

## **PBCore Scope of Work**

The Compliance and Sustainability working group (“the C&S team”), an ad hoc team working as part of the CPB-funded Public Broadcasting Metadata Dictionary project (PBMD) under the overall project management of WGBH, met on May 27-28, 2004 to discuss and make recommendations for the implementation of the Public Broadcasting Metadata Dictionary (“PBCore”).

Overall project recommendations are fully detailed in the Compliance and Sustainability Plans, submitted to CPB as part of the final project deliverables. This document describes the anticipated scope of work for initial implementation of PBCore.

Implementation requires action in four main areas:

- Advocacy
- Training
- Technical assistance
- PBCore maintenance

The C&S team believes that these factors are critical to success:

- Sustained momentum
- PBCore implementation must be managed by a single entity with the necessary skills, credibility, and track record.
- PBCore implementation requires initial funding from CPB.
- Public broadcasting interests must develop a business model to sustain the effort long term.

The above-referenced final project deliverables represent a full discussion of the need for a public broadcasting metadata standard, and why PBCore is the appropriate choice. As André Mendes, chief technology officer at PBS, says,

*PBS is fully aware of and behind the implementation of PBCore as the metadata standard for public broadcasting. Furthermore, PBS believes that the PBCore effort is essential to the evolution into a more efficient supply chain environment that will allow public television stations to fully leverage their content across legacy and new media distribution platforms.*

Implementation of PBCore must address a range of technical, cultural, workflow, and economic considerations.

- *Technical* issues will center on forms in which the PBCore is expressed, interoperability between different applications, databases and networks, and its role in initiating a digitizing/archiving process;
- *Cultural* issues relate to values, mission, and roles and well-developed and deeply entrenched practices;

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- *Workflow* is the active implementation of the values and premises defined by the culture and are fundamentally changed by the implementation of digital systems; and
- *Economic* factors relate to local and system-wide costs. In addition, an overarching concern for PBCore implementation is sustainability—including financial sustainability—over the long term.

There are also key differences between how and when public broadcasting stations as well as those broadcasters' use of the emerging "third" medium, the Web, will use PBCore. As a whole, public radio is furthest down the metadata road, with the creation of the ContentDepot and other activities. In part this is due to the relative ease with which audio can be delivered over IP, in part due to the structure of public radio nationally, and in part due to the early work of some visionary leaders in radio. Additionally, interesting work is already being done by our new media community in the area of constructing a human-friendly interface to PBCore. As a general rule, implementation in television will be more complex, expensive, and difficult than in radio or the Web. PBCore must serve our full range of public service media, including emerging digital services. Our collective experience has shown that implementing a next-generation metadata schema is something that is universally under scoped by technologists and vendors.

Metadata implementation is a nuts-and-bolts issue in the digital transition, not something headlined in news releases, funding requests, and constituent briefings. Few public broadcasting managers give the subject any thought until it is right in front of them as they develop digital facilities and services, when they're faced with a series of seemingly esoteric, yet critical, issues. Currently, only a handful of stations are able to make any use of a metadata standard, because—while useful—extensive metadata implementation is not required in an analog model; and because broadcasters have not had affordable digital asset management solutions available to them. This has created a situation where stations increasingly need solutions that will enable them to share content with their production and distribution partners, as well as help ease the burden on their current digital production, broadcast, and archive systems.

Things will change rapidly in the next few years. The rollout of the ContentDepot and PBS Next Generation Interconnect System will accelerate the adoption of metadata, as will PBS ACE and other automation systems. Readying broadcast content for distribution on alternative platforms will also require metadata implementation. The C&S team anticipates that relatively few public broadcasting stations will adopt PBCore in the next 12 months, but that an increasing number will do so in a 2-3 year time frame, (including vendors who service their needs), with virtually all stations being PBCore-compliant within 5 years.

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There is some urgency. Public broadcasting has made a substantial investment in PBCore, and there's considerable momentum behind the PBCore project. There is also a significant risk to delay. There's no question that metadata will be integral to our services. The only issue is, what metadata standard will stations and producers use? If we don't act quickly to secure PBCore's position as the public broadcasting standard, we risk a period of competing systems at the precise time we need to focus our energies on working together.

### **Advocacy**

Perhaps the most important lesson learned in the PBCore test phase was how important educating potential PBCore users will be in achieving rapid adoption. The cultural change necessary for organizations to adopt PBCore is likely a more difficult challenge than overcoming the technical learning curve, and support is needed throughout organizations attempting to benefit from PBCore. Even though there has been significant work in this area, we still need to continue educating management and opinion leaders on why PBCore is needed. We would also see more rapid adoption if we can give them enough information to help them envision, and get green-lighted, system upgrades and new development projects that use the PBCore.

In the first phase of implementation, advocacy is critical, spreading the word about the capabilities of PBCore and its importance to our digital distribution future. "PBCore" should be a recognized term within public broadcasting, as well as within the larger communities with which public broadcasting interfaces, especially including vendors. And, some efforts should be focused on major program suppliers and producing stations, independent producers, and vendors that will, of necessity, be among the early adopters.

In addition, active support from PBS and NPR PRSS is essential. Both organizations are in the process of designing next-generation distribution platforms. Without enthusiastic support from these organizations, and other leaders in the industry, we may be left with an elegant, but stranded, standard.

*Scope of work:* develop an effective plan for bringing PBCore onto the radar screen of appropriate public broadcasting executives at the station level, as well as regional and national distributors; create communication channels with appropriate industry groups and vendors; create communication channels with major suppliers and stations. Define PBCore in a concise and compelling way; secure support from PBS, NPR, and other key organizations.

