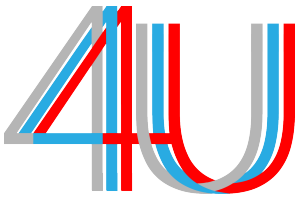

Project Acronym: Presto4U
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Report accompanying D4.4: STANDARDS REGISTER (http://www.prestocentre.org/standards)

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Table of contents

Scope

This report accompanies the Standard Register Deliverable that can be found at http://www.prestocentre.org/standards.

The report details the methodology, technical build, and rollout of the Standards Register for the Presto4U project. The Standards Register will incorporate information on standards for content and metadata used across all communities involved in digital audiovisual preservation. The Standards Register represents one of the main pillars of project outcomes. It is the opportunity for the project to create a structure of standards and guidelines focused solely on audiovisual preservation and, in particular, to focus on the needs of our designated Communities of Practice (CoP's).

The Register is a direct extension of the work undertaken for the D4.2 Interim Report on Audiovisual and Preservation Standards. [1] The Register will be based on the standards currently in use by our CoP's, those considered by CoP's but not currently implemented, and those recommended by our expert group in D4.2 whose focus is more on standards-based solutions.

Executive summary

This report represents the methodology behind the creation of a Standards Register, as part of a suite of project outcomes and services within the Presto4U project. This Register, in conjunction with a Software Tools Catalogue forms the pillars of the Community Marketplace. The Marketplace will be a community driven forum where users in the audiovisual archiving and preservation community can investigate and interact with tools and services to fulfil their preservation needs and requirements. Standards form the backbone of tools and services by providing reliable and sustainable frameworks around which services can be developed.

As with its' companion resource, the Software Tools Catalogue the functionality is centred round community involvement and engagement with standards. Presto4U has identified these communities as:

- Film Collections and Filmmakers
- Footage Sales Libraries
- Learning and Teaching Repositories
- Music and Sound Archives
- Personal Audiovisual Collections
- Research and Scientific Collections
- TV, Radio and New Media Broadcasting
- Video Art, Art Museums and Galleries
- Video Production and Post-Production

By centring the Standards Register round these Communities of Practice, we are acknowledging that while there are commonly used standards across all communities in digital audiovisual preservation, differing communities employ some standards more than others.

Development of this Standards Register has involved research into both previous and current initiatives that have included standards as a component of their project or institutional outcomes. By acknowledging past initiatives, we can learn lessons on structure, impact and sustainability. By working with current initiatives relating to the discovery of standards, we can acknowledge our points of commonality and our different focus in order to be as interoperable across initiatives and to foster an open exchange of ideas.

This document is structured into clear sections to describe the relation between audiovisual communities of practice and standards, the interdependency of standards and tools, and the functional specification and rollout of the Standards register. Chapter 1 presents an overview of the PrestoCentre as the platform for the Standards Register. Chapters 2 and 3 address the usefulness and also the actual adoption of standards by Communities of Practice. Chapter 4 discusses the interdependency of standards and tools. Chapter 5 describes discovery mechanisms for users as they explore the Standards Register. Chapters 6 and 7 detail functional specifications, technical build and administrative oversight of the Register. Chapter 9 discusses the alignment of the Standards Register with other international initiatives as a way to foster interoperability.

Finally the conclusion looks at rollout and next steps as the Standards Register continues to evolve within the Community Marketplace.

This report accompanies the Standard Register Deliverable that can be found at http://www.prestocentre.org/standards.

1 Use of the PrestoCentre web platform

As proposed in the DoW, PrestoCentre [2], a collaboration led and hosted by the Netherlands Institute for Sound and Vision, will be exploited as an essential tool for the success and outreach of the Presto4U project. PrestoCentre offers a new perspective for AV content holders in Europe eager to advance in their preservation actions and to be capable of relying on neutral instances for advice, orientation and services. While archiving is a very ancient activity based on well-established methods, digital archiving is new to most archives and presents a major challenge when decisions and technical solutions have to be defined. Knowing what to do is the main challenge archives have to address. PrestoCentre has the ambition to help audiovisual archives define what to do and to link them to initiatives and actors of the domain capable of doing the actions

1.1 PrestoCentre Online Platform

Using PrestoCentre's online platform for all the Presto4U services will provide an efficient form of intermediation that directly and intelligently brings together all the relevant interdependent stakeholders: those that have digital AV preservation knowledge and experience with those that need this knowledge and experience; those that are looking for a product or a service with those that offer such product or service; those that need money with those that want to invest; those that are looking for collaborators with those that want to collaborate; etc. In business literature, a platform that brings these interdependent constituents together is called multi-sided platform (MSP). For most of its online services, Presto4U will exploit the PrestoCentre online platform as an MSP by creating value primarily by enabling direct interactions between the distinct types of affiliated members.

