

## MDN WORKSHOP 2015

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### TUESDAY 9 JUNE

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09:00

*Registration & coffee*

09:15 – 10:15

**“The Case of Script-based collaboration”**

Maarten Verwaest

Limecraft

Modern media production workflows involve specialized teams operating during different phases of the production process on different locations. Due to structural gaps in the overall flow of metadata, collaboration relies on informal methods. As a result, individual media fragments are hard to retrieve, re-use of content is expensive and the overall production cost inflates. The key to solve this problem is to enable concurrency and systematic interaction between the story editing and the actual production processes. In this paper, we will discuss the key characteristics of a collaborative workflow, the underlying architecture and the design requirements of an electronic script that can be used to integrate the workflow.

10:15 – 11:15

**NRK Origo**

Tormod Vaervagen

NRK

NRK Origo project is a total reorganisation of the radio- and television infrastructure in NRK. Powered by a common self-developed metadata layer using the CCDM and EBUCore standards, third party products will be integrated to build the total infrastructure. The metadata layer will get inputs every stage of the production face from planning to play-out, and will be the real integration layer in the infrastructure, keeping the loss of metadata to its minimum. In addition semantic technology will be used to link additional data sources. One of the goals with Origo is to make publishing to the web first as easy as to traditionally play out content on TV, making Norway’s largest broadcaster becoming a publishing house. The project is now in its first year and the presentation will give an overview over the architecture and metadata structure that powers the project.

11:15 – 11:45

*Tea, coffee*

11:45 – 12:45

**Collecting preservation metadata for risk assessment**

Werner Bailer

JSR

Preservation processes for audiovisual media are complex and heterogeneous workflows involving different systems, services and tools. Each of them produces metadata related to the audiovisual essence being processed, as well as status information, logs, etc. Collecting and analyzing this information can help to better understand potential risks in the process (e.g., related to content properties or system conditions) and to improve the design of the process. The DAVID project has developed tools for collecting preservation-relevant metadata, compatible with the emerging MPEG Multimedia Preservation Application Format (MP-AF) standard, and using them for risk assessment. We report on a proof of concept implementation of this approach, using actual data from a MXF checking and repair workflow deployed in a broadcast archive.

12:45 – 13:45

*Lunch*

13:45 – 14:45

**Visual search technologies (e.g., MPEG CDVS) and how they apply to media & broadcast.**

Alberto Messina

RAI

Miroslav Bober

University of Surrey

“The current advancements in media computing and automated information extraction make it possible to process multimedia content at very high rates, and extract frame-level descriptors useful to index and retrieve content on a visual basis. This speech will illustrate latest developments in standard technologies for visual search (MPEG-7 CDVS) and show possible applications in media and broadcasting.”

14:45 – 15:45

**AXIS-CSRM - Autonomous eXchange of packages for Interoperable Systems – Conceptual Semantic Reference Model**

Guy-Noël Maréchal

TITAN/UNESCO

AXIS-CSRM is a framework targeted for integrating documentary assets modelled according to dedicated semantic models (such as EBUSport [the

EBU sport ontology] or as GATE [the textual open ontology]), for constructing the interoperability between systems and in time (archival) and for covering the objects, the objects models and the processes involved (including the management of the rights and the enjoying of rights).

This is an initiative of a project conducted exclusively by the non-profit organization (NPO) TITAN. This project was initiated in June 2006 as part of the project MEMORIES based on an expression of the needs expressed by the "Memory of the World" (MoW) of UNESCO.

AXIS-CSRM defines an open pivot format, flexible and interoperable, facilitating the publication 360, the efficient exchange between independent and heterogeneous database systems, systems migration "flat" to 'semantic "systems or" semantic "systems based on different ontologies / taxonomies, increasing the aggregation ability of gates and finally the construction of persistent files. AXIS-CSRM is expressed using only open representation and internationally recognized standards.

The approach has been confronted with the reality of pilot projects that have implemented the most innovative elements of AXIS-CSRM, especially the Eureka CelticPlus MediaMap and MediaMap+ projects. The latter was first short listed by Eureka experts and the evaluation awarded the « CelticPlus Excellence Award 2015 of the Category: Services and Applications», which has been delivered in Vienna in April 2015.

