

## [Earlier Draft with additional charts and comments]

### Executive Summary

From January 2002 through January 2004 a team of public broadcasting station and national network representatives and invited guest experts worked to develop a draft metadata dictionary for public broadcasting. This effort, managed by WGBH/Boston under a grant from the Corporation for Public Broadcasting, resulted in a draft “##” completed by the project’s “Dictionary Team” in January 2004.

Immediately following this activity, a Request for Comments (RFC) process was started. The RFC activities consisted of three data-collection rounds:

1. A preliminary survey of the “usefulness” of each of the PBCore Dictionary element definitions and refinements/vocabularies was conducted from February 4-10, 2004.
2. A larger group of invited respondents took the survey between February 16 – March 1, 2004. 17 members of the PBCore Dictionary Working Group completed the survey during the two rounds.
- 3.
4. A small group of invited “metadata experts” from the library science, national standards, and media indexing and archivist communities were invited to extend their comments via an “open-ended” survey. They were also asked a number of questions relating to the “philosophy” of metadata schemas that could inform the work of the team asked to update and maintain the “PBCore.”

### **SUMMARY OF ACTUAL RESPONDENTS**

<b>SURVEY</b>	<b>RESPONDENTS</b>	<b>FROM WORKING GROUP</b>	<b>FROM EXPERTS LIST</b>	<b>FROM INDUSTRY LIST</b>
General Survey	49 out of 81 invited	17 out of 29 invited (2 are also part of the Experts Group)	9 out of 13 invited (2 are also part of the Working Group)	25 out of 41 invited
Experts Survey	9 out of 15 invited	4 out of 4 invited (4 are also part of the Experts Group)	9 out of 15 invited (4 are also part of the Working Group)	

**A total of 81 respondents completed the survey process; and 9 “experts” took the extra hours to complete the follow-up questionnaire.** Their responses are NOT to be construed as a statistically valid “random sample” of either the community of potential users of PBCore, or of the range of opinion of all of the outside experts in the metadata field. What they do provide is an “indicator of acceptance” of the various PBCore elements and their associated refinements/controlled vocabularies – and a preview of

the issues that will confront public broadcasting as it promotes PBCore as an emerging standard.

The RFC panelists worked with metadata as archivists and librarians, content distributors and/or traffic/operations managers, engineers or systems vendors. They were drawn from public radio and television stations, PBS, NPR, national distributors, educational institutions and private-sector organizations that either partner with public broadcasting or supply metadata-related services to it.

Highlights of their responses include the following:

- It is no surprise that as a self-selected, “metadata-savvy” group, **ninety-six (96) percent of the respondents “strongly” or “very strongly” agreed** (4.7 mean on a 1.0 to 5.0 scale) that **“public broadcasting needs a core metadata dictionary.”**
- More importantly, *after completing the survey the same percentage “strongly” or “very strongly” agreed that the proposed PBCore met this need* (with a 4.3 mean score).
- **Eighty-percent of the respondents indicated that PBCore would be a useful tool for marking-up and searching on public broadcast content assets** (with a 4.0 mean score on markup, and 4.1 on usefulness and searching value).
- A warning that more work needs to be done however, is that after reviewing all the elements and their vocabularies and refinement options, **one-quarter (24%) of the respondents could not say that they “strongly” or “very strongly” agreed with the statement “I feel I understand the PBCore Metadata Dictionary.”**
  - **Of the 116 metadata elements and refinements evaluated by the respondents, 70% of these elements scored at least a “4” on a 1-5 scale in terms of “usefulness.” Only one element scored below a 3.5.**
  - **Thirteen (13) elements (11%) however, were scored below a 3.0 by the “experts panel” of reviewers.** None was scored lower than a 2.5 by any subset of reviewers.

