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1 Executive Summary and Report Scope

This document reports the actions taken to find if and where there is space to contribute to the standardization activities regarding the description of performing arts content.

The work done by the most important standardization bodies has been analysed in order to find those standards which can be useful within the performing arts realm. A list of the standardization bodies taken into account is provided below:

- ISO, MPEG (MPEG-7)
- European Standards (EN 15744:2009, EN 15907:2010)
- ISO, ICOM (21127:2006 CIDOC-CRM)
- IFLA (FRBRer)
- IFLA & ICOM (FRBRoo)
- Dublin Core Metadata Initiative (DCTerms)
- Visual Resources Association (VRA-CORE)
- Getty Research Institute (CDWA)
- IEEE (nothing found)
- IMS Global (nothing found)
- W3C (nothing found)
- OASIS (nothing found)

Other standards that may be considered are: *EAD*¹ (Encoded Archival Description) developed by the Society of American Archivists, it does not address directly the description of performing arts material and now it is not possible to contribute to it, *MODS*² (Metadata Object Description Schema) maintained by the MODS/MADS Editorial Committee seems focused on the description of texts.

In the following paragraphs each standard is analysed highlighting which are the aspects, already present, that can be of interest for the performing arts field and indicating what is still missing for a good description. Moreover, a brief description of the standardization process needed to contribute to each standard is provided.

For the last four standardization bodies listed above (IEEE, IMS Global, W3C, OASIS) suitable standards for the description of performing arts material were not found.

The last section of the document presents some interesting projects on Performing Arts that can be used as a source of inspiration for the work to be performed on standardization.

1.1 Analysed aspects

When analysing the standards it was considered if the specification

¹ EAD provides detailed description of the content and intellectual organization of collections of archival materials. EAD allows the standardization of collection information in finding aids within and across repositories. The Technical Subcommittee for Encoded Archival Description (TS-EAD) of the SAA Standards Committee is responsible for overseeing the timely and ongoing intellectual and technical maintenance and development of Encoded Archival Description (EAD). The comment period for proposing changes to EAD 2002 closed on February 28, 2011; the revised version will be available in August 2013.

² It is developed at different levels, related through a relation parent-child. The elements at the first level are: abstract, accessCondition, classification, extension, genre, identifier, language, location, name, note, originInfo, part, physicalDescription, record Info, relatedItem, subject, tableOfContents, targetAudience, titleInfo, typeOfResource. Other namespaces are available at: or http://www.loc.gov/standards/mods/v3/mods-v3-namespace.html

²It allows for the description of the location and date of recording, of the subject, of the genre. No other details for performing arts are supported.

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- allows to describe the performance place and date;
- allows to describe the first performance (premiere) place and date;
- allows to describe the role of each agent involved in the creation process (e.g. actor, director, musician);
- uses standardized role names;
- supports roles used for performing arts (when roles are standardized);
- allows to associate each actor with the character played;
- allows to associate each musician with the instrument played;
- allows to associate a performance and/or performance work with related content (e.g., photos, piece text);
- allows to associate the content with terms from classification schemes for subject or type description;
- allows to describe documents and texts;
- allows to describe images, audio files and videos;
- allows semantic description of content (e.g., actions performed);
- allows for free text description;
- allows for IPR status description

2 MPEG-7 (ISO/IEC 15938-5:2002)

MPEG-7 is a broad framework of tools that could be used for the description of multimedia content, it covers a range from low-level description (e.g., color coding) to high-level description (e.g., semantic description). Descriptions are encoded in XML, using a formal XML schema, XML could be possibly efficiently binarized for transmission. Since performances are often witnessed as video, the audio and image recording describing them can also be described.

