



# Building a bridge from Photo to Video Metadata standards

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Michael Steidl, Managing Director IPTC



## Background

- The IPTC is a membership association from the news industry creating metadata standards for exchanging digital content since 1979.
- The IPTC standard IIM (Information Interchange Model) was selected by Adobe for Photoshop in 1994.
- In 2006 the IPTC established a special Photo Metadata Working Group
- In 2008 this WG started discussing how photo and video metadata relate to each other.
- This presentation reflects the work of this WG.



## Photo Metadata Standards

- Metadata for photos exist since images exist:
  - first typed/handwritten on cards
  - then saved with the pixels in image files.
- Most of the fields are from an industry standard, only a few either application specific or provider specific
- Many standards were made with a focus on a special purpose



## Photo Metadata Standards

- **IPTC “Fields”**: have a focus on describing the content and providing administrative information, initially for the news industry, but now used widely.
  - IPTC IIM (Information Interchange Format) of 1994 and later
  - IPTC Core Schema (for XMP - and IIM): 2005
  - IPTC Extension Schema (for XMP): 2008
- **Exif (TIFF)**: has a focus on technical metadata about taking the picture and its digital representation.  
Maintainers: CIPA & JEITA, latest version 2.21 (2003)
- **„Photoshop fields“**: Many fields in Photoshop are from IPTC standards, beyond that are a couple of specific fields in Adobe schemas for XMP – e.g. „Rating“.



## Photo Metadata Standards

- **PLUS:** has a focus on rights metadata – created 2007  
Builds on XMP and on the use of controlled vocabularies
- **Dublin Core:** has a focus on describing the content and administrative information. Very generic use from book libraries to multimedia content – created in the 1990s.
- **PRISM/DIM** (Digital Image Management): has focus on pictures for magazines – created ~ 2004

### Semi-standards – e.g.:

- **UPDIG:** Guidelines for using metadata
- **Metadata Working Group:** Guidelines for Handling Image Metadata



## Too many standards?

„The nice thing about standards is:  
There are so many to choose from“

Just only a cynic comment?

A cynic comment at all?

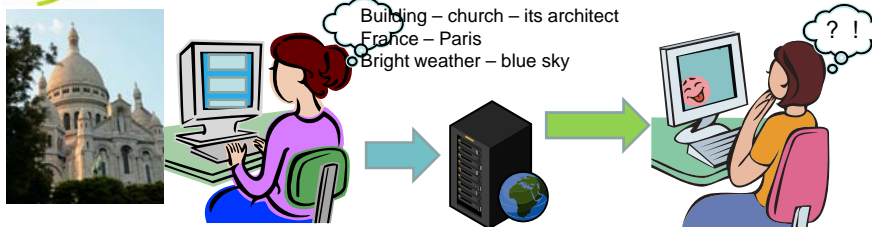
Standards—for visual content—are made to:

- serve the needs of a – specific – user group, use, or purpose
- provide interoperability (in the exchange of content)
- provide compatibility over time
- ... thus: to improve business

**But: there is not a single standard made to serve everybody in any case and anywhere.**



## What makes a metadata standard?



Metadata is sharing statements about (visual) content

- A metadata writer reflects on the photo/video
- The reflection is expressed by dates, numbers or free text and codes representing an abstract idea or real-world entities (persons, locations, companies, events ..)
- On the receiver's side this should be understood in the same way.

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## That makes a metadata **standard!**

Description: The "Magere Brug", a tiny and historical bridge across one of the small channels, the "grachten", in Amsterdam city.

Keywords: bridge; city; channel

Location: Magere Brug

City: Amsterdam

State/Province:

Country/Territory: The Netherlands

ISO Country Code: NL

Date Created: 09.10.2004

Each metadata field has its specific meaning and purpose – its semantics – and data format.

Only adhering to the specified semantics makes a field interoperable at the „content level“.

The semantics of a field must not change:

- with different technical ways of storing the data (IIM, XMP, Exif format)
- with implementations by different software applications – including the field label!
- with the „individual“ use of a user (group) or company

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## The User Interface/Standard interaction

- A user interface is crucial to the right use of a standard
- It has to interface between
  - the reflection of a metadata writer on visual content, and
  - the semantics of metadata fields – specified by a standard
- For achieving this it has to ...
  - make crystal clear what kind of information should be used with the field – by the label and optionally a kind of „help on request“
  - support entering values: flexible date/time pickers, lists of predefined values, pickers from controlled vocabularies
  - should avoid misusing a field

In the best case metadata writers and metadata consumers should love to use the metadata fields because of their intuitive use.



## Bringing a standard to life

Creating a standard and making it public is not enough for bringing it to life.

What else is needed:

- implementations into software
- many implementations = wide availability and use
- compatible(!) implementations for wide interoperability
- supporting features of a standard:
  - by a user friendly user interface, supporting more than just typing in some characters and digits.
  - by a robust implementation of storing the metadata values



## What's next?

There are still more expectations of what standards should do than standards – standards can only serve common requirements.

But using a standard must become easier for the end-user.

Thus more communication between

the makers of user interfaces

and the makers of standards

and the users of both

is required.

Something for a workshop at a next Photo Metadata Conference?