The next step will be the implementation of a "Proof of Concept": a dedicated workshop will be held at the UNESCO on September 24<sup>th</sup> and 25<sup>th</sup> on the subject.

15:45 – 16:15	<i>Tea, coffee</i>		
16:15 – 16:45	<p><b>A study on structuralization of the video contents based on the biological ontology from Wikipedia.</b></p> <p>Using the video contents has been increasing in the wide range with video delivery services' becoming popular. And it'll be needed that not only contents holder offer their contents by themselves but also the other service provides offer the services with aggregating various contents. It's definitely common knowledge that the metadata is absolutely imperative to make much use of video in lots of services. The metadata should be defined by the users of it. It means that each metadata should be tailored to its service. This paper proposes to store the video clips with structured ontology which is extracted from Wikipedia. The author focused on the videos for education to explain the creatures like animals and plants. What kinds of services will be offered is also important when we think about usefulness of its metadata. Therefore this paper shows some educational services demonstration which makes video contents integrated with the external services. Thinking about using metadata for services must be effective for the archives as well.</p>	Makoto Urakawa	NHK
16:45 – 17:30	<p><b>EBUSport, the EBU sport ontology</b></p> <p>EBU acquires sports rights and covers majors sport events (UEFA, FIFA, Biathlon International Federation, IAAF for athletics, Cycling with "Tour de France", etc.) to provide high quality content to its members via the Eurovision network. In this context, EBU T&amp;I has developed an ontology for sports. The metadata workflow and the value of data will be explained as well as the advantages of using semantic modelling. A demonstration will be shown on how users can seamlessly search and navigate through data.</p>	Jean-Pierre Evain	EBU

## WEDNESDAY 10 JUNE

08:45 – 09:15	<p><b>ABC's rights semantic technologies proof of concept project</b></p> <p>A report on most recent developments around the management of rights using semantic technologies at ABC Australia in collaboration with Capsicum Business Architects.</p>	Lizbeth Moore (Webex or Skype)	ABC/Capsicum Business Architects
09:15 – 09:45	<p><b>Implementing MPEG-21's MCO (Media Contract Ontology) to manage rights at RAI</b></p> <p>The presentation will explain the rationale behind RAI's decision to use</p>	Laurent Boch	RAI