2.1 What is present for performing arts

MPEG-7 allows to represent information about:

- the people involved in the creation process with the specific role using the *CreationDS (Description Scheme)*, it can include also the character name and the instrument played, the possible roles are standardized in the *RoleCS* (Coding Scheme);
- performance location and date, using the *Location* and *Date* elements within the *CreationCoordinates* element in the *CreationDS*;
- the content classification for subject/type, using the *ClassificationSchemeDescription* DS to define a classification scheme;
- scene description using:
 - o simple TextAnnotation element for free text description,
 - KeywordAnnotation for keywords,
 - StructuredAnnotation element with Who, WhatObject, WhatAction, Where, When, Why and How sub-elements,
 - DependencyStructure element to represent the structure of a text annotation based on the syntactic dependency structure of the grammatical elements making up a sentence,
 - Graph DS to describe a graph of relations amongst a set of description scheme instances; for example, a graph describing the narrative structure of a movie or the spatial structure of a set of segments.

2.2 What is missing for performing arts

Not all types of professionals used in performing arts are covered, information about first performance is missing, it is not suitable for the description of documents and texts.

2.3 Standardization/contribution process

Contributions to this standard have to be presented at one of the MPEG meetings (which are held every three months), the work on this aspect is typically carried out within the Requirements Group. If the standardization body will be interested in this issue, an ad-hoc working group will be created to better analyse the problem. Once the group reaches consensus on the improvements needed, the amendment will go through the following stages: Working Draft, Committee Draft, Draft International Standard, Final Draft International Standard and finally International Standard. At each stage votes from the National Bodies are required in order to proceed.

3 EN 15744:2009, EN 15907:2010

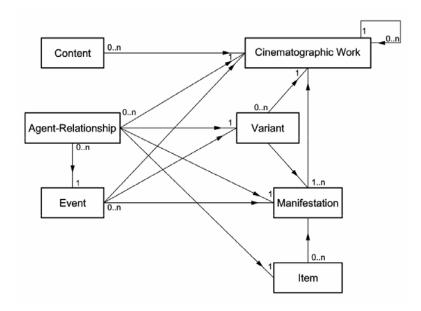
Both these standards deal with film metadata, EN 15744:2009 "Film identification - Minimum set of metadata for cinematographic works", defines a set of 15 fundamental data elements for the identification of cinematographic works while EN 15907:2010 "Film identification - Enhancing interoperability of metadata - Element sets and structures" defines a comprehensive metadata element set for cinematographic works, including their variants, manifestations and items (copies), lifecycle events, and various types of relationships.

EN 15744:2009 is a subset of EN 15907:2010 and presents the minimum set of data elements which are considered as necessary for identifying cinematographic works when exchanging information among film archives or other institutions. Since one of the objectives of this European Standard is the improvement of interoperability among different databases, the minimum set of data elements shall be supplied by all organizations participating in an exchange of information on cinematographic works. The data elements defined within this standard are: Title, Series/serial, Cast, Credits, Production company, Country of reference, Original format, Original length, Original duration, Original language, Year of reference, Identifier, Genre, Relationship, Source. The standard also defines how to map these data elements to Dublin Core.

EN 15907:2010 defines the following primary entities *Cinematographic Work, Variant, Manifestation, Item, Content* and contextual entities *Agent, Event.*

The data elements defined are: *Identifier*, *Record source*, *Title*, *Identifying Title*, *Country of Reference*, *Year of reference*, *Format*, *Extent*, *Language*, *Production event*, *Publication Event*, *Award*, *Decision event*, *IPR registration*, *Preservation event*, *Subject terms* and *Content description* as well as common data elements as *Region*, *Timespan* and *Language tag*.

Moreover relationships among entities are defined as: *HasAgent*, *HasEvent*, *HasContent*, *HasAsSubject*, *HasOtherRelation*, *HasVariant*, *HasManifestation*, *HasItem*.



3.1 What is present for performing arts

From the standard: "A cinematographic realization of a pre-existing non-film work is considered as a cinematographic work. This includes pure performance works such as concerts, original theatre performances, sports events, etc."

The HasAgent relationship between Cinematographic Work, Variant, Manifestation, or Item with an Agent entity can express the "activity" of the agent (e.g., Actor) as well as the name of the character played by the agent.