The experts gave generous advice about these “troubling” elements. In some cases they tended to agree on a recommendation. In others, the experts were as divided as our Dictionary Team. In more general terms, the “expert” respondents agreed on the following suggestions:

- **Keep It Simple** – develop a core set of questions for each workflow area, decide what is truly “mandatory” versus “desired,” eliminate terms that don’t apply in the broadcast/media environment. “Remember, this [is] to be [a] real-world tool, not an arcane philosophical model.” Develop a “lay-person’s guide.”
- **Don’t Do It Alone.** Continue to test your definitions with vendors and other broadcast organizations. SMPTE (MXF, RP210), MPEG (MPEG7), and the Library of Congress (METS, MODS) can all offer some guidance. The U.S. Department of Education’s “Gateway to Educational Materials”™ (GEM) metadata initiative can provide a useful “extension” for educational data elements.

- **Rights Management will require its own full schema.** PBCore can keep its classifications simple, but link to a more complex set of rules (such as MPEG21) being developed by media owners and distributors.
- **PBCore need not follow Dublin Core’s “one record per item” rule.** While two experts said, “stay with DC’s approach,” six said that in the world of computer searches and multiple formats of media content, DC was “too cumbersome.”

**There seems to be a true desire to have a “core” set of metadata terms and vocabularies available to public broadcasting as soon as possible:**

- **Almost one-half (44%) of the RFC respondents planned to implement some form of metadata-based project within the next year.**
- **Three-quarters (74%) planned a metadata project within the next two years.**
- **Twenty-seven upcoming projects were referenced** by nineteen stations/network organizations.

The respondents agreed that the use of PBCore would provide public broadcasting with a necessary tool for increasing station and network efficiencies, inter-station resource sharing, and to some degree, revenues.

**Fifty percent (50%) of the respondents scored the likelihood “that the use of PBCore could afford new service or revenue opportunities for your organization or for those with whom you work” with either a 4 or 5 score.** Thirty percent (30%) rated the “likelihood” a “3”, and only twenty percent (20%) scored this question with a “1” or “2.”

*As more and more assets become or are born digital, with a standardized descriptive language, we will be able to make certain collections of material available to new users or more affordably make them available to existing partners. This means that the costs associated with providing material to our partners drops, and makes the barrier to entry lower for any new venture.*

The good news about the acceptance of PBCore by the RFC respondents – a metadata savvy group, is tempered by the fact that **two-thirds (69%) of the respondents felt that implementing PBCore in their organizations would “require significant organizational changes.”** As one respondent noted:

*Metadata creators would need training in how to use the standard properly and consistently. People would need to be educated first about the business benefits of undertaking the extra work otherwise they will find “work-arounds”, refuse to use it, etc.*

In the end of course, this positive vision for PBCore depends, like so many initiatives in public broadcasting, on local acceptance – and funding for the training of local users. As one skeptic commented at the end of the survey:

*There's no funding to implement this kind of a project, to buy the software necessary, to do all the data entry or correcting the data entry to get clean metadata. This is not unlike putting in new transmitters for digital television, but I don't see the funding sources for that like I do for the transmitters. Nor do I see the staff support or commitment. People understand what transmitters do, people still don't really understand what media asset managers, DAM systems and metadata do. Good luck.*

Despite these worries, many respondents indicated in the open "final comments" field how excited they were to see public broadcasting move ahead on this critical work. As one outside reviewer wrote:

*The PBCore is a significant step forward for the professional television production and distribution community. The PBMI has done us all a great service in creating this very thoughtful set of 58 or so elements. The PBCore will become the lingua franca by which Public Broadcasters can make their tape liabilities into digital assets that can be easily located by all end users... Congratulation and thanks are due to you folks...*

A full discussion of the RFC Survey follows, along with key data tables and experts' comments.

## Introduction/Work Plan

This report is the key deliverable for the Request for Comments activities related to the PBCore Metadata Dictionary Project managed by WGBH/Boston for the Corporation for Public Broadcasting. It summarizes the work of the project subcontractor, Steven Vedro, in managing the Request for Comments (RFC) process activities related to the work of the PBCore Dictionary Team.