2 Communities of Practice in relation to the use of standards

Standards should be the invisible structure that is present in software and tools, to provide reliance and durability to those services. However standards can often be viewed as too complex to understand or navigate through when users are trying to decide what they should adopt as part of their digital preservation workflow. For example, while diagrams such as the OAIS preservation lifecycle [3] or the DCC Curation Lifecycle [4] are widely used to express digital preservation workflows, they can be viewed as off-putting as an initial gateway to knowledge transfer. That is not to say such models do not have a place in the visual expression of digital audiovisual preservation workflows. It is as important to recognise the needs of technical experts and practitioners as well as those with less technical skills and to then create points of entry to satisfy the needs of those different audiences. It is therefore important to centre the development of the Standards Register round entry points that are tailored to the needs of different communities within digital audiovisual preservation.

The Presto4U project has created an interconnected set of communities involved in digital audiovisual preservation.

- Film Collections and Filmmakers
- Footage Sales Libraries
- Learning and Teaching Repositories
- Music and Sound Archives
- Personal Audiovisual Collections
- Research and Scientific Collections
- TV, Radio and New Media Broadcasting
- Video Art, Art Museums and Galleries
- Video Production and Post-Production

This classification of communities is a preliminary measure of the types of communities involved in digital audiovisual preservation, with overlaps between communities. By creating these communities we can focus on the common issues they face and the individual issues faced by certain communities. The use of standards follows the same pattern. While there will be commonality of standards relevant to all digital audiovisual preservation, there will be some standards that bear stronger relevance to certain communities. For example, while METS [5] is a metadata standard that is relevant to all forms of preservation workflows, AudioMD [6] is an xml schema more relevant to sound collections.

The project team involved with D4.2 Interim Report on Audiovisual and Preservation Standards [1] form the core experts who are investigating the standards that should be of most use to the communities of Practice. This working group, along with the core experts in each Community of Practice, are informing the development of the content of the register. This is an evolving process as the communities grow and knowledge of their workflows expands.

3 Communities of Practice in relation to adoption of standards

While the Register aims to collect the range of standards relevant to digital audiovisual preservation, it is also important to collate information on actual use of standards across communities. Presenting a list of standards gives communities a canon of information from which they can research and decide whether adoption is relevant or possible within their organisational infrastructures. The next stage is to measure adoption of standards.

Community Adoption is the recognition of the affirmative use of standards within a particular Community of Practice. Adoption rate is a powerful measure in terms of community buy-in to certain standards. As individual institutions search and discover information on standards, they can quickly get a sense of whether those standards are used generally within audiovisual preservation, or specifically within their sphere of influence. This may influence future adoption of standards or to promote dialogue within and across communities as to the use and adoption of standards in audiovisual preservation.

The Standards Register is based on preliminary information supplied by a number of institutions identified within the communities of practice. As the project continues into year 2 and beyond, we will continue to gather information on community adoption to strengthen the robustness of this important section of the register.

4 Interdependency of Standards and Software

The creation of the Standards Register goes hand in hand with the development of a Software Tools Catalogue that is due to launch in the spring of 2014. Standards and software should form a natural bond. Standards provide stability and reliability in product development, and the ability for actions, tools, and services to be interoperable. By adhering to the principles of standardisation in terms of the rules by which a tool is created, originators are ensuring a level of consistency in the products they develop. In terms of community acceptance, the evidence of a tool being standards-based generates trustworthiness in the product. Migration and future development should be easier in a standards based environment due to the stability of the original framework.

The Presto4U D4.2 Interim Report on Audiovisual and Preservation Standards [1] provides and in-depth analysis on the use and importance of standards in audiovisual digital preservation, as well as use cases from organisations associated with several of the Communities of Practice to illustrate the range of standards currently employed by those organisations. The Presto4U project aims to tie those and other standards and tools together in order to move away from simply a flat list of descriptions of standards and to add links to other useful resources related to implementation of standards in digital audiovisual preservation workflows.

Use cases were gathered from the following institutions [7]:
● RAI Legacy archive digitisation and preservation
● BBC D3 and DigiBeta Videotape preservation
● INA Digitisation of audio content produced by Radio France
● INA Music Production, PostProduction and Electroacoustic composition
● Tate Artistic/ creative AV content “Tape to File" process
● Iuav University of Venice Preservation of VHS tapes

Standards gathered through this exercise included:
- SMPTE 377-1 MXF File Format Specification [8]
- SMPTE 356M-2001 D10 Stream Specification [9]
- METS [5]
- PREMIS [10]

5 Discovery mechanisms for the Standards Register

Designing and generating different mechanisms of discovery and manipulation of information that guide users with different skill sets and objectives is central to the philosophy of the Standards Register. By creating different visual journeys, as well as guided mechanisms to explore standards and interact with other resources, we can address the different use scenarios from beginners to experts in the field of audiovisual preservation. One such way is the use of faceted classification and search as a mechanism to browse the Standards Register through different points of entry. The facets chosen for this project are designed for both general and expert manipulation of the Register. Each facet has a controlled vocabulary attached to it, based on the underlying use.

