant (not relevant, ill-formatted) information that might pollute your MAM environment.

No AI engine or model is perfect. All models are either very generic or require heavy and expensive upfront training. But certain platforms are provisioned with the ability to implement Machine Learning through simple user input. In other words, they facilitate continuous improvements to the models through user feedback.

Data should be filtered so as not to pollute the database. At the same time, you might also want a system that retains the raw data in the background to be used in adjacent or future AI applications.

**DALET MEDIA CORTEX  
PROVIDES YOU WITH A  
CONFIGURABLE LAYER OF  
FILTERING WHILE KEEPING THE  
ORIGINAL DATA.**



## DON'T LOSE METADATA

What guarantee do you have that once metadata has been generated, be that asset level metadata or timecoded metadata, this will never be lost?

The advantage of an asset management solution that maintains and inherits metadata throughout any media manipulation (transcodes, extracts, partial restores or even through an editing process) is that metadata is treated as a valuable asset and does not need to be recreated (and corrected) multiple times. This drastically reduces the cost of running cognitive services on your content.

### CONSIDER:

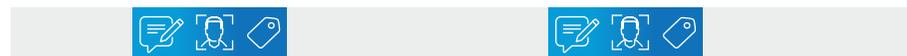
1. Do you want to keep the raw data for later use?
2. As you reuse assets that are already indexed, you need to make sure that the AI tags flow with every version and every edit. Doing otherwise will cost you a lot of money. Tracking and retaining the genealogy of metadata across your workflows is the job of the MAM.

**BOTH DALET GALAXY FIVE AND OYALA FLEX MEDIA PLATFORM SUPPORT PARENT/CHILD RELATIONSHIPS WITH INHERITANCE OF AI METADATA AVOIDING DUPLICATE INDEXATION.**

## TIPS

With news production, you want to index your rushes to easily access the interview transcript and facilitate shot selection. When you edit your finished piece, you want the AI-generated data to travel through to the end result, so you don't have to reindex again.

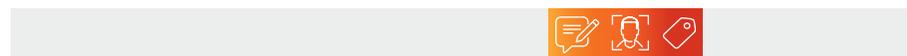
### Source A



### Source B



### Source C



### Result



Parent/Child relationships and metadata propagate through editing. This avoids re-indexation of your edited content, saving you valuable time and money.

## DON'T SEPARATE PRODUCTION TOOLS FROM MACHINE LEARNING

For accurate results, AI models need to be properly documented. How am I going to recognize these new faces that are now part of the daily news? How can I enrich my speech-to-text vocabulary with new terms such as new companies, new names?

## YOU CAN EITHER:

HAVE TWO SEPARATE INTERFACES - ONE FOR THE AI MODELS AND ONE FOR THE SPECIFIC PRODUCTION

**OR**

**INCORPORATE MACHINE LEARNING AS AN INTEGRAL PART OF THE PRODUCTION WORKFLOW**

- you increase the quality of the essential curation job performed by the production team, which has the best knowledge on how to do it.
- your curation tasks are systematically completed, and benefit the entire organization.

**IN OTHER WORDS, YOU DO THE JOB BETTER, FASTER AND MORE ACCURATELY.**



## USERS NEED TO BE IN CONTROL

AI/ML should not become a silo or a diversion. To achieve maximum efficiencies and also to enhance collaboration, AI/ML should be integral to the everyday production workflow. AI's real power is helping to reimagine business by augmenting, not replacing, human capabilities.

For example, as a journalist types their story, they are presented with media, of all types or formats, in a fully automated manner that is relevant to the context of the story. They can then very easily decide to either discard these recommendations or use them in any operation, for instance adding them to a bin or project, associating them with a story or submitting them to an editor for review.

Equally as easily, if the journalist wants to add a facial recognition search or a new word to the search vocabulary they shouldn't have to ask another member of the team to do it. It should be intuitive from the toolset they are presented with.