	MPEG-21's MCO to manage rights, and the associated implementation challenges.		
09:45 – 10:15	<p><b>“Big data” – Challenges and promises as perceived by broadcasters</b></p> <p>The presentation will give a summary of recent investigations made at the EBU by collecting views from EBU members on the promises and challenges of “big data”: who uses or plans to use such information and for what purpose...</p>	Bram Tullemans	EBU
10:15 – 10:45	<p><b>3D audio – Modelling and integration in BWF</b></p> <p>3D- audio is arriving. The EBU model is described in details in Tech 3364 and implemented in EBUCore (Tech 3293). This is discussed in several international standardisation groups and in particular in the ITU. The presentation will explain the challenges around creating 3D audio content, the associated workflow from creation to delivery and the growing role that metadata will play in audio production.</p>	Dave Marston Matthieu Parmentier (Webex or Skype)	BBC France-télévisions
10:45 – 11:15	<i>Tea, coffee,</i>		
11:15 – 11:45	<p><b>Achieving data interoperability for cultural heritage in Europe - The Europeana Data Model</b></p> <p>Europeana (<a href="http://www.europeana.eu/portal/">http://www.europeana.eu/portal/</a>) provides a common access point to digital cultural heritage objects across different cultural domains. In order to collect, connect and enrich the metadata descriptions provided by its data providers, Europeana created the Europeana Data Model (EDM). This model is designed as a framework re-using various well-known standards developed in the Semantic Web Community, such as the Resource Description Framework (RDF), the OAI Object Reuse and Exchange (ORE), and Dublin Core. EDM has now been adopted by a large number of data providers contributing to Europeana or institutions partners of the network and continues to be extended. The most recent extension is the integration of EBUcore properties to support the description of technical metadata for cultural heritage digital representations in Europeana. This presentation will outline the principles behind the model and shows how it supports Europeana's core services.</p>	Valentine Charles (Webex or Skype)	Europeana
11:45 – 12:45	<p><b>Linked data for media production – the dwerft project core technology</b></p> <p>Metadata plays an essential role in film and TV production. Unfortunately, lots of information gets lost in the fragmented processes, especially when multiple companies are involved. Often, it needs to be reconstructed manually at the end. Dwerft, a national funded research initiative, aims to cope with this problem based on existing and newly developed ontologies as Linked Production Data for the complete film and TV value chain and will apply it for the development of prototypical film and TV services. This contribution presents the concept and goals of the Linked Production Data, the current status of the project as well as broadcast-specific aspects like the integration of domain-specific data models.</p>	Dr. Harald Sack Barbara Fichte	Hasso-Plattner-Institut IRT
12:45 – 13:45	<i>Seated lunch</i>		
13:45 – 14:45	<p><b>MedialInfo, metadata extractions tool and software integration.</b></p> <p>MedialInfo is a flexible open source tool used to extract relevant technical and tag metadata from an extensive array of media file formats. This software has been successfully implemented into corporate and not-for-profit organizational workflows for the batch processing of digital audio-visual assets. This talk will give an overview of the software framework and the ways it can be implemented into any audio-visual metadata extraction workflow.</p>	Jérôme Martinez	MediaArea
14:45 – 15:15	<p><b>egtaMeta – The advertising workflow and data model</b></p> <p>In the past few years, most European countries have implemented the use of dematerialised spots. We all have to face the incredible amount of data available and turn them into "smart data", as well as to harmonise the information at a European level. In this context the EGTA association feels the need to re-open the brainwork about egtaMETA: Metadata for the file exchange of advertising material (EBU – TECH 3340). In response to this</p>	Guillaume Maucomble Alberto Messina	Mikros Image RAI

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need, the EBU Strategic Programme MIM has set up a working group gathering RAI, RMB/RTBF and Mikros Image. The scope is to align egtaMETA with the latest version of EBUCore, including recent breakthroughs on Loudness (R128) and Quality Control. On the other hand, this workgroup also provides requirements for the EBU/Media Information Management activity on revising egtaMETA, based upon the latest practice of the main actors in the advertising business. A modern advertising campaign is now considered as a multimedia concept and multi-channel program. This new metadata model will help to improve workflows and traceability for all the players involved within this ecosystem : advertisers, creative agencies, media agencies, post-production houses, sales houses and broadcasters.

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15:15 – 15:45	<i>Tea, coffee</i>		
15:45 – 16:15	<b>EIDR (Entertainment Identifier Registry)</b>  A presentation on what EIDR is, its scope of application and the metadata used to discriminate versions of content for globally unique identification. EIDR is an identification scheme compatible with EBUCore.	Ben Schofield	EIDR
16:15 – 16:45	<b>SMPTE metadata registers and UK-DPP descriptive metadata, bringing the SMPTE registers online (MXF &amp; IMF, DPP and EBUCore, and more...)</b>  The Metadata Registers are a collection of definitions for metadata classes, properties, data types and "labels" managed by SMPTE. These definitions contain the details needed to represent 1000's of principally media-related metadata items in a number of formats - they cover: the technical and descriptive metadata embedded in MXF files; the UK Digital Production Partnership (DPP) TV programme-delivery files; EBU Core; and much more. This talk will explain the recent work to reformat and then publish the Registers as XML, and describe / demonstrate some of the use cases enabled.	Thomas Heritage	BBC
16:45 – 17:15	<b>SCAIE activities and workshop, collaboration with FIMS</b>  The presentation will report on the activities of the MIM-SCAIE project and in particular the cooperation with FIMS and the plan to define a set of "automatic metadata extraction features" cards (similar to EBU QC's on quality control). The SCAIE workshop taking place after this MDN workshop will also be introduced.	Mike Matton	VRT
17:15 – 17:30	<b>Wrap-up and conclusions</b>	Tormod Vaervagen, MIM-MDN Chair	NRK