Audiovisual Lifecycle
- Discovery of records based on the OAIS lifecycle model

Class
- Vocabulary based on the maturity of a standard from a guideline to a published standard

Community Adoption
- List of Communities of Practice currently using a particular standard

Domain
- List of the Communities of Practice that a standard is relevant to

License Model
- If a standard has a license framework, whether open or proprietary

Model
- The classification of standards by audiovisual model of audio or video

NormIdentifier
- The body (or bodies) responsible to the creation and development of a standard

Scope
- The geographic scope of a standard, whether worldwide, region or country-based

Status
- The lifecycle of publication from proposal to fully published

Tags
- User generated subjects unbound by any classification structure

Type
- The classification of a standard, such as File Packaging Format or Metadata Description Standards

Further approaches to discovery are detailed in Functional Specifications. Development will continue into year two, such as potentially visualising standards across the OAIS functional model, as part of the integration with the Software Tools Catalogue and other enhancements within the Community Marketplace.

6 Functional Specification

The functional specifications for the Standards Register represent the culmination of a research process into previous and current projects that have utilised digital preservation standards as part of their website user interface.

The Standards Register incorporates information on standards for content and metadata used across all communities involved in audiovisual digital preservation.

The register will:

- Create a description of each standard relevant to audiovisual preservation
- Create logical relationships between standards that are common across all Communities of Practice
- Create logical relationships between standards that are unique to individual Communities of Practice.
- Provide links to relevant examples of standards
- Provide links to tools employing standards, such as converters
- As a community driven initiative, the register will allow users to add new standards or update existing records for standards
- Monitor and approve all user-driven data submission for authenticity and suitability.

Development of the Standards Register focused on two key areas of the PrestoCentre website:

- Integration with PrestoCentre homepage
- Standards Register Landing page

6.1 PrestoCentre Homepage Integration

PrestoCentre has already played a role in gathering a limited amount of information in relation to standards. This information was contained in the Resources [11] section of the website. By creating a standalone Standards Register within the PrestoCentre framework, we are bringing standards to the forefront of knowledge transfer for audiovisual preservation. As both the Standards Register and forthcoming Software Tools Catalogue (launch date spring 2014) are pillars of the emerging Community Marketplace, it was decided both be warranted prominent position on the homepage of the PrestoCentre.

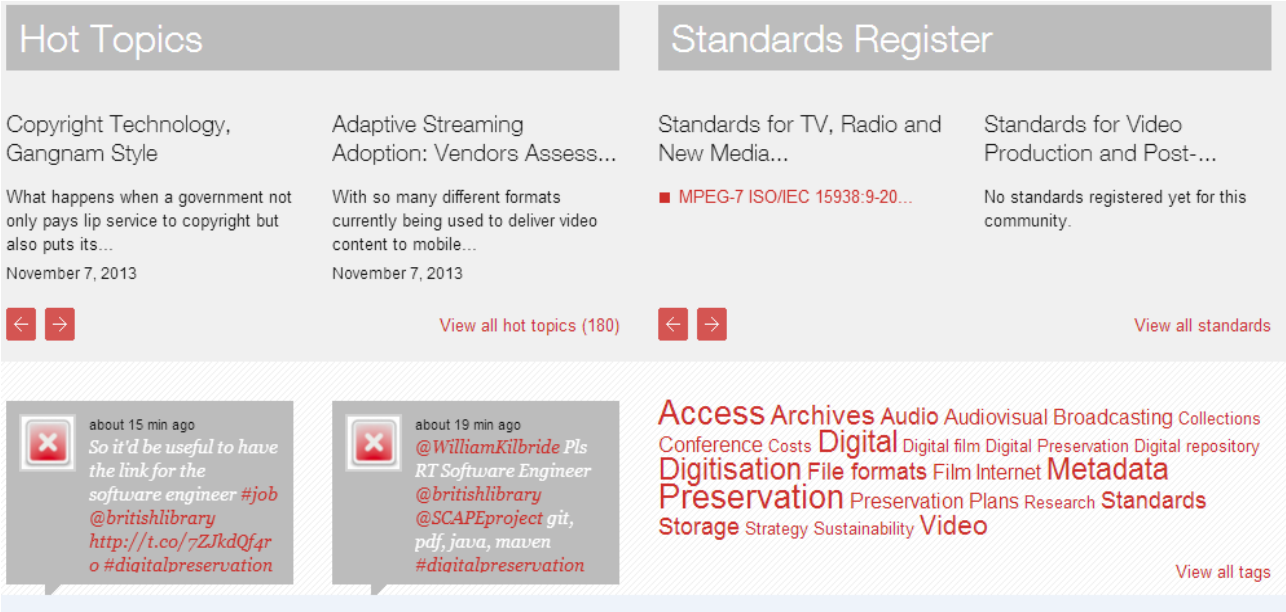

Figure 1. Implementation on PrestoCentre homepage – excerpted

In the interim before the Software Tools Catalogue and Community Marketplace are launched, the Register has been displayed next to Hot Topics. The Register has been implemented with a dynamic rollover that will display standards relevant to different communities within audiovisual preservation as a powerful entry point to the register. Clicking on any standard displaying will take you to the record of that page, or choose "View all standards" to be taken to the Standards Register landing page. As standards are added we will monitor the display effectiveness of this feature and its integration with the functionality of the Software Tools Catalogue.