The Production Event element associated with the Cinematographic Work (representing the performance) may be used to report the performance location and date (using a specific value for the "Production event type" sub-element e.g., "performance", "rehearsal").

3.2 What is missing for performing arts

There is no specific element for performance event neither are the values for "Production event type" standardized. The relations with non video content as images, documents and other material associated with the performance work are marginally described. The information on the location and date of the premiere is missing. It is not possible to semantically describe content apart from subject association.

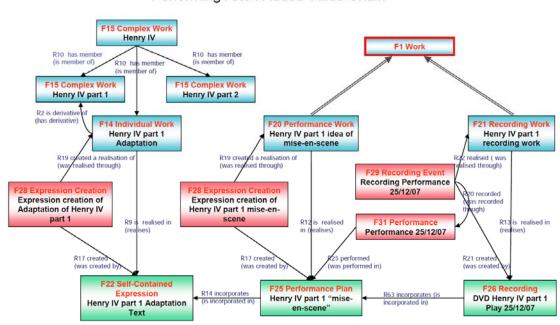
3.3 Standardization/contribution process

In 2005, the EC Directorate General Information Society and Media asked the *European Committee for Standardization* (CEN, http://www.cen.eu) to develop a metadata standard for cinematographic works, with the aim of supporting the exchange of filmographic data, improving the access to the European film heritage and intensifying the dissemination of European films by defining standards for film cataloguing and indexing. Following this mandate, the CEN Technical Office (CEN/BT) formed a task force (TF 179), later to be changed into a Technical Committee (TC 372). The Deutsches Institut für Normung (DIN) was appointed as the secretariat and the Deutsches Filminstitut (DIF) was charged with appointing the convenor. Committee members came from major standardization bodies and film archives throughout the European Union.

The modality of development of the standards seems similar to the one used for ISO via National Standardisation Bodies (http://www.cen.eu/cen/NTS/How/Pages/default.aspx).

4 FRBRoo

FRBRoo is the harmonization of FRBRer and CIDOC-CRM performed by IFLA (International Federation of Library Associations and Institutions) and ICOM (International Council of Museums). FRBRer was specified by IFLA for the description of bibliographic records, it does not deal specifically with performing arts description. CIDOC-CRM is defined by ICOM and standardized by ISO in ISO 21127:2006, which defines similar structures for museum artifacts but does not deal with performing arts. However FRBRoo allows the description of performances as witnessed by the following picture taken from the FRBRoo specification.



Performing Arts: Added Value Chain

4.1 What is present for performing arts

Classes that can be useful for the description of the performing arts works are:

- F20 Performance Work
- F21 Recording Work
- F25 Performance plan
- F26 Recording
- F27 Work conception
- F28 Expression creation
- F29 Recording event
- F30 Publication event
- F31 Performance (subclass of: E7 Activity, E5 Event, E4 Period, E2 Temporal Entity)
- F9 Place
- F10 Person
- F38 Character

Properties that can be used for Performance, Performance Work and Performance Plan:

- R25 performed (was performed in) [Domain: F31 Performance; Range: F25 Performance Plan]
- P14 carried out by (performed) [Domain: E7 Activity; Range: E39 Actor]
- *P14.1 in the role of* [Range: E55 Type]

- R12 is realised in (realises) [Domain: F20 Performance Work; Range: F25 Performance Plan]
- R13 is realised in (realises) [Domain: F21 Recording Work; Range: F26 Recording]
- P4 has time-span (is time-span of) [Domain: E2 Temporal Entity; Range: E52 Time-Span]
- P7 took place at (witnessed) [Domain: E4 Period; Range: E53 Place]

4.2 What is missing for performing arts

It is not possible to state that a specific performance was the first (premiere). It is not possible to associate the Actor/Musician with the name of the character played or the name of the instrument played in a performance. The semantic description of content is limited to the association with a subject.

4.3 Standardization/contribution process

The work is carried out from an International Working Group of IFLA and ICOM (http://archive.ifla.org/VII/s13/wgfrbr/FRBR-CRMdialogue_wg.htm).

