



PUBLIC BROADCASTING METADATA DICTIONARY PROJECT



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PUBLIC BROADCASTING METADATA DICTIONARY PROJECT

Howdy.

- Getting to know ASIS&T
- Your mission & vision
 - [2002 President's Message](#) (Oct-Nov)
- *Nurturing new perspectives, interests, and ideas.*
- We would like to share with you the objectives and progress of the Public Broadcasting Metadata Dictionary Project



The Intellectual Assets of Public Broadcasters

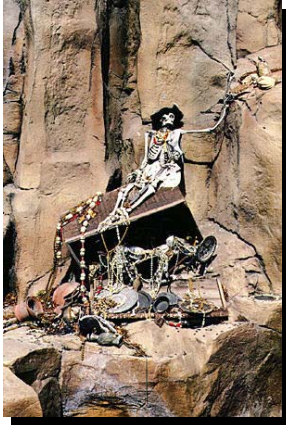


Photo by Jim Steinhart

- With our connections to...
 - Local communities
 - National outreach
 - Universities, colleges & schools
 - Non-profit institutions
 - Arts & cultural organizations
 - Historical & scientific groups
- ...we are sitting on treasure chests of television and radio programs, as well as rich media files...none of it pirated, of course



The Intellectual Assets of Public Broadcasters

- Some of it is buried treasure...





The Intellectual Assets of Public Broadcasters



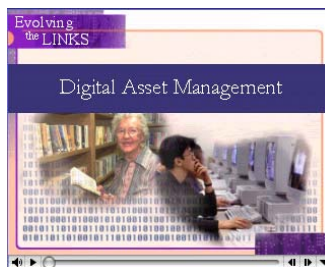
- Much of it awaits valuation...
 - Aesthetic
 - Spin
 - Monetary
 - Service & Social
 - Educational
 - ROI



The Intellectual Assets of Public Broadcasters

- [Introduction](#)
- [Metadata](#)
 - > [UCME](#)
- [Delivery on Demand](#)
- [Digital Asset Management Systems](#)
- [Universal Access](#)
- [Example of a Portal](#)
- [Conclusion](#)

- Much of it awaits description, metadata mark up, and entry into Digital Asset Management systems.



Metadata and DAM Presentation
Courtesy of Wisconsin Public Television



The Intellectual Assets of Public Broadcasters



- And the metadata needs to be exchanged in...
 - National Program Distribution
 - Local Broadcast Ops
 - Multiplatform Production
 - Fundraising & Sponsorship
 - Corporate Communications
 - Web & Broadband Services



The Intellectual Assets of Public Broadcasters



- Hopefully, few assets are locked away due to...
 - Use & copyright restrictions (Digital Rights Management)
 - Old-fashioned greed
 - Lack of generosity and altruism
 - Failure to implement Digital Asset Management systems
 - Failure to create a usable metadata dictionary



Ultimate Goals

- Realize the maximum **value** of our intellectual content
- Optimize efforts during **production**
 - Producers will have access to all content created by all productions at any time
 - Workflows will be changed and hopefully improved



Ultimate Goals

- Maximize options for **distribution**
 - Provide on-demand access to digital video and other rich multimedia resources
 - Generate alternative and spin-off content in a variety of formats, e.g., streaming video and interactive media of broadcast series, outtakes, interviews, transcripts, animations, archival and field photographs, excerpts from print resources.
 - Offer full-length programs, single-concept segments, or raw media elements (video/audio clips, images, maps, charts, text)



Ultimate Goals

- Maximize options for ***distribution***
 - Distribute files...
 - In a variety of delivery platforms
 - At user-specified quality levels (often determined by bandwidth connections to the Internet)
 - In a user-desired format
 - At a user-determined time



Ultimate Goals

- Accommodate ***archiving*** of content
 - Well organized
 - Preserved
 - Maintained
 - Current availability
 - Future availability



Specific Objectives

- Within Public Broadcasting communities, form a **WORKING GROUP** to...
 - Develop and refine **user requirements** for a sharable metadata dictionary
 - Review **existing metadata** dictionaries and schemes to...
 - Determine applicability
 - Identify gaps and overlaps
 - Retain the best, purge the rest