6.2 Standards Register Landing Page [12]

As the entry point to the Register it was important to develop a specification that would create a crisp and immediate point of entry. This centred around developing a list view of containing columns with the information we felt users would be most immediately interested in, as well as faceted browsing (see section 5 – Discovery Mechanisms for Standards Register).

In addition we added to add the functionality to search within the standards register, a new development on the website. Users may now use "Search" in 2 ways:

- The pre-existing "Search" capability allows users to search across all resources on the PrestoCentre website
- "Search standards register" provides a more guided search only within record relating to the Standards Register.

While the Register is initially driven by input from experts within the project, in collaboration with input from Community of Practice leaders, it is important to allow users to add records to the Register and submissions to have an administrative workflow implemented to review and authorise any new records submitted to the Standards Register (see section 8 – Record Creation and Sustainability).

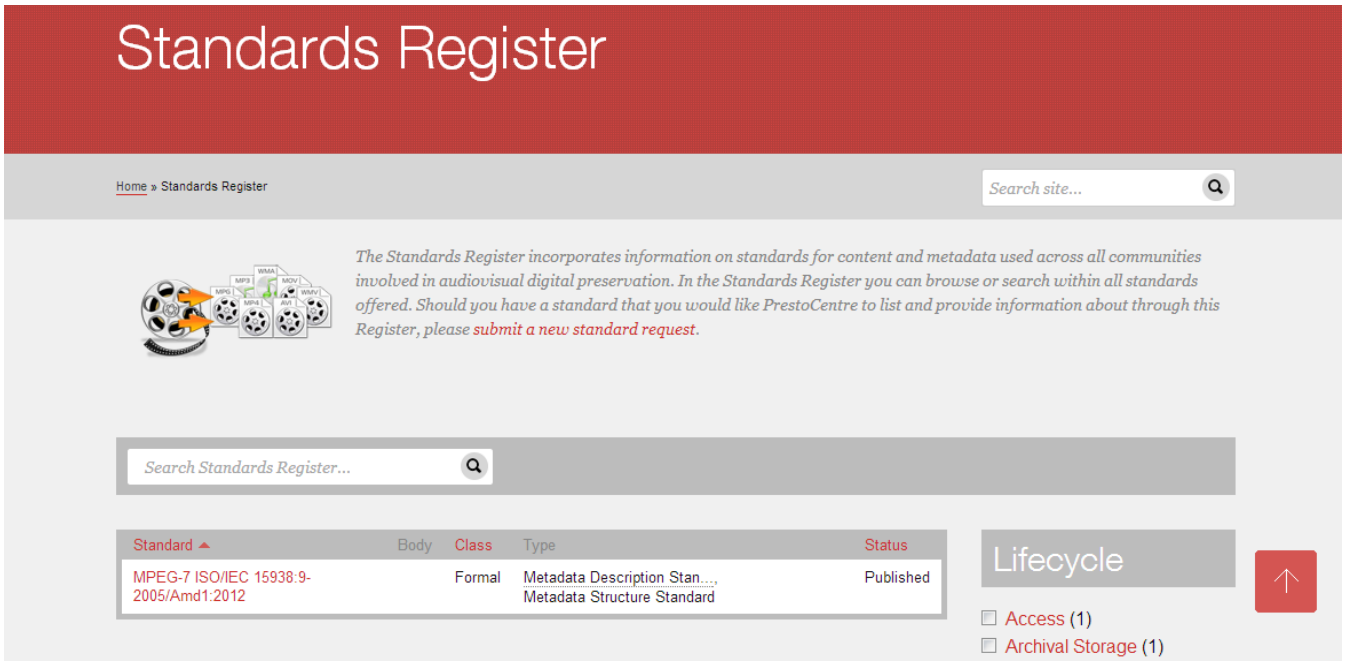

Figure 2. Standards Register Landing Page - excerpted

6.3 Standards Register Record Page

The record page has been specified to present three sections of information to users as we guide them through the use of standards for preservation workflows:

Description fields are the fields needed for identifying the standards with name, versions, description, issuer, references and tags.

Classification fields are those fields needed to describe the type, class and scope of a standard and its importance to the Communities of Practices.