During the months of February and March (2004), the project RFC Subcontractor, Steven Vedro, provided the following contracted services to WGBH:

1. Interviewed three potential Web Survey Instrument Vendors [(a) DaneNET, Madison, WI, (b) KUED Media Services, Salt Lake City, Utah, and (c) University of Washington, Seattle, WA], and selected KUED Media Solutions (KUED) to host the Survey (1.a.iii). KUED had already developed the project's website and the PBCore Element Set Web Page. They were the only provider able to mount the Web Survey in the short time frame allowed by the project – and at a cost lower than the other potential providers.
2. Attended meetings of the Dictionary and the RFC/Test Implementation Task Team in Boston on January 27 and 28th in order to assist in finalizing the RFC Survey questions.
3. Met with KUED Media Solutions on February 2<sup>nd</sup> and 3<sup>rd</sup> to finalize the PB Core Element Set and the Web Survey Instrument, and the format of the Survey Data Reports.
4. Tested the Web Survey and selected the format of the required data reports.
5. Working with the WGBH representative, invited the PBCore Project Working Group to take the survey, and summarized the key results of those taking the survey for distribution to the Dictionary Team and Project Working Group. See *Appendix One* for Working Group survey participants and results.
6. Based on the results of the initial survey of the Project Working Group, made suggestions to KUED as to the re-phrasing of a number of questions, and identified and e-mailed to the Project Dictionary Team a list of those few PBCore Elements that had less than unanimous support amongst the Project Working Group. These Elements may require additional review by the Dictionary Team before inclusion in the preliminary Dictionary.
7. In coordination with the WGBH Representative, finalized the list of RFC invitees, and developed an "invitation letter" for use by the WGBH Representative.
8. Contacted potential RFC invitees to confirm their participation, and sent the names and email addresses of those agreeing to participate to KUED Media Services. Also contacted by e-mail and telephone those names not responding to the invitation. In a number of cases, replaced the original names with others in the same organization with greater interest in metadata issues. Also added new names to the RFC roster based upon the recommendations of those on the initial

list. See *Appendix Two* for a roster of those persons (and their organizational affiliations) invited to provide comments.

9. Monitored progress of the RFC survey; and answered RFC participant questions via e-mail and telephone.
10. Analyzed the results of the RFC survey and prepared the following report.

**The RFC Process:**

From January 2002 through January 2004 a team of public broadcasting station and national network representatives and invited guest experts worked to develop a draft metadata dictionary for public broadcasting. This effort, managed by WGBH/Boston under a grant from the Corporation for Public Broadcasting, resulted in a draft “##” finalized by the project’s “Dictionary Team” in January 2004.

Immediately following this activity, a Request for Comments (RFC) process was started. The RFC activities consisted of three data-collection rounds:

1. A preliminary survey of the “usefulness” of each of the PBCore Dictionary element definitions and refinements/vocabularies was conducted from February 4-10, 2004.
2. A larger group of invited respondents took the survey between February 16 to March 1, 2004;
3. A small group of invited “metadata experts” from the library science, national standards, and media indexing and archivist communities were invited to extend their comments via an “open-ended” survey. They were also asked a number of questions relating to the “philosophy” of metadata schemas that could inform the work of the team asked to update and maintain the “PBCore.”

**SUMMARY OF ACTUAL RESPONDENTS**

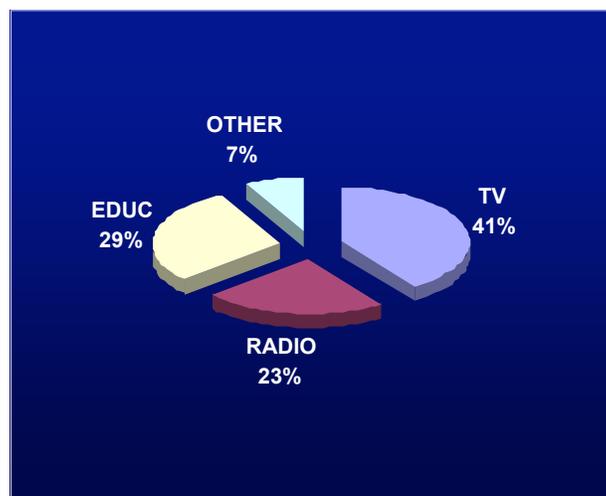
<b>SURVEY</b>	<b>RESPONDENTS</b>	<b>FROM WORKING GROUP</b>	<b>FROM EXPERTS LIST</b>	<b>FROM INDUSTRY LIST</b>
General Survey	49 out of 81 invited	17 out of 29 invited (2 are also part of the Experts Group)	9 out of 13 invited (2 are also part of the Working Group)	25 out of 41 invited
Experts Survey	9 out of 15 invited	4 out of 4 invited (4 are also part of the Experts Group)	9 out of 15 invited (4 are also part of the Working Group)	