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# EBU MIM-SCAIE WORKSHOP FROM RESEARCH TO PRODUCTION

**THURSDAY 11 JUNE 2015**

09:00 *Registration & coffee*

09:15 **Welcome** Mike Matton VRT

**Introduction: From Research to Innovation with AME** Roeland Ordelman NISV

## SESSION 1: AUDIO & TEXT

09:30 **Applying and validating Automatic Speech & Language technology in a Broadcast environment** Luk Overmeire & Marieke Lycke VRT

VRT R&D is currently exploring and prototyping multiple applications of speech and language technology in its production and archive workflows, e.g. semi-automatic annotation of content. In this session we will first present an overview of the different targeted use cases in our current roadmap, reflecting on both estimated efficiency gains, added value and feasibility for each of these cases. We will discuss in detail the followed approach, gained insights and next steps for the case of "Transcriber", a story editing tool for journalists based on speech technology.

9:50 **Speech to text in the RSI archive** Sarah-Haye Aziz & Francesco Veri RSI

In 2011 the Radiotelevisione della Svizzera Italiana (RSI) (Swiss Italian Broadcasting Corporation), introduced an Automatic Indexing system (AIS) – consisting of automatic transcription of audio sources (Speech to Text) and also automatic semantic analysis - in its archive Multimedia Catalogue (CMM). The daily archiving daily workflow at RSI has been adapted, with the intention of integrating the new system, through the accomplishment of a series of selective tests, in both audio and video documentation (radio and TV). Archivists had the opportunity to experiment and to gain valuable hands-on experience of AIS, and they were able to find new solutions - such as using different colors in order to distinguish between human and automatic indexing. These testings revealed that one technical solution for Radio and TV is not sufficient for achieving adequate results, due to the fact that radio has background noise or music which interferes with the speech to text. In order to deal with this pitfall, since 2013, pre-produced editorial texts are automatically picked up, semantically analysed and attached to the respective audio files in the CMM database. At present, the AIS system is able to operate a full semantic analysis on both Radio and TV and archivist has the choice between human documentation, automatic documentation or a combination of both.

10:10 **Automatic Speaker Labeling in a Broadcast Archive Production Environment** Bouke Huurnink NISV

Automatic speaker labeling allows us to automatically identify who is speaking in video and audio broadcasts. This can form a valuable additional source of metadata. In this presentation we will describe the recent introduction of automatic speaker labelling in the Netherlands Institute for Sound and Vision. We will discuss its start in R&D, rolling out in production, and the effect on workflows and products in the archive. This is presented in the context of '2-speed IT' as practiced by the Netherlands Institute for Sound and Vision.

10:30 **Automatic Subtitling** Erik Buitinga NPO

Subtitling for the hearing impaired is traditionally a laborious and costly affair.

In 2010 NPO commissioned the development of a semi-automatic subtitle platform based on speech technology as an R&D project. Third party software was developed aiming at speeding up the

subtitling process. Now, after 5 years of development, testing and many prototypes, the latest version of a product still in development is implemented at our subtitling department.

The focus of this presentation is not technical, but functional: From a developers point of view the product performs better than expected, but how do the intended professional users perceive this?