Sustainability Factors fields are referring to fields that have impact on the *future planning for digital preservation activities.* This category comprises the fields needed for evaluating the obsolescence and the reliability in the next future of the standard, including community adoption of standards, license information, supporting documentation or resources.

6.3.1 Description Fields

Name
The name and version of a standard

Version Date
Date expressed in any date form. YYYY, MMYYY or DDMMYYYY

Detailed Name
Full name of the Standard, without abbreviations

Other Versions
Version number(s) of any previous version of a standard, linking that number to a separate record in the Register

Register will contain multiple records for some standards as accompanying tools may not always use the most current version of a standard

Description
Full description of the standard with citations for links of information reproduced from other authority sources.

Status
Vocabulary based on the maturity of a standard from a guideline to a published standard

Reference
Link to the authority website or page within that website with information on a standard. For example: METS [5]

Tags
User generated tags for description, subject, etc.

Figure 3. Standards Register record page – Description excerpted

6.3.2 Classification

Class
Vocabulary based on the maturity of a standard from a guideline to a published standard

Type
Classification of a standard, such as File Packaging Format or Metadata Description Standards

Geographic Scope
The geographic scope of a standard, whether worldwide, region or country-based

Audiovisual Lifecycle
Classification of records based on the OAIS lifecycle model

Affiliated with/Derived from
Express the parent/child relationship or other form of relationships between standards. For example, METS [5] in relation to MARC21

Domain
List of the Communities of Practice that a standard is relevant to

Figure 4. Standards Register record page – Classification

6.3.3 Sustainability Factors

License and Adoption
License model
Express whether a license is attached to a standard, with controlled vocabulary of license types

License fee
Express whether a fee is applicable for use of a standard

Community adoption
The representation of a sliding scale from light to dark to illustrate those Communities of Practice who have actively adopted use of a standard. Controlled vocabulary to express the formal names of the communities.

Implemented at
Sequential list of individual organisations who have implemented a standard with a hotlink (where applicable) back to that organisation or to records illustrating use of a standard within that organisation.

Documentation
Available
Yes/No representation of the availability of documentation, such as the specification of schema relating to a standard

Fee
Indication if a fee is applicable to access documentation

Resources
Sequential list with hotlinks (where applicable) to related resources such as white papers, tools, etc. that will encourage knowledge transfer