## The RFC Participants

The RFC participants were drawn from a number of sources: members of the PBCore Metadata Dictionary Working Group suggested individuals or organizations or vendors that worked with metadata – in production, operations, network program delivery, archiving, web content development, or member services; the WGBH project manager compiled a list of metadata experts that interacted with the project during its various phases; and technologists within WGBH, PBS and NPR also suggested possible “commentators.”

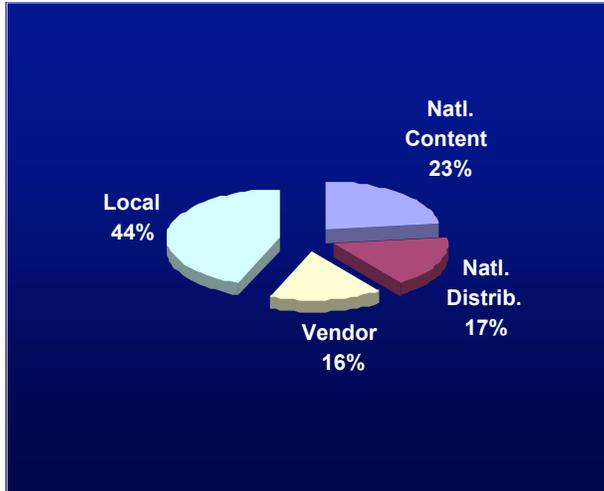
Based on this process, a list of ## contact names was generated. Each person on the list was contacted via e-mail and invited to participate. See *Appendix Three* for the letter of invitation. Most of those contacted agreed to participate. In some cases they identified an alternative person with more direct metadata responsibilities within their organization; others volunteered the names of additional experts in *other organizations*. The project’s RFC consultant also contacted these new names and invited their participation.

In the end, a total of 81 respondents were sent the url to the online survey; 49 actually completed the survey – a 61% completion rate. These RFC panelists worked with metadata as archivists and librarians, content distributors and/or traffic/operations managers, engineers or systems vendors. They were drawn from public radio and television stations, PBS, NPR, national distributors, educational institutions and private-sector organizations that either partner with public broadcasting or supply metadata-related services to it.



**Chart 1: Distribution of RFC Responders by Organization**

While television organizations were more represented in the RFC panel, the panel was equally divided between those working in organizations with national (40%) and those with a local (44%) focus.



**Chart 2: Distribution of RFC Responders by Org. Focus**

## **Overall Responses to the PBCore**

As a panel recruited from those working with metadata, and willing to review a proposed public broadcasting metadata dictionary and vocabulary lists, it is no surprise that everyone agreed that public broadcasting needs a standardized core of metadata descriptors. On a 1-5 scale asking, "how strongly do you agree that public broadcasting needs a standardized "core" metadata dictionary?" no respondent gave an answer lower than a "3." In fact, 96 percent responded with either a "4" or "5."

<b>Response</b>	<b>Count</b>	<b>Percent</b>
1	0	0.0%
2	0	0.0%
3	2	4.1%
4	12	24.5%
5	35	71.4%

Mean = 4.67, Standard Deviation = 0.55

**Table 1: Agree that PB Needs a Core Metadata Dictionary**

After reviewing each of the 59 metadata elements and its associated "refinements" (such as a controlled vocabulary, external referenced authority source, or suggestions for free-form text entry), eighty-percent (80%) of the respondents indicated that PBCore would be a useful or very useful tool for "describing media assets" held by their organization or shared with other media organizations.