Specific Objectives

- Within Public Broadcasting communities, form a **WORKING GROUP** to...
 - Determine the **scope and breadth** of a usable metadata dictionary that is...
 - Extensible
 - Interoperable
 - Consensus-built
 - Draft a preliminary **Application Profile** of a Public Broadcasting Metadata Dictionary of descriptors and their usage
 - Present the Profile for **Review and Comment**
 - **Revise** the Metadata Dictionary



Working Group Members

- PBS, APTVS, NETA
- NPR, PRI
- Public Interactive, PBS.org, NPROnline
- National producers (WGBH, MPR, WNET, Grubin)
- Community radio and TV licensees (KCTS, WGBH, WHRO)
- State networks
- University radio and TV licensees (KWSU, WPT, WPSX, KUED, WMVS)
- Educators & their Evangelists (WPT, OnCourse, WHRO)
- Subject Matter Experts (AMIA/Rutgers, DOD Academic CoLab, University of Washington Information School)



User Requirements

- One team was assigned to...
 - Conduct use case interviews
 - Summarize use case scenarios
- Issues and recommendations...
 - Accommodate metadata descriptions at the full program level as well as a segment or clip level
 - Rights management metadata is important
 - Implement a small, mandatory set of core metadata...but allow for modularity and special case extensions useful to other communities
 - Cont'd



User Requirements

- More Issues and recommendations...
 - Any metadata must be able to pass through existing transport and application standards already in place for public broadcasting
 - Dovetail with MPEG-7, Dublin Core, SMPTE and EBU P/Meta schemes
 - Use XML to crosswalk metadata from one application profile to another



Metadata Dictionary

- A second team was assigned to...
 - Review existing metadata dictionaries, elements & qualifiers

Existing Metadata Standards



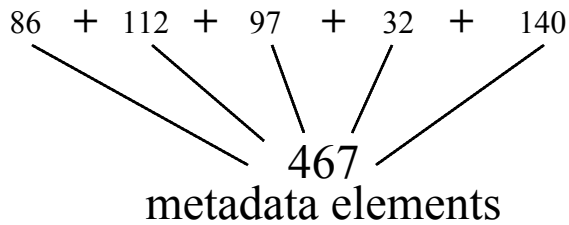
Existing Management Systems within Public Broadcasting





Metadata Dictionary

- A second team was assigned to...
 - ...and then spawn a PBCore Metadata Dictionary



Metadata Dictionary

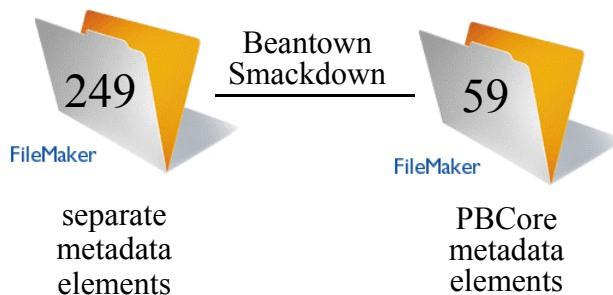
- A second team was assigned to...
 - Spawn a PBCore Metadata Dictionary





Metadata Dictionary

- A second team was assigned to...
 - Spawn a PBCore Metadata Dictionary



Draft PBCore Metadata Elements

- **Title**
- **Title.Alternative**
- **Title.Series**
- **Title.Episode**
- **Title.Program**





Draft PBCore Metadata Elements

- **Creator**
- **Creator.Role**

- **Subject**



Draft PBCore Metadata Elements

- **Description**
- **Description.Abstract**
- **Description.TableofContents**
- **Description.ProgramRelatedText**





Draft PBCore Metadata Elements

- **Publisher**
- **Publisher.Role**

- **Contributor**
- **Contributor.Role**



Draft PBCore Metadata Elements

- **Date.Created**
- **Date.Issued**
- **Date.AvailableStart**
- **Date.AvailableEnd**