## **Training and Technical Assistance**

The PBCore can be thought of in two ways, each having an impact on its respective training and technical assistance scenarios.

- The PBCore metadata application profile itself.
- The ways in which PBCore can be implemented.

Regarding the first bullet, it is fairly clear what would be involved in training and familiarizing potential users about the PBCore descriptive elements, their meaning, their vocabularies, and their proper usage. This is ground level training that insures the PBCore elements are being used appropriately. Technical assistance refers to help with the fundamentals of the schema, not necessarily how it can be applied in real world situations.

Regarding the second, it will require additional experience and analysis to understand what a useful “demonstration model” of PBCore implementation would be. PBCore is not a single, shrink-wrapped product that is installed and applied. It is a building block that can be inserted into many different applications and many different models, all depending on individual station infrastructures, capabilities, and needs. There will almost certainly be multiple demonstration models.

### **Training**

The major training-related work of the first phase will be to ascertain what tools will be most useful as the adoption of PBCore gains momentum. The C&S team believes that there’s relatively little benefit in conducting traditional PTV training activities. Until stations or other users have a real need to implement PBCore, training can do very little. Put simply, there’s little to be trained *about* until a user is actually looking at implementation. What this means is that implementation needs to anticipate the inevitable need for information and training, using a just-in-time approach. It’s likely that some combination of a robust web site, “help desk/answer-person”, and targeted one-on-one consulting will be developed to flexibly address and advise on how a station can implement PBCore, offering options and helping stations understand those options.

It’s also likely that only the largest of public broadcasters can support a full implementation of PBCore without external assistance. On a system-wide basis, scaled implementation is important, so that any organization is able to start wherever their experience level and internal systems would currently allow, and be able to grow into a more comprehensive use of the PBCore over time. The C&S team suggests that a small set of current or upcoming projects be identified, which need assistance in PBCore implementation. Expertise provide to these

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organizations would create solid models from which we can all learn and build on in the future.

*Scope of work:* Ascertain training needs of public broadcasters, including major producing stations/entities; develop effective approaches, tools, and procedures for delivering training; develop plans for scaled implementation; create demonstration models of what PBCore looks like implemented and how it is used.

### **Technical Assistance**

Usefulness and wide availability of PBCore will be enhanced if (1) the human interface to PBCore is developed in a way that is natural to the widely varying needs and professional experience of television, radio and web producers and distributors; and if (2) there is a seamless integration of PBCore into the tools or work processes people are already using (for example, mapping to asset management systems).

An important finding of the PBCore test implementation is that the apparent simplicity of the PBCore design may cause users to underestimate the complexity of the implementation task. While users may have the technical capacity for manipulating the data once it was expressed as XML, the procedure of mapping the metadata to existing, or future, internal system databases was something that called for skills that may not be readily available.

This work would include building a freely available tool for markup, providing a basic content cataloging tool. This would allow users with limited technical capacity to produce PBCore compliant metadata records and to express these records as PBCore -compliant XML.

*Scope of work:* Provide expert advice liaison to vendors and public broadcasting developers who design and implement PBCore interfaces for easy data entry or who map PBCore to their asset management systems. , Create a basic content cataloging tool.

### **PBCore Maintenance**

To be useful, a standard must be stable *and* flexible. In the course of normal use, improvements are suggested. As technology and services change, standards adapt. All standards bodies have formal processes for collecting, reviewing, adopting and publishing changes. It will also be important to stay in communication with other standards organizations, since PBCore is influenced by standards set by those bodies. In addition, work remains to be done to simplify and explain the language within PBCore, and provide more “producer friendly” documentation and examples.

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To develop and manage these processes, a PBCore Standards Committee needs to be created; and a management entity designated.

Here is another opportunity to drive adoption. If we create/maintain some simple tools which will convert metadata to and from PBCore into the required format for other standards, we can lower the real and perceived risk for producers and vendors who are thinking about using PBCore.

*Scope of work:* under the direction of the PBCore Standards Committee, review standards processes from other organizations (e.g., SMPTE, Dublin Core), propose processes and systems for PBCore; manage initial implementation of these processes and systems, including development of PBCore website.

## **Recommended Next Steps**

### **Advocacy**

- Based on existing work, define PBCore in a concise and compelling way
- Develop a plan for putting PBCore onto the radar screen of public broadcasting executives
- Create communication channels with appropriate industry groups and vendors
- Create communication channels with major content producers and distributors
- Create a demonstration model of what PBCore looks like implemented and how it is used

### **Training**

- Evaluate current awareness and understanding of what PBCore is among constituencies
- Ascertain training needs of public broadcasters, including major producing stations/entities
- Develop effective approaches, tools and procedures for delivering just-in-time training

### **Technical assistance**

- Provide expert advice liaison to stations; and to vendors and public broadcasting developers creating PBCore interfaces for easy data entry or mapping PBCore into their asset management systems
- Work with key leading technology suppliers to PBS broadcasting solution efforts to build PBCore compliancy into their solutions
- Establish a “helpdesk”/monitored BBS support tool
- Create publicly available cataloging tool

### **PBCore maintenance**

- Review standards processes from other organizations
- Propose processes and systems for long-term maintenance of PBCore
- Manage initial implementation of these processes and systems, including development of PBCore website
- Monitor developments of other standards that relate to PBCore
- Maintain a set of mapping/conversion utilities to translate to and from PBCore metadata