<b>Response</b>	<b>Count</b>	<b>Percent</b>
1	1	2.3%
2	0	0.0%
3	8	18.2%
4	21	47.7%
5	14	31.8%

Mean = 4.07, Standard Deviation = 0.85

**Table 2: Usefulness of PBCore to Describe Media Assets**

The same percentage responded with a "4" or "5" to the questions asking how effective PBCore would be as an organization's "original, complete, markup descriptions for the rich media assets" and as a tool for "facilitating the search and discovery of media assets by your customers or constituents."

Response	Count	Percent
1	0	0.0%
2	3	6.7%
3	6	13.3%
4	22	48.9%
5	14	31.1%

Mean = 4.04, Standard Deviation = 0.85

**Table 3: Rate "Original Markup Effectiveness" of PBCore**

Response	Count	Percent
1	0	0.0%
2	0	0.0%
3	10	22.2%
4	20	44.4%
5	15	33.3%

Mean = 4.11, Standard Deviation = 0.75

**Table 4: "Search And Discovery Effectiveness" of PBCore**

A warning that more work needs to be done, however, is that after reviewing all the elements and their vocabularies and refinement options, one-quarter (24%) of the respondents could *not* say that they "strongly" or "very strongly" agreed with the statement "I feel I understand the PBCore Metadata Dictionary."

Response	Count	Percent
1	0	0.0%
2	3	6.1%
3	8	16.3%
4	26	53.1%
5	12	24.5%

Mean = 3.96, Standard Deviation = 0.82

**Table 5: Feel I Understand PBCore**

The main concerns expressed by the respondents centered on the following:

- Collections-level versus individual item metadata, and the unresolved challenge of defining program, series and episode titles and alternative/working titles into an "element domain;"

- *I would never consider using the PB Core Elements as the foundation of my database. For one thing it does not grapple with Collection-level metadata in a practical way.*
- *As long as the relationship between series, programs, individual instances of programs and program segments are represented, it will work.*
- The problem with Dublin Core's "flat" 1:1 model versus a more hierarchical data architecture;
  - *I'm also not sure about the logistics of mapping PBCore (or generally Dublin Core) onto a relational model.*
- The limited nature of PBCore's "rights" elements;
  - *You need to standardize the term lists for more data elements, particularly the rights data element.*

The need to create metadata for images and sounds that take place over time, as opposed to Dublin Core's original focus on still images and text; and

- *We could increase descriptive options for some of the still images. Also, data that applies to moving images should not be mandatory for still images or production illustration files.*
- *PB Core requires more synchronous descriptive metadata such as who is in this shot, what did they say in this clip, etc.*
- A fear that PBCore was not fully integrated with – or sufficiently mapped to – other emerging standards such as the US Department of Education's "Gateway to Educational Materials (GEM) Consortium housed at Syracuse University<sup>1</sup>, the Motion Picture Experts Group's MPEG7 and MPEG21 (for rights and instantiation metadata)<sup>2</sup>, the Digital Library Foundation's Metadata Encoding Standard (METS)<sup>3</sup>

---

<sup>1</sup> GEM is a set of metadata standards used by several Consortium members to organize and improve access to their own educational materials. Sites "Powered by GEM" include AskERIC, Canadian Heritage Information Network's Learning with Museums, MCI WorldCom Foundation's MarcoPolo Project, NASA Space Science Education Resource Directory, and the U.S. Department of Education's Federal Resources for Educational Excellence (FREE). See: <http://www.geminfo.org/index.html>

<sup>2</sup> To enable the resource discovery of audiovisual documents over the WWW, it will be necessary to define content description standards or metadata standards for complex, multi-layered, time-dependent information-rich audiovisual data streams. In particular, this is the primary goal of the emerging MPEG-7 standard, the "Multimedia Content Description Interface" under development by the MPEG group. See: <http://xml.coverpages.org/mpeg7.html>