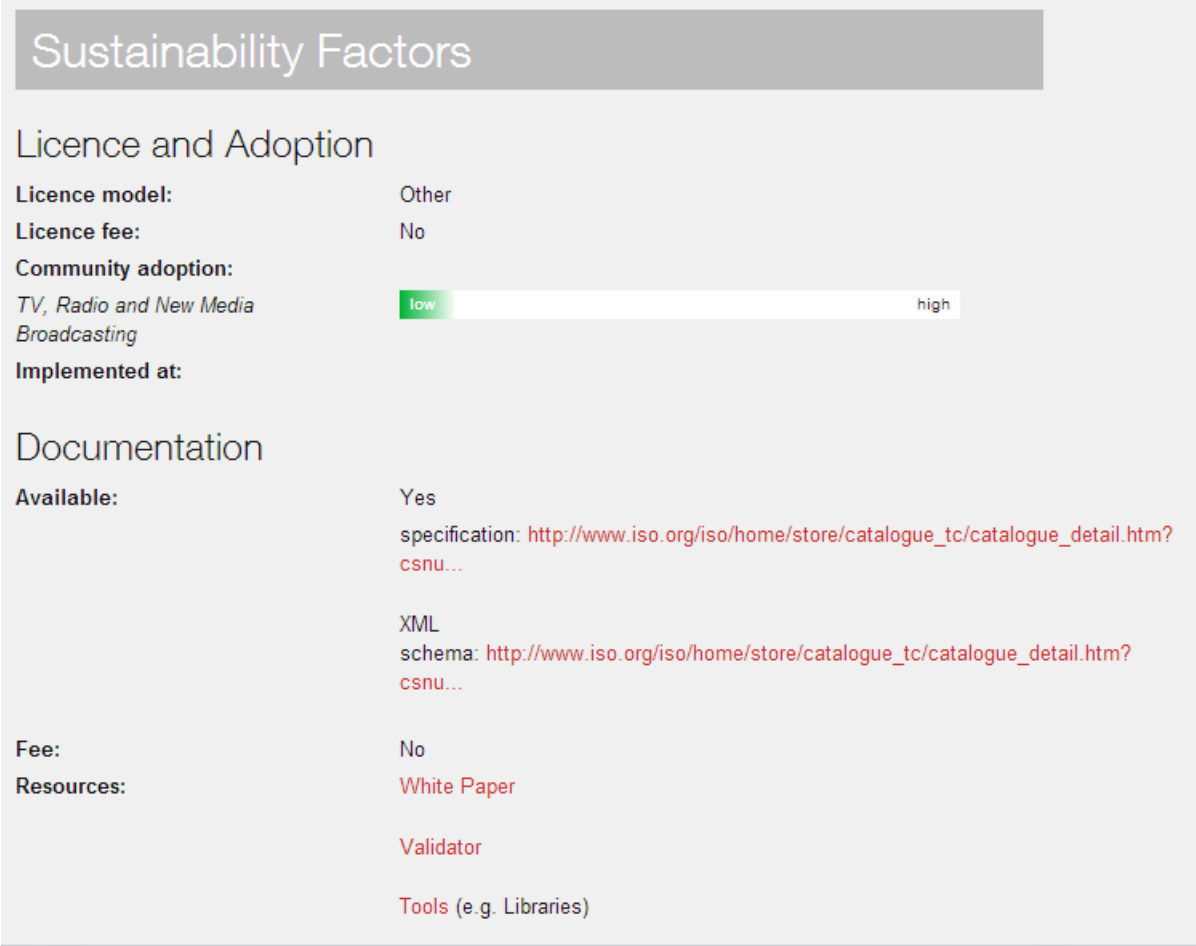

Figure 5. Standards Register record page – Sustainability Factors

7 Technical Implementation

The Standards Register is one of the services that Presto4U has now published through the existing PrestoCentre online platform. The PrestoCentre online platform is built as an open-source Drupal7 platform and can handle core complex user permissions and workflows. By choosing Drupal as platform, the standards register has at its disposal an expandable and flexible setup for the future of the service, which is especially important towards the Market Place integration in 2014. It also continued from the already implemented Community of Practice personalisation and filter features from Deliverable 2.3 (Community of Practice online workspaces).

The Standards Register was implemented as a separate content type. Drupal's flexibility to organise and distribute administrative and content access rights now helps standards experts to publish and easily maintain their records, contributing to the overall sustainability of the Standards Register over time. Presto4U standards experts (primarily from the Partners involved in Task 4.2, and Community of Practice leaders, will have tight control over the creation and administration of records, fields and taxonomies in the Standards Register. They will also have the ability to work on teams and to leave content private and publish it only when it's ready. With the Drupal Workflow module, they can decide on the steps needed for content to become public. And with Drupal's Organic Groups module different groups of experts can work on different "standard families". Overall, more than 100 Drupal modules are currently active for the functioning of the Standards Register (and all the related services). These range from very basic modules such as the "View" module, through for the Register specifically required modules like "Hierarchical Select Taxonomy," "Workbench Moderation," "PagePeeker Screenshots," to highly adapted and tweaked modules such as "Taxonomy revision." The field values of the Standards Register can be easily exported to MySQL or another database format for creating possible future interoperability and crossovers with other standards database services.

Difficult implementation challenges were the development of standards families and versioning and the way these interact with editorial and publication rights. Other challenges included the merging of existing and free taxonomies in one view, some filtering issues of standard fields for specific Communities of Practice, integration of relational features such as blogposts about standards, and providing contextual information through the platform-wide introduction of social tagging which will become an important feature underpinning what will become the Community Marketplace.

8 Record creation and sustainability

Implementation of an administrative workflow is essential to the sustainability of the Standards Register, i.e. the ability to add, moderate and authorise records. The first set of standards will be fed by the project, but we want to include the community to suggest new standards for integration in the register, as well as to nominate experts from the relevant standards bodies to maintain their own standards. The project also has implemented a simple framework for to capture and edit by the general users to suggest a new record page. Changes in taxonomy are a separate administrative workflow that will be handled directly by PrestoCentre.