Round of discussion on the topics at the end

11:15 *Coffee break*

## SESSION 2: VIDEO & SEARCH

11:30	<p><b>Application of image analysis technologies to video archive retrieval system</b></p> <p>Broadcasters have a huge amount of video archive as the valuable "treasure-trove". It is very important to systematically manage, store, retrieve and make this video useful for the program production. However, manually inputting detailed metadata would be a difficult task, so in most archives, retrieval system only has simple functions such as query using keywords. Therefore, we have been developing a brand-new video retrieval system based on our image analysis technologies. One of the main technologies is the automatic attachment of metadata. An object name is given to thumbnail images in unit of shots by machine-learning programs which can recognize the difference of image features between positive and negative sample images for each object. This technology can significantly decrease workload for the manual metadata annotation. Another is the shot retrieval function based on the visual similarity by comparing image feature between query and target image. This technology enables users to find their intended shots by a query image without using keywords. It will be very helpful in case the quantity of attached text-metadata is not sufficient. Our technology will facilitate the use of archived footage and reduce the cost of new location shootings. A preliminary verification test of our proposed system was conducted for four months from this January. Furthermore, we tried to evaluate the usefulness of system through interviews with some users. In this workshop, we introduce image analysis technologies applied to the system and report user's evaluation.</p>	Makoto Urakawa	NHK
11:50	<p><b>Video analysis for search</b></p> <p>This talk will give an overview of technology involved in searching broadcast archives based on its visual content. First, I give an introduction of important concepts in this domain and the current state of the art. Afterwards, I highlight strengths and challenges of this technology, based on experience during the EU Project AXES, which worked on opening broadcast archives.</p>	Robin Aly	University of Twente
12:10	<p><b>Large scale video analysis</b></p> <p>TNO has worked on large-scale video analytics on open clouds, in particular on the integration of analytics in distributed worker queues. Our goal is to find solutions for scalability and real-time aspects of visual search, object recognition and cross linking algorithms for large media databases, as well as distributed streaming analysis of video and image streams (for example from social media). Outcome of one of our projects is StormCV, an open-source platform for large-scale distributed image and video analysis. StormCV enables the use of Apache Storm for video processing by adding computer vision specific operations and a data model. The platform enables the development of distributed video processing pipelines which can be deployed on Storm clusters. Our future interests lies on extending the platform to include big data aspects and the continued use of open-source platforms, such as Storm and Spark, and databases such as MongoDB and Elastic search.</p>	John Schavemaker	TNO
12:30	Round of discussion on the topics at the end		
12:45	<i>Lunch</i>		

## SESSION 3: GENERAL BARRIERS FOR ADOPTION AND VALORISATION OF R&D RESULTS

13:45	<p><b>Business cases for automatic metadata extraction</b></p> <p>Partnerships of Czech Television with universities on research programmes. The utilization and practical implementations of results of applied research programmes concerning the elimination of language barriers faced by handicapped viewers. The first implementation concerned the automatic subtitling of TV live programmes. Experience with the application of different techniques including shadow speakers. Further developments - automatic generation of the audio track extracted from subtitles ("clean audio", text-to-speech, spoken subtitles), ways of the transmission of parameters for controlling movements of signing 3D avatar.</p>	Petr Vitek	CT
14:05	<p><b>Great Expectations. The role of knowledge transfer in technology adoption.</b></p> <p>R&amp;D efforts often result in first prototypes, bits of technology and pieces of know-how of which some may benefit working environments in the near future. How can we make sure R&amp;D-results are rightly understood, meet the expectations of the production environments and are recognized as useful? Knowledge transfer plays an important role, but also faces its own challenges. Knowledge manager Eva Baaren shares her view.</p>	Eva Baaren	NISV
14:25	<p><b>Incubation with VRT sandbox + case study with Zeticon on automated content categorization.</b></p> <p>Innovative collaboration with startups not only brings high and often new dynamics in a large organization, but it also enables to validate technologies and creative use-cases quicker and with shared effort. On the other hand, for these startups, it adds value by receiving access to technologies, information, creatives and an audience. By being associated with well-known big brands and successful reference cases, they are being given a change to move to a next level.</p>	Koen Meyskens Bruno Van Den Bossche	VRT Zeticon
14:45	<p><b>Automatic Translation in broadcast production</b></p> <p>As both BBC World Service and Deutsche Welle are world broadcasters publishing in approximately 30 languages, multilingual issues are of utmost importance. In how far and in which way language technologies and in particular automated translation can enhance media production is discussed. (Potential) innovative solutions offered by research projects and evaluated or envisaged by these two broadcasters in actual production environments is presented.</p>	Peggy van der Kreeft Susanne Weber	DW BBC
15:05	Round of discussion on the topics at the end		
15:30	<i>coffee break</i>		
16:00	<p><b>Panel discussion (moderated)</b></p> <p><b>Topic: how to foster technology transfer from research to production</b></p>		
17:00	<i>End of workshop</i>		