The process for reaching agreement (http://www.cidoc-crm.org/frbr_work.html) is described below:

- Issues are added to the list,
- People comment on the issues and sometimes it turns out that the wording of an issue is unclear and needs fixing before there is a common understanding of what the issue means.
- The issues are assigned to working groups that will make decisions about them.
- Proposals are put forward. The issue either leads to a proposal for a change in the FRBRoo, or the
 conclusion is, that the issue is already covered by the FRBRoo as is. The issue may also be regarded
 as out of scope of the FRBRoo. In that case, a possible extension to the FRBRoo may be proposed
 anyhow.
- People comment on the proposals and sometimes it turns out that the wording of a proposal is unclear and needs fixing before there is a common understanding of what the proposal means.
- The group discuss the pros and cons of the various proposals relating to a given issue. If we succeed on the mailing list then that's fine, if not, it becomes a meeting subject.
- Disagreements are resolved through other means.

Face-to-face meetings are regularly held every six months, in May and November (joined meeting of the CIDOC CRM SIG, ISO/TC46/SC4/WG9 and FRBR - CIDOC CRM Harmonization, http://www.cidoc-crm.org/frbr_minutes.html).

Moreover a mapping of FRBRoo to Europeana EDM has been provided by CIDOC-CRM (http://www.cidoc-crm.org/docs/EDM-DC-ORE-CRM-FRBR Integration ORE fix.ppt) and it is currently in progress (until February 2013) the "EDM – FRBRoo Application Profile" Task Force of Europeana 2.0 WP7 (see for details http://pro.europeana.eu/web/network/europeana-tech/-wiki/Main/Task+Force+EDM+FRBRoo).

5 DCMI Metadata Terms

Dublin Core metadata terms are generic metadata elements designed to describe digital resources (http://dublincore.org/documents/dcmi-terms/).

5.1 What is present for performing arts

No specific elements are present for performing arts. However many of them can be better defined as specializations of the generic terms. The different contributors to the creation (e.g. actor, director) can be defined using MARC relator terms that are defined as subproperties of dc:contributor (http://dublincore.org/usage/documents/relators/http://lcweb2.loc.gov/diglib/loc.terms/relators/dc-contributor.html)

5.2 What is missing for performing arts

Information about the first performance location is difficult to map to the existing elements. The MARC relator terms do not cover all the professionals involved in the creation of performances (e.g. Acrobat). It is not possible to associate the actor/musician with the name of the character/instrument played. The semantic description of content is limited to subject/coverage association.

5.3 Standardization/contribution process

New contributions are accepted and evaluated by the DCMI Usage Board (see http://dublincore.org/documents/approval/). Contributions can be:

- (i) proposals related to DCMI metadata terms,
- (ii) proposals for other DCMI Recommendations,
- (iii) proposals for DCMI Recommended Resources,
- (iv) proposals for Application Profiles as DCMI Recommended Resources,

measurements (type, unit)

relation (type, relids)

(v) proposals for DCMI Process Documents.

There is a possibility to submit an Application Profiles (AP) regarding a specific domain. This AP should also define how to aggregate both the new metadata elements and those that can be reused from DC terms or from other standards (e.g., FOAF) (http://dublincore.org/documents/profile-guidelines/).

6 VRA-CORE 4.0

agent

- attribution

The VRA Core is a data standard for the description of works of visual culture as well as the images that document them. Version 4.0 was developed in 2007 by the Visual Resources Association. The core entities described are *work*, *image* and *collection*, the following are the elements (with sub-elements and attributes in brackets) that can be included:

| - culture | rights (type) |
|------------------------|---------------------------------|
| - dates (type) | - rightsHolder |
| - earliestDate (circa) | - text |
| - latestDate (circa) | source |
| - name (type) | - name (type) |
| - role | - refid (type) |
| culturalContext | stateEdition (count, num, type) |
| date (type) | - description |
| - earliestDate (circa) | - name |
| - latestDate (circa) | stylePeriod |
| description | subject |
| inscription | - term (type) |
| - author | technique |
| - position | textref |
| - text (type) | - name (type) |
| location (type) | - refid (type) |
| - name (type) | title (type) |
| - refid (type) | worktype |
| material (type) | |
| | |

6.1 What is present for performing arts

The work type can be performance or performance art, the date *type* can be the date of the performance, the location *type* can be performance. The agent can be assigned a role attainable from a controlled vocabulary (e.g. AAT).