Incorporating AI transparently into the workflow in this way also benefits the AI by continuously training and adapting the model to your domain of application. This virtuous circle requires experts in each media field – in other words, your very own users – actively performing the correct feedback loops that will fine-tune the models to better augment and enrich your most essential data sets. If you try and perform this task outside of the production process, prepare for huge expense. Constant and rigorous fine-tuning needs to be a fluid activity embedded in the normal, everyday workflow.

The Dalet Media Cortex Discovery Panel provides full control to journalists on given recommendations. By activating and deactivating keywords, by adjusting their weight and filtering the recommended results, results are not only relevant but the **reporter has total control.**

## DATA ALIGNMENT ERRORS

When you are using multiple AI engines you must make sure that elements like your named entities, topics, and key phrases are consistent across all your datasets otherwise errors will creep in. What's more, datasets gathered from your AI models need to precisely align with the taxonomy of your complete library. The way to ensure consistency and quality in data is through Natural Language Processing (NLP) techniques. NLP functionality aligns data coming from different AI engines with your own data model and knowledge graphs such as the ones from Bing or Google.

For instance, you need to make sure that 'Leonardo di Caprio' is the same person everywhere - in your MAM, in Microsoft Video Indexer, in AWS, in Google, in your knowledge graph and everywhere else. This way, AI-generated data is well documented and context is shared throughout the system. Comprehensive intelligent services will perform most of these essential Data Alignment tasks for you including formatting the metadata in a way that makes it easy to use within standard workflows.