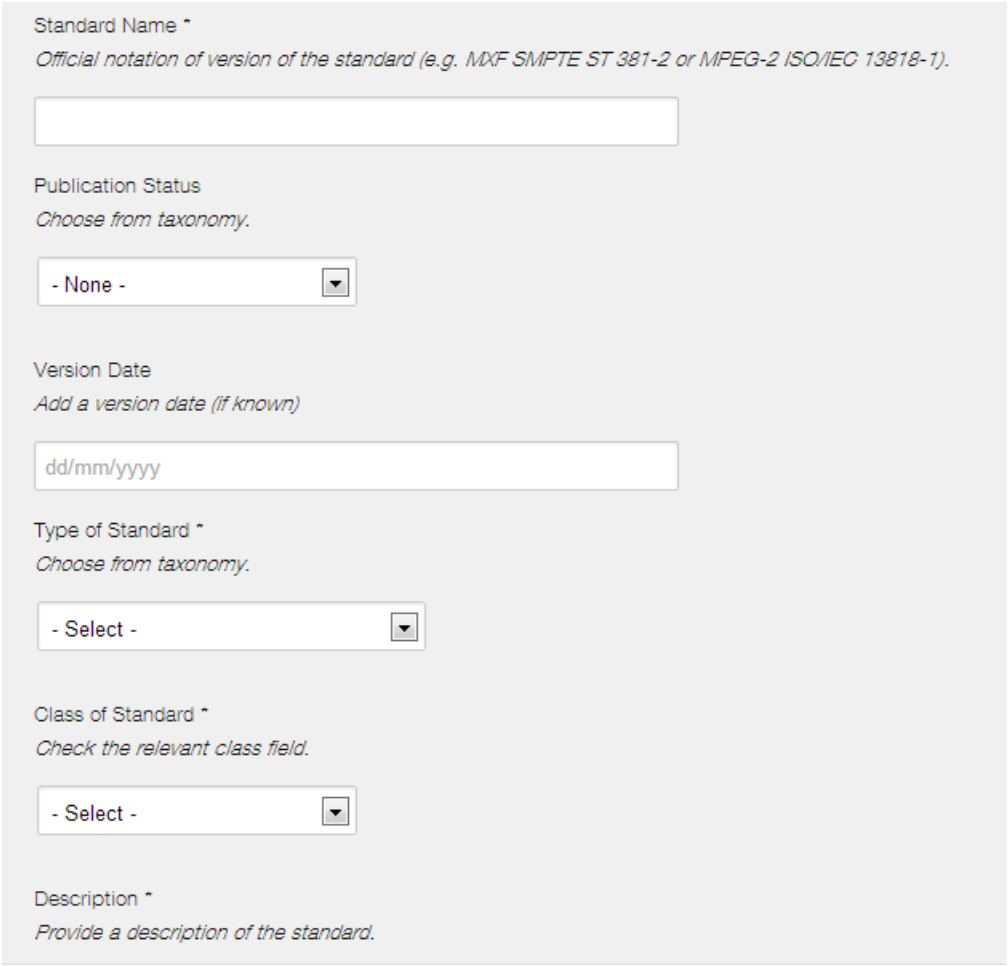

Figure 6. Standards Register record creation page – excerpted

9 Alignment of Standards Register with international initiatives

Current research into Standards Registers, or project including some form of listing of standards as part of their outcomes, point to two trends: obsolescence and duplication. One is that documentation can be gathered only within the lifecycle of a grant or project and then left as a static resource. The DCC DIFFUSE standards frameworks is one such example, that displays the notice “This is retained as a resource but nothing new has been added since late 2009” to signify the lifecycle of that portion of their website. [15] The other trend is duplication of effort as projects approach standards for particular reasons within their project. For example, the METS standard is referenced here on its authority page at the Library of Congress [5], on Wikipedia [16], the DCC [17], and the Society of American Archivists [18] to name a few. We cannot eliminate redundancy, but we can collaborate.

If taxonomies and vocabularies are aligned across projects we can create a better level of interoperability between initiatives. This enables projects to share data and ideas, to not reinvent the wheel by doing duplicative work. It fosters an environment where a core set of values can be shared across projects, while recognising that differing projects have diverse audiences, missions and outcomes. By aligning schemas, differing projects create opportunities for interoperability both in the short term and into the future.

The project leaders of Presto4U have decided to pursue an active collaboration with APARSEN as a way to share knowledge and create interoperable registers. APARSEN has been actively pursuing the gathering and creation of a standards register based on digital preservation across many sectors and industries with a focus on the science and technology. [19] While there is a commonality of standards across many sectors and communities, audiovisual preservation forms a small percentage of their output. However their schema and methodology mirror much of the philosophy behind the standards register. Both initiatives wish to pursue the OAIS framework as a way of expressing standards, and our schema structure and field layouts have been developed in a similar way. There are key differences between both efforts. As a more diffuse project across many disciplines, APARSEN is more general in some of its subject classifications, while the Standards Register has audiovisual Communities of Practice as its focal point.

This collaboration is in its early stages as year one of the Presto4U project draws to a close. At a minimum we hope to, where possible, align our schemas and some of our controlled vocabularies, and to link between the two registers.

Conclusion

The launch of the Standards Register marks the beginning of the development of this rich resource. Records will be added by the core group of subject experts within the project, based on their expertise with input from the Communities of Practice as needs and workflows are more fully discovered throughout year two of the project. Functionality may be expanded or added as the Software Tools Catalogue and Community Marketplace take shape within PrestoCentre.

Membership to PrestoCentre is not required for anyone to access the Standard Register. When Presto4U will end in 2014 we will pursue the common action towards long-term audiovisual preservation in Europe through PrestoCentre. It is important then, to define a sustainability strategy for PrestoCentre and the Presto4U services after the end of the project. These “business” implications will be explored in 2014 as part of Work Package 6.

Glossary

Attached is a list of acronyms commonly associated with standards, referenced from the Interim Report on Audiovisual and Preservation Standards. While not all are specifically referenced in this report, they are useful for an understanding of the Standards Register and how it will develop during the project.