6.2 What is missing for performing arts

Missing information on the first (premiere) performance (date and location). Missing the association of the actor/musician with the character/instrument played. The semantic description of content is limited to the association with a subject.

6.3 Standardization/contribution process

The specification was developed from the Visual Resources Association based in the US, the XML schema and documentation is hosted by the Library of Congress (http://www.loc.gov/standards/vracore/). No information was found on how to contribute, the development seems to be carried on from the Data Standards Committee (http://vraweb.org/organization/committees/datastandards).

7 CDWA - Categories for Description of Works of Art

Categories for the Description of Works of Art (CDWA) describes the content of art databases by articulating a conceptual framework for describing and accessing information about works of art, architecture, other material culture, groups and collections of works, and related images. CDWA includes 532 categories and subcategories. A small subset of categories are considered *core* in that they represent the minimum information necessary to identify and describe a work.

CDWA Lite is an XML schema to describe core records for works of art and material culture based on CDWA and CCO (Cataloguing Cultural Objects: A Guide to Describing Cultural Works and Their Images). CDWA Lite records are intended for contribution to union catalogs and other repositories using the Open Archives Initiative (OAI) harvesting protocol.

The CDWA Lite elements are designed to be a subset of the full CDWA set of elements. Consequently, there are often "wrappers" among the CDWA Lite elements that will serve to organize the full CDWA element set. It is possible that future versions of CDWA Lite or (a separate set of schemas that use CDWA Lite as a core element set) may incorporate more of the full CDWA metadata set.

7.1 What is present for performing arts

CDWA allows the representation of information about:

- The styles referring to the period of expression of a certain form of art (5.1. Styles/Periods Description; 5.2. Styles/Periods Indexing Terms)
- The subject of the the resource: (16. SUBJECT MATTER; 16.1. Subject Display; 16.2. General Subject Terms; 16.2.1. General Subject Type; 16.2.2. General Subject Extent; 16.2. Specific Subject Terms; 16.3.1. Specific Subject Type; 16.3.2. Specific Subject Extent; 16.4. Outside Iconography Term; 16.4.1. Outside Iconography Code; 16.5. Subject Interpretive History)
- Contextual information: (17. CONTEXT; 17.1. Historical/Cultural Events)
- Free text for description: (8. DESCRIPTIVE NOTE; 18.1. Descriptive Note Text)
- Critical comments
- Related works
- Copyright restrictions
- Related textual references
- Place/location with authority record

• Gives information about the creator (4. CREATION: 4.1. Creator Description; 4.1.1. Creator Extent; 4.1.2. Qualifier; 4.1.3. Creator Identity; 4.1.4. Creator Role)

7.2 What is missing for performing arts

- it doesn't support roles used for performing arts (when roles are standardized);
- it doesn't allow associating each actor with the character played;
- it doesn't allow associating e each musician with the instrument played;
- it doesn't allow one to properly describe audio and video files.

7.3 Standardization/contribution process

CDWA is a product of the Art Information Task Force (AITF), which encouraged dialog between art historians, art repositories, and information providers so that together they can develop guidelines for describing works of art, architecture, groups of objects, and visual and textual surrogates. Formed in the early 1990s, the task force was made up of representatives from the communities that provide and use art information: art historians, museum curators and registrars, visual resource professionals, art librarians, information managers, and technical specialists. The work of the AITF was funded by the J. Paul Getty Trust, with a two-year matching grant from the National Endowment for the Humanities (NEH) to the College Art Association (CAA).