Draft PBCore Metadata Elements

- **Type**
- **Type.Form**
- **Type.Genre**

- **Format.Physical**
- **Format.Digital**
- **Format.Identifier**



Draft PBCore Metadata Elements

- **Format.FileSize**
- **Format.AudioBitDepth**
- **Format.AudioChannelConfiguration**
- **Format.AudioDataRate**
- **Format.AudioSamplingRate**





Draft PBCore Metadata Elements

- **Format.ImageAspectRatio**
- **Format.ImageBitDepth**
- **Format.ImageChannelConfiguration**
- **Format.ImageColorCode**
- **Format.ImageDataRate**
- **Format.ImageFrameRate**



Draft PBCore Metadata Elements

- **Format.ImageFrameSize**
- **Format.TimeStart**
- **Format.Duration**
- **Format.Standard**
- **Format.Type**
- **Format.Encoding**





Draft PBCore Metadata Elements

- **Identifier**
- **Source**
- **Language**
- **Language.Usage**



Draft PBCore Metadata Elements

- **Relation.Type**
- **Relation.Identifier**
- **Coverage.Spatial**
- **Coverage.Temporal**





Draft PBCore Metadata Elements

- **Rights.Usage**
- **Rights.Reproduction**
- **Rights.Access**

- **Audience.Level**
- **Audience.Rating**



Draft PBCore Metadata Elements

- **Standards**

- **Annotation**

- **Location**





Regarding an Application Profile

- Definition <http://www.schemas-forum.org/metadata-watch/3.html>
 - Implementation projects generally find that no one metadata standard will completely meet their descriptive needs.
 - General standards such as Dublin Core must often be used alongside domain- or sector-specific standards such as MPEG-7 for multimedia and IEEE/LOM for educational resources.
 - Cont'd



Regarding an Application Profile

- Definition <http://www.schemas-forum.org/metadata-watch/3.html>
 - New elements may be needed for local needs not covered by any existing standards.
 - Recent practice distinguishes between the definition of semantics in “namespaces” (i.e., official standards) and the reuse and interpretation of those semantics in “application profiles.”
 - Cont'd



Regarding an Application Profile

- Definition <http://www.schemas-forum.org/metadata-watch/3.html>
 - Application profiles are schemas that combine elements from multiple standards, perhaps with application-specific constraints such as the use of specific controlled vocabularies.



Regarding an Application Profile

- Well...that definition fits the Public Broadcasting Metadata Dictionary Project
 - Sector = Audiovisual
 - We mixed and matched metadata elements from many sources
 - Some with official namespaces
 - DCMI: Dublin Core Metadata Initiative
 - DCEd: Dublin Core Educational Namespace
 - ViDe: Video Development Project
 - MPEG-7
 - SMPTE
 - Some without registration authority (TBD)
 - PBCore



Regarding an Application Profile

- Well...that definition fits the Public Broadcasting Metadata Dictionary Project
 - Challenges
 - Who will serve as the real registration authority that takes responsibility for the declaration and maintenance of newly defined, custom elements and qualifiers?
 - Who will publish versions and updates?
 - How will we monitor adoption and compliance?
 - How will we measure success?



Regarding an Application Profile

- Functional Requirements or Element Attributes (modified ISO 11179 format)
 - >*element name*
 - >*version*
 - >*element label*
 - >*definition*
 - >*namespace identifier*
 - >*registration authority*
 - >*language of element*
 - >*obligation/mandatory*
 - >*datatype*
 - >*maximum occurrence*
 - >*encoding schemes*
 - >*restricted values*
 - >*examples*
 - >*usage guidelines*



Draft PBCore Application Profile

- Will exist as the “Whole Enchilada”
 - Currently in first draft
 - Currently compiling comments from Dictionary Team
 - Will submit to entire Working Group for comment
 - Will submit to informed “others”
- Will exist as a “Reader’s Digest” version
 - Will submit for less informed “others”
- First, we will “Test Drive” the PBCore Metadata by marking up media assets the Working Group already has indexed.
 - Excellent Gap Analysis