<sup>3</sup> The METS schema is a standard for encoding descriptive, administrative, and structural metadata regarding objects within a digital library, expressed using the [XML schema language](#) of the [World Wide Web Consortium](#). The standard is maintained in the [Network Development and MARC Standards Office](#) of the Library of Congress, and is being developed as an initiative of the [Digital Library Federation](#). See: <http://www.loc.gov/standards/mets/>

and the 1200 items in the Society of Motion Picture and Television Engineers' (SMPTE RP-210) Metadata Registry for broadcast content.<sup>4</sup>

Despite these concerns, the overwhelming sense of the RFC panelists was the PBCore was a great start. Ninety-six percent (96%) “strongly” or “very strongly” agreed that, “PBCore appears to meet the Public Broadcasting need for a standardized ‘core’ metadata dictionary.” They recognized that while other schemas offered certain advantages, none was focused on public broadcasting.

Response	Count	Percent
1	0	0.0%
2	0	0.0%
3	2	4.2%
4	32	66.7%
5	14	29.2%

Mean = 4.25, Standard Deviation = 0.53

**Table 6: Agree that PBCore Meets the Need for Dictionary**

The biggest split amongst all the respondents, and even the “experts” enlisted to review the dictionary, was how closely PBCore should or should not follow Dublin Core. Some applauded this effort, others questioned the reliance on an “old” standard that was designed for card catalogs and “flat” databases.

- *I think a big plus for PB Core is the attempt to actually recommend values for controlled vocabularies. Finally, though most of the models I've studied explicitly map to Dublin Core, the PB Core and ViDe are the only models that started with Dublin Core and built outward.*
- *I like how you have taken DC and ViDe and worked with them to come up with something appropriate to PB. I think this shows consideration of the necessity of broader interoperability.*

*Versus:*

- *I'm also not sure about the logistics of mapping PBCore (or generally Dublin Core) onto a relational model.*
- *The fundamental issue is DC's lack of support for multiple media manifestations--from source objects through different digital transcodings. I have seen lots of attempts to accommodate multiple media manifestations within Dublin Core, and they simply don't work very well... Making DC work for multiple manifestations is very difficult.*
- *Dublin Core, even qualified DC, always seems a little "soft." ...The problem is that simple is simple, and complex is labor intensive. Sigh.*

---

<sup>4</sup> This metadata dictionary contents practice defines a registry of metadata element descriptions for association with essence or other metadata. A full explanation is contained in SMPTE 335M. The metadata dictionary structure defined in SMPTE 335M covers the use of metadata for all types of essence (video, audio, and data in their various forms). See: <http://www.smpte-ra.org/mdd/>

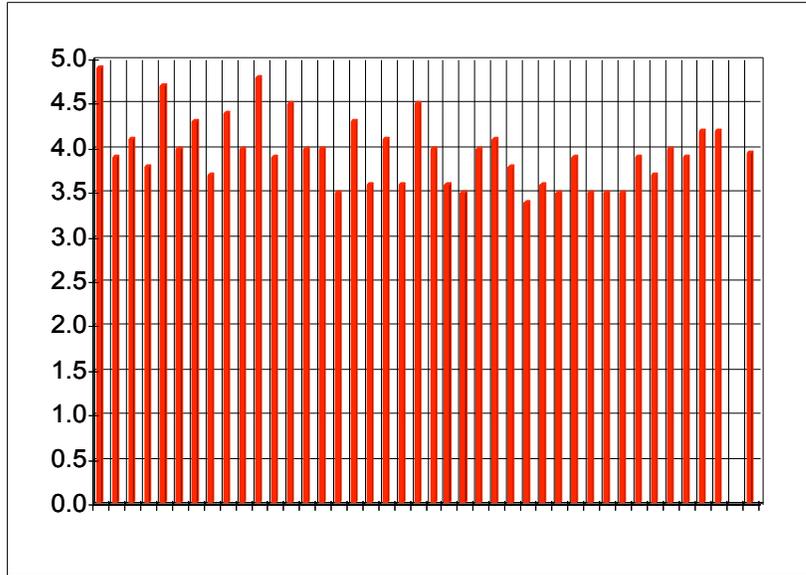
The most contentious issue within this “Dublin Core or not” debate is whether PBCore should require a *new record for every version of an electronic asset*. Supporters of Dublin Core argued that this was the traditional practice, making cataloging easier and clearer. Opponents felt equally strong that in the electronic domain, there would be dozens of versions of a digital product, and that all the versions should be linked to a master record.