CDWA and *CDWA Lite* it is now maintained by the Getty Research Institute (http://www.getty.edu/research/publications/electronic publications/cdwa/introduction.html), but it is not clear how to contribute to it.

8 Conclusions

The following table summarizes the support of the analysed standards for the aspects identified:

| Aspects | MPEG-7 | EN 15907 | FRBRoo | DCMI | VRA-CORE | CDWA |
|--|--------|----------|--------|------|----------|------|
| performance place and date | (Y) | (Y) | Y | (Y) | Y | (Y) |
| first performance (premiere) place and date | N | N | N | N | N | N |
| role of each agent involved in the creation process (e.g. actor, director, musician) | Y | Y | Y | (Y) | Y | Y |
| standardized roles | Y | N | N | Y | N | N |
| supports all roles for performing arts | N | Y | Y | N | Y | Y |
| associate actor with the character played | Y | Y | N | N | N | N |
| associate musician with the instrument played | Y | N | N | N | N | N |
| associate performance and/or performance work with related content (e.g., photos, piece text) | Y | Y | Y | Y | Y | Y |

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| associate content with terms from classification schemes for subject or type description | Y | Y | Y | Y | Y | Y |
|--|---|---|---|---|---|---|
| describe documents and texts | N | N | Y | Y | N | Y |
| describe images, sounds and videos | Y | Y | Y | Y | Y | N |
| semantic description of content | Y | N | N | N | N | N |
| free text description | Y | Y | Y | Y | Y | Y |
| IPR status description | Y | Y | Y | Y | Y | Y |

The MPEG-7, EN 15907:2010 on film identification and the VRA-CORE 4.0 are mostly related with the description of audio visual aspects of video/image material, but they are not suitable for the description of documents and texts. Contributing to FRBRoo to enhance its possible adoption by the performing arts domain seems the most appropriate especially if we consider the current effort Europeana is doing to integrate it with EDM. Another possibility is to propose a Dublin Core Application Profile for performing arts. Otherwise a new standardization project may be submitted to ISO or other standardization body. Another possible contribution to standards could be to provide multilingual terms related to performing arts to well known vocabularies used in the arts such as the Getty Vocabularies or others.

9 Appendix - Other projects

This section takes into account other projects dealing with the Performing Arts metadata.

9.1 PACore

PACore: Developing a Descriptive Metadata Standard for Performing Arts Archives http://www2.archivists.org/sites/all/files/BilleyPoster.pdf combines GloPAD and FRBR models

9.2 GloPad

On Metadata: Performing Arts Materials in Our World http://www.glopac.org/about/aboutMeta_OnMetada_article.php
Application Profile1 for GloPAD Performing Arts Metadata Schema http://www.glopac.org/about/ApplicationProfile5-1.pdf

9.3 PADS - Performance Art Documentation Structure

The Performance Art Documentation Structure (PADS) is a data tool built to put together different parts of a certain performance artwork (such as videos, props/objects, stills, interviews, transcripts, notes and plans). PADS does not attempt to replace a performance work, the PADS record or 'score' simply describes the connections between fragments of a work in order to assist researchers of performance art. Importantly, PADS also identifies the responsible for establishing connections between a work's constituent parts (for instance, was he/she the artist, the curator, the archivist or the audience member?). PADS is a special implementation of Richard Rinehart's Media Art Notation System (MANS) and both systems are built on the MPEG-21 metadata framework (http://www.bristol.ac.uk/nrla/case-study/).

9.4 EFG - European Film Gateway

This european project is related with film content and developed a model based on EN 15907:2010 (see http://www.efgproject.eu/guidelines_and_standards.php)

9.5 EUScreen

Even if designed for television heritage the following elements from EUScreen metadata schema might be taken into account:

- Material Type
- Clip Title
- Extended description
- Local keywords
- Thesaurus terms
- Geographical Coverage
- Genre
- Topic
- Provider
- Country of production
- IPR restrictions
- Rights terms and conditions
- Language used
- Subtitle language
- Original language

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