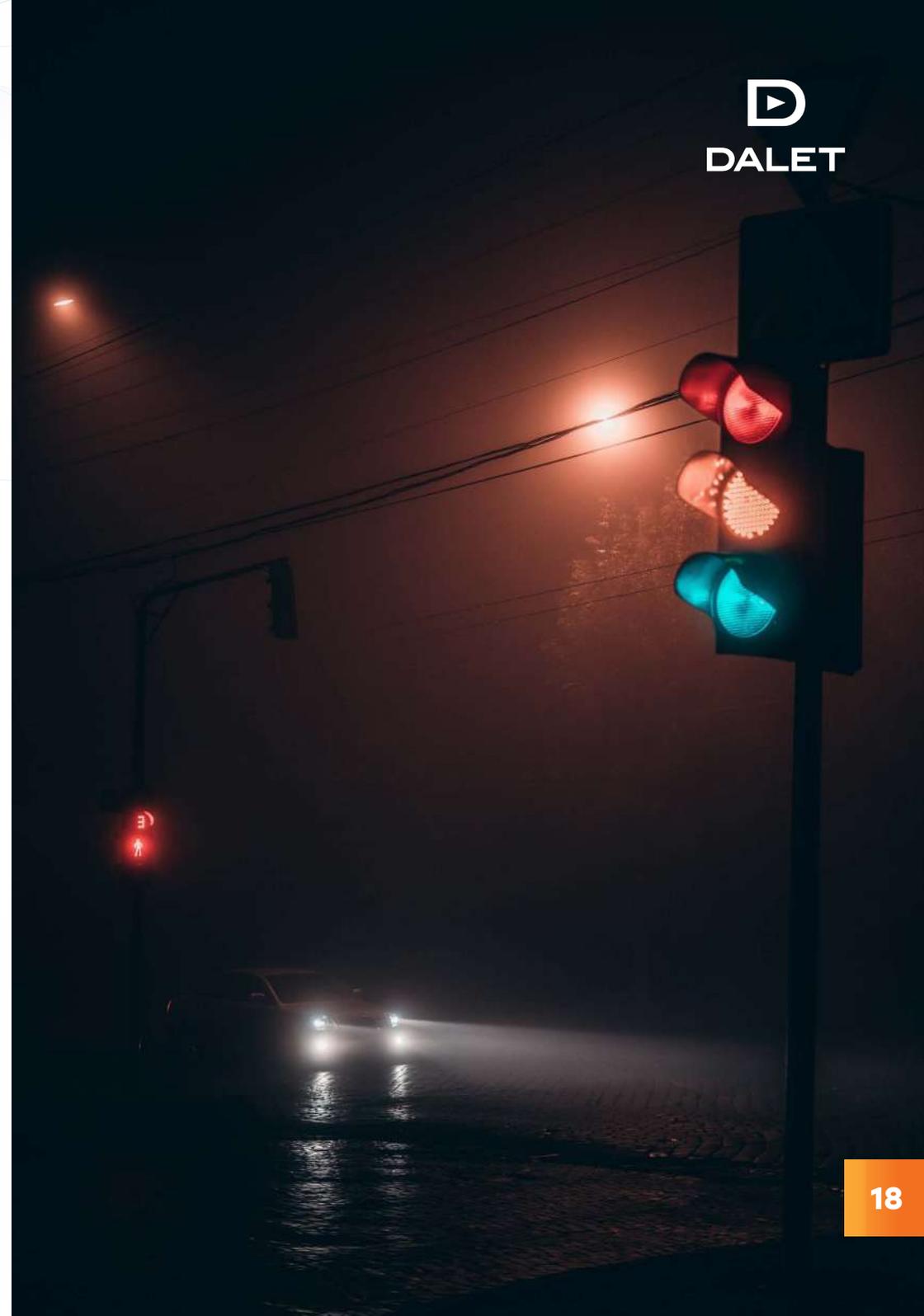
**TIME SAVED, CLEAR LOGIC,  
RESULTING IN MORE RELEVANT,  
ACCURATE STORIES.**

## MEETING ESSENTIAL DATA REGULATION

It is vitally important that you are able to track the provenance of your data. Compliance with the European Union's GDPR (General Data Protection Regulation) requires such knowledge.

Because Dalet Media Cortex offers a wide variety of engines, we have designed the data model to track the provenance of each data set.

This way, we track which engines, models or versions were used and when the data was processed, while making sure that our AI data complies with today's and tomorrow's regulations.



# CONCLUSION



Dalet Media Cortex has been designed to address all these challenges: a cloud-based AI platform created to help media organizations leverage cognitive services and machine learning everywhere across their content operations and business. It's a SaaS service with a pay-as-you-go model.

Dalet Media Cortex is connected to the wider range of Dalet offerings, including Dalet Galaxy five and the Ooyala Flex Media Platform, but it is also consumable through public APIs: [Metadata analysis API and Media Analysis API](#).

Leveraging Dalet MAM and Workflow Orchestration capabilities, Dalet Media Cortex orchestrates combinations of cognitive services, fine-tunes the models, versions the datasets, aligns them with customers' taxonomies, and eventually surfaces the results at various levels of the Dalet application stack to provide actionable insights and real value to the users and to the organization.

Providing the right insights, for the right toolset, with the right context, Dalet Media Cortex helps content producers, owners, and publishers across news, sports, programs, and radio operations make the most of their media assets, become more productive and focus their time on creative work.

Dalet Media Cortex provides multiple benefits to your organization. Indexing can be automatic and consistent for all kinds of content. This saves significant time for archivists and users who no longer need to enter metadata for every piece of content. Search can be automated so users can spend less time looking for relevant material. Relevant, accurate and previously hard to find results can be served to users to help them file compelling and more timely stories.

As the volume of options increases in terms of AI engines and models so do complications in integration and possible increases in associated costs. It is important to be able to choose which model to use in what circumstance, or even better to be able to associate, combine and orchestrate multiple engines.

It is possible to configure adaptable workflows that will automate, optimize and improve the quality of the automatically generated metadata by using a smart combination of any and all different types of metadata.

At Dalet, we will help you select the most cost-effective technologies and to bring these into context with the user's tools. That's our commitment to AI.

Learn more

Let's talk

## About Dalet

Dalet solutions and services enable media organisations to create, manage and distribute content faster and more efficiently, fully maximising the value of assets. Based on an agile foundation, Dalet offers rich collaborative tools empowering end-to-end workflows for news, sports, program preparation, post-production, archives, radio, education, governments and institutions. Dalet platforms are scalable and modular. They offer targeted applications with key capabilities to address critical functions of small to large media operations - such as planning, workflow orchestration, ingest, cataloguing, editing, chat & notifications, transcoding, play out automation, multi-platform distribution and analytics.

## Dalet solutions



## Dalet technologies



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