- *In the library cataloging practices, we need to make similar decisions about whether one record or multiple records should be created for each instantiation. Similarly, OCLC Cataloging supports 1:1 relationship Pros: 1) fully describe each instantiation of the resource. 2) Separate records may better facilitate retrieval 3) There is no ambiguity about how to catalog something. If I get an electronic version of a book, just catalog it as electronic resource. Do not have to ask if there is a book available, etc.*
- *This is a terrible idea. It's a total waste for each format version to be its own record. It's impractical in that it will artificially inflate search results and give you a lot more to look through and winnow out. It's much more economical to have one listing of an item, with all the variations (format and content) listed with it. ...People are going to want to know what formats the item is available in all in one location. A record should give as much information as possible about an item in one spot, rather than having to hunt and peck through the database hoping you find everything. It's important to create a system that's practical, not just fits some ideological plan in someone's head. If the data is set up in a clumsy way people aren't going to want to access the tool much.*

### **Individual Element Evaluations**

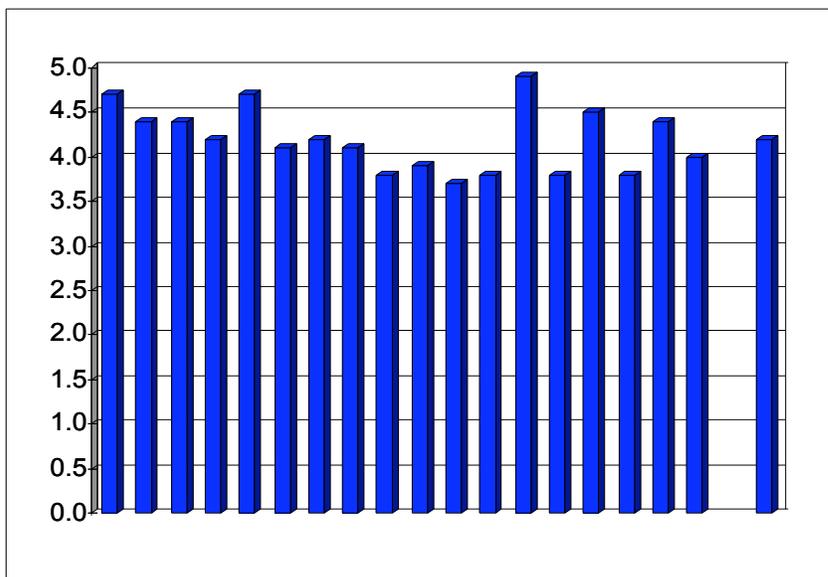
Despite these overarching philosophical differences, the overwhelming majority of PBCore elements and associated controlled vocabularies were individually ranked as useful. Of the 116 metadata elements and refinements evaluated by the respondents, 70% of these elements scored at least a “4” on a 1-5 scale in terms of “usefulness.” Only one element scored below a 3.5. Thirteen (13) elements (11%) however, were scored below a 3.0 by the “experts panel” of reviewers. None was scored lower than a 2.5 by any subset of reviewers.

- Of the twenty (20) content-related metadata elements and their associated refinements – 40 items altogether: 20 scored a 4.0 or higher, 19 scored 3.5 or higher, and 1 item scored a 3.4.