AAC	Advanced Audio Coding
AAF	Advanced Authoring Format
AES	Audio Engineering Society
AIP	Archival Information Package (OAIS)
AMWA	Advanced Media Workflow Association (MXF)
ANSI	American National Standards Institute
AV	Audiovisual
AVC	Advanced Video Coding (MPEG-4)
AVDP	AudioVisual Description Profile (MPEG-7 part 9, ISO/IEC 15938-9:2005/Amd.1)
AVI	Audio Video Interleave (AV wrapper)
AXF	Archive eXchange Format
BNF	Bayonet Neill–Concelman, a quick connect/disconnect RF connector
BPEL	Business Process Execution Language
BPMN	Business Process Model and Notation
CCSDS	The Consultative Committee for Space Data Systems
CD	Compact Disk
CDMI	Cloud Data Management Interface
CMS	Content Management System
CoP	Community of Practice
CRC	Cyclic Redundancy Check (checksum algorithm)
DC	Dublin Core
DCC	Digital Curation Centre
DID	Digital Item Declaration (MPEG-21)
DIP	Dissemination Information Package (OAIS)
DPC	Digital Preservation Coalition
DASH	Dynamic Adaptive Streaming over HTTP
DAT	Digital Audio Tape
DDS	Digital Data Storage
DS	DuraSpace
DV	Digital Video
DVCAM	Sony professional version of DV
DVD	Digital Versatile Disc (video)
EBU	European Broadcasting Union
EDM	Europeana Data Model
EXIF	EXchangeable Image file Format
FFT	Fast Fourier Transform
FIMS	Framework for Interoperable Media Services (EBU)
FTP	File Transmission Protocol
FFT	Fast Fourier Transform
FPS	Frame Per Second
FS	File System
GDFR	Global Digital Format Registry
GNU	recursive acronym for "GNU's Not Unix!", a Unix-like OS
GoP	Group of Picture (video format)
GPL	GNU General Public License
HD	High Definition (video)
HDFS	Hadoop Distributed File System (Apache)
HEVC	High Efficiency Video Coding (MPEG-H)
HSM	Hierarchical Storage Management
HTTP	HyperText Transfer Protocol
IASA	International Association of Sound and Audiovisual Archives

IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
ITU-T	International Telecommunication Union – Telecommunication (Standardization Bureau)
JPEG	Joint Photographic Experts Group
JSON	JavaScript Object Notation
JTC	Joint Technical Committee (standardization body structure)
KLV	Key Length Value
LoC	Library of Congress
LTFS	Linear Tape File System
LTO	Linear Tape Open
METS	Metadata Encoding and Transmission Standard
MODS	Metadata Object Description Schema (LoC)
MOM	Message Oriented Middleware
MP-AF	Multimedia Preservation - Application Format (MPEG-A part 15, ISO/IEC 23000-15)
MPEG	Moving Picture Expert Group
MXF	Material eXchange Format
NA	National Archives (UK)
NIST	National Institute of Standards and Technology
NoE	Network of Excellence
NTSC	National Television System Committee (video-24fps)
OAI-PMH	Open Archives Initiative - Protocol for Metadata Harvesting
OAIS	Open Archival Information System
OASIS	Organization for the Advancement of Structured Information Standards
OMG	Object Management Group
OWL	Web Ontology Language
OP	Operational Pattern (es. MXF-OP1A)
OS	Operating System
PA-AF	Professional Archival - Application Format (MPEG-A part 6, ISO/IEC 23000-6)
PAL	Phase Alternating Line (video-25fps)
PCM	Pulse-code modulation (audio coding)
PDF	Portable Document Format
PREMIS	PREservation Metadata: Implementation Strategies
PSE	PhotoSensitive Epilepsy
P4	Presto Prime Preservation Platform
P4U	Presto4U
QA	Quality Analysis
QC	Quality Control (or Check sometimes)
RDF	Resource Description Framework
REST	Representational State Transfer
SD	Standard Definition (video)
SDI	Serial Digital Interface
SDK	Software Development Kit
SHA	Secure Hash Standard - Cryptographic algorithm
SIP	Submission Information Package (OAIS)
SMPTE	Society of Motion Picture and Television Engineers
SNIA	Storage Networking Industry Association
SOAP	Simple Object Access Protocol (distributed objects)
SPARQL	recursive acronym for Protocol And Rdf Query Language
TAR	Tape ARchive (archive software tool and command)
TOGAF	The Open Group Architecture Framework
TMS	The Management System (CMS widely used among Museums and Art Galleries)
UDFR	Unified Digital Format Registry
UMID	Unique Material IDentifier
UML	Unified Modelling Language
UUID	Universally Unique IDentifier
VTR	Video Tape Recorder
W3C	World Wide Web Consortium
WG	Working Group (standardization structure)
XDCAM	series of products for digital recording (introduced by Sony in 2003)
XML	eXtensible Markup Language

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