Draft PBCore Application Profile

Testing and Promotion/Request for Comments

- From Distributors/Funders

- | | |
|-----------------------------------|-------------------------------------|
| –CPB Program Funding | –NPR Archive |
| –PBS “Orion” Program Information | –NPR Content Depot |
| –PBS NGIS | –NPR Online CMS |
| –PBS.org CMS | –MPR Archive |
| –PBS Archive/Preservation | –PRI DAM Initiatives |
| –PBS National Cable & DBS VOD/EPG | –American Public Television (APTVS) |
| | –NETA |



Draft PBCore Application Profile

Testing and Promotion/Request for Comments

- From Local Public Broadcasting Stations/Departments
 - Program Scheduling & Traffic
 - Broadcast Ops (Routing, Automation)
 - Broadcast Ops (MC, DTV PSIP, datacast)
 - Local Cable or DBS VOD/EPG
 - Production (TV or radio linear content)
 - Development (Members, Sponsors)
 - Corporate Communications (A&P, Audience)
 - Web Services CMS, CRM
 - Education (traditional ITV services)



Draft PBCore Application Profile

Testing and Promotion/Request for Comments

- From Other Public Broadcasting Initiatives
 - onCourse
 - Other educational content publishers
 - Collaborative content portals (AMIA, MIP)
 - P2P content exchange & production (RMU)
 - Community/University content partnerships (MARS)



Draft PBCore Application Profile



QuickTime™ and a
GIF decompressor
are needed to see this picture.



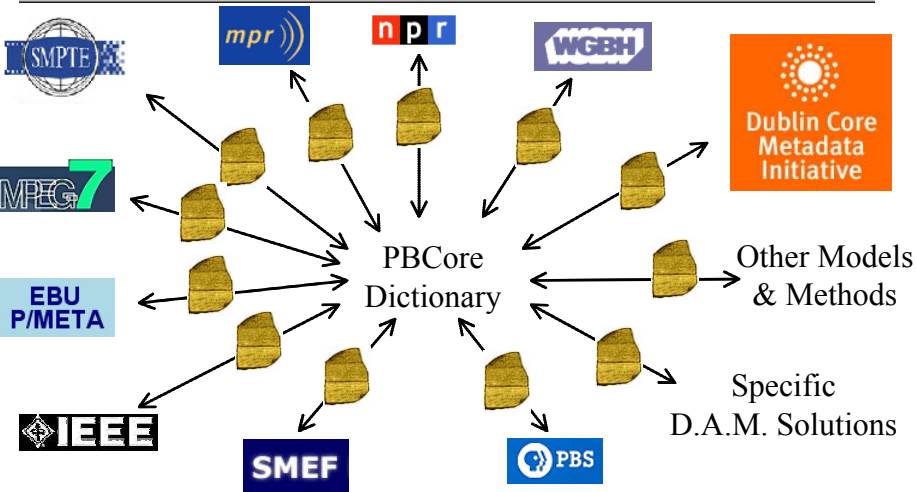
Draft PBCore Application Profile

- Reality Check
 - Our primary interest is in **data exchange**, crosswalks, and interoperability, not necessarily to create a complete metadata model that can be exploited by digital asset management systems for original descriptive cataloging or mark up.





Draft PBCore Application Profile



Draft PBCore Application Profile

• Reality Check

- Our focus is **not** to create metadata elements and qualifiers that are used for **original data entry and mark up**.
- **Example 1:**

Data Fields used in Mark Up Tools

- Person Last Name = Smithee
- Person First Name = Alan
- Person Middle Name = E.
- Person Credentials = Ph.D.

...maps to...

Data Fields used in Metadata Exchange

- └ DC.Creator = Smithee, Alan E., Ph.D.



Draft PBCore Application Profile

- Reality Check

- Our focus is **not** to create metadata elements and qualifiers that are used for **original data entry and mark up**.
- **Example 2:**

Data Fields used in Mark Up Tools

- Program Title = National Parks of Utah
- Series Title = Geography of Utah Series
- Number in Series = Episode 16
- Collection Title = Social Studies of Utah

...maps to...