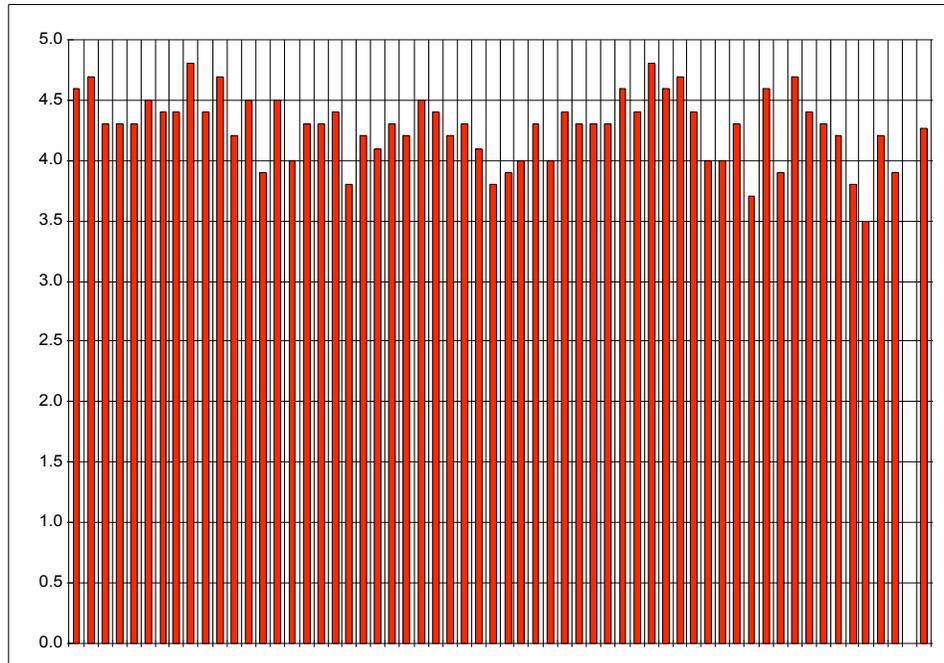
**Chart 3: Content Elements and Refinements, Mean Scores  
Overall Mean (on right) 4.0**

- Of the nine (9) rights/access-related metadata elements and their associated refinements – 18 items altogether: 12 scored a 4.0 or higher, and 6 scored a 3.7 or higher.



**Chart 4: IP/Rights Elements and Refinements, Mean Scores  
Overall Mean (on right) 4.2**

- Of the twenty-nine (29) instantiation-related (formats, copies, locations) metadata elements and their associated refinements – 58 items altogether: 49 scored a 4.0 or higher, and 10 scored 3.5 or higher.



**Chart 5: Instantiation Elements and Refinements, Mean Scores  
Overall Mean (on right) 4.3**

In most cases, the element ratings were consistent across all respondents. Elements that had wider differences between scores (higher standard deviations) with a significantly lower rating from our “experts” panel are discussed below.

### Content Elements with Lower Ratings

Of the 20 content-elements, only one scored below a 3.4 mean across all respondents. 12 content elements however, had a higher than average standard deviation (with a high number of respondents scoring them a “1” or “2” in usefulness), or a large number of respondents indicating that the element description or refinement choices were “confusing.”

Following are all of the Content Element means, along with their Standard Deviation, the number of respondents scoring below a “3” in “usefulness”, and the number of respondents indicating that the element or refinement was too confusing to fully score. Higher differences are indicated in red.

CONTENT Element	NAME	ALL MEAN	ST DEV	No. <3	No. Confuse
2.01.1.1	Title	4.9	0.4	0	4
2.01.2.1	Title Refinements	3.9	1.1	4	5
2.02.1.1	Title.Alternative	4.1	0.9	2	3
2.02.2.1	Title.Alternative Refinements	3.8	1.2	4	2
2.03.1.1	Title.Series	4.7	0.6	0	2
2.03.2.1	Title.Series Refinements	4.0	1.2	4	3
2.04.1.1	Title.Program	4.3	0.9	1	8
2.04.2.1	Title.Program Refinements	3.7	1.3	6	4
2.05.1.1	Title.Episode	4.4	0.8	1	1
2.05.2.1	Title.Episode Refinements	4.0	1	3	1
2.06.1.1	Subject	4.8	0.5	0	3
2.06.2.1	Subject Refinements	3.9	1.2	6	2
2.07.1.1	Description	4.5	0.7	0	1
2.07.2.1	Description Refinements	4.0	