## Next steps – towards video

The IPTC Photo Metadata WG discussed:

- What fields exist in different standards and which are needed across media-type boundaries?
- What is equal: both is visual content – therefore many fields for describing the content can have the same semantics.
- What makes a difference:
  - The obvious one: technical metadata are different for photo and video – in most cases they are managed by software.
  - The tricky one: photo metadata describe one static picture, video has 25 or more static pictures per second – thus the approach to describing content must be slightly different: for time parts of the content – which part has to be identified too – and to describe how a story evolves over time.



## Video specific standards

For broadcasting:

- EBU P-Meta: has a focus on video production
- EBU Core: has a focus on archiving content
- SMPTE MXF: is a format for technical containers for video, including basic metadata
- PB Core: has a focus on archiving content
- IRT's Broadcasting Metadata Format (BMF): has a focus on video production

For generic use:

- All XMP-based metadata schemas

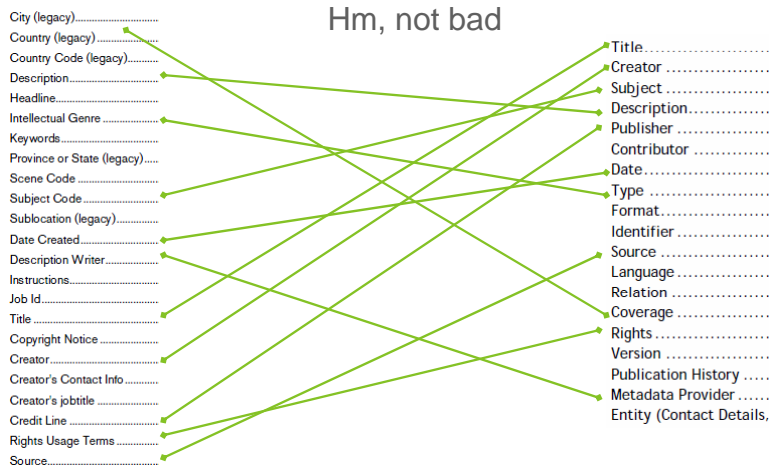


## Reality check: IPTC Core vs EBU Core

IPTC Core / photo

EBU Core / video

Hm, not bad





## What the Web does

- In 2008 the „Masters of the Web“ – the W3C organisation – established a Media Annotations WG
- “The **mission** of the Media Annotations Working Group, part of the Video in the Web Activity, is to provide an ontology and API designed to facilitate cross-community data integration of information related to media objects in the Web, such as **video, audio and images.**”
- They have created a mapping table from 23 standards to properties of the Dublin Core schema and a couple of Adobe’s XMP schemas.
- Currently no clear outline to what kind of standard or product the discussions should or will evolve.



## IPTC conclusions (1)

- There is no need to create a new standard for video
- The challenge is to build a bridge between existing standards for still and moving images:
  - Field names (labels) and semantics are very likely, but not fully identical – this may cause confusion, e.g. by different labels
  - Best is to have software a single user interface for photo and video to bridge the media-type gap – who will do this?
  - The underlying technology for storing metadata may not be identical for photo and video: a specification is required to set the mapping – and implicitly the synchronising - between different technical metadata containers. (As is exists for IIM  $\leftrightarrow$  XMP)
  - The differences between photo and video have to be addressed and not glossed over.
  - Stakeholders with different backgrounds and requirements are involved – communication across boundaries is required



## IPTC conclusions (2)

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- Hearing positive feedback – also at this Conference – the IPTC will proceed in this way.
- And:  
Interoperability is not only required for metadata fields but also **metadata values**.  
Therefore the IPTC thinks about a „Visual Content Controlled Vocabulary“ with a set of core terms for describing content in a more formal way.  
(This is a follow up to the Photo Md Conference 2008)



## Finally ...

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... thank you for your time ...



... and visit us at [www.iptc.org](http://www.iptc.org) →Photo Metadata section



## Web References

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- IPTC Standards: [www.iptc.org](http://www.iptc.org) >> Photo Metadata section
- Exif / CIPA: <http://www.cipa.jp/english/hyoujunka/kikaku.html>
- PLUS: [www.useplus.org](http://www.useplus.org)
- Dublin Core: [www.dublincore.org](http://www.dublincore.org)
- PRISM/DIM: [www.prismstandard.org](http://www.prismstandard.org)
- UPDIG: [www.updig.org](http://www.updig.org)
- Metadata Working Group: [www.metadataworkinggroup.com](http://www.metadataworkinggroup.com)
- EBU P-META Tech 3295 <http://tech.ebu.ch/docs/tech/tech3295v2.pdf>
- EBU Core Tech 3293 <http://tech.ebu.ch/docs/tech/tech3293-2008.pdf>
- SMPTE RP-210 (Metadata Dictionary) [www.smpete.org/standards](http://www.smpete.org/standards)
- SMPTE BXF (SMPTE-2021), see above
- SMPTE MXF DMS-1 (SMPTE-377M), see above
- PB Core [www.pbcore.org](http://www.pbcore.org)
- BMF/IRT: [www.irt.de/en/](http://www.irt.de/en/)
- W3C Media Annotations WG: [www.w3.org/2008/WebVideo/Annotations/](http://www.w3.org/2008/WebVideo/Annotations/)