Data Fields used in Metadata Exchange

- DC.Title =
National Parks of Utah
- DC.Title.Alternative =
Social Studies of Utah, Geography of
Utah Series, Episode 16



Draft PBCore Application Profile

- Reality Check

- Our focus is **not** to create metadata elements and qualifiers that are used for **original data entry and mark up**.
- **Example 3:**

Data Fields used in Mark Up Tools

- Month = November
- Day = 21
- Year = 2002

...maps to...

Data Fields used in Metadata Exchange

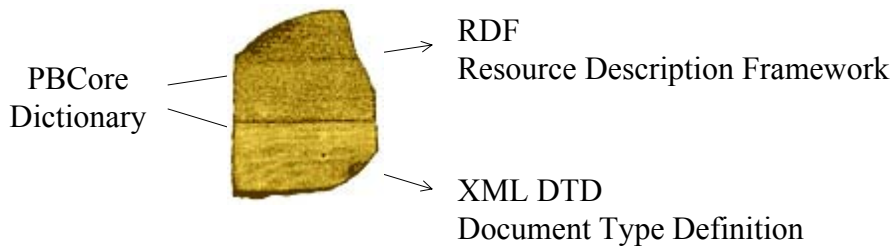
- DC.Coverage.Temporal =
2002-12-21



Draft PBCore Application Profile

- Reality Check

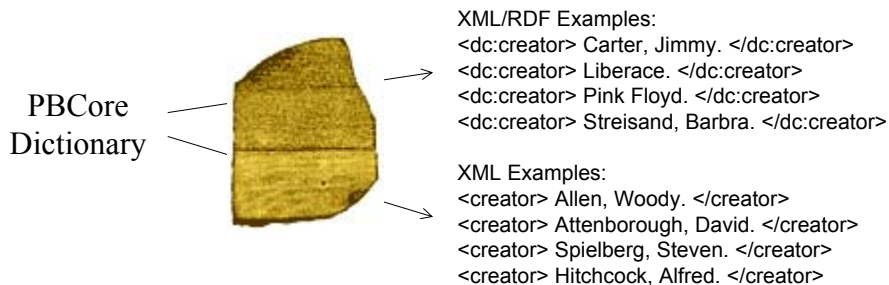
- To express these mappings via web-based search engines and browsers, another Rosetta Stone is needed.



Draft PBCore Application Profile

- Reality Check

- To express these mappings via web-based search engines and browsers, another Rosetta Stone is needed.





Draft PBCore Application Profile

- Reality Check

- The PBCore is intended to be *simple* but not simplistic
- The PBCore is intended as a starting point that accommodates *metadata extensions* for specific communities, for example...

Metadata Element Extensions
proposed by the DC Education Working Group:

DCEducation Elements:

Audience
Audience.Mediator
Standard
Standard.Identifier
Standard.Version
Relation.ConformsTo

IEEE Learning Object metadata (LOM) Elements:

InteractivityType
InteractivityLevel
TypicalLearningTime



Draft PBCore Application Profile

- Reality Check

- Numerous Smackdown Rounds involved the issue of:
 - One metadata record for every instantiation of an asset (1:1)
 - One record for many instantiations/formats of an asset (1:many)
- We're still conflicted.



Draft PBCore Application Profile

- Reality Check
 - We are not **Standards Makers**
 - We are **Real Life Implementors**

- Standards Makers
 - Authoritative
 - Create coherent, well-structured element sets
 - Concerned with the integrity of the data model
- Implementors
 - Need to generate effective solutions in order to service the delivery of content
 - Most often engaged in Applied and Practical solutions



Timeline

(May - Nov. 2002)	Compare and Contrast
(Ongoing)	User Requirements
(May - Nov. 2002)	Scope and Breadth
(Dec. 2002)	Publish Preliminary
(Jan. - Feb. 2003)	Review/Update
(Mar. - June 2003)	Test/Update
(July 2003)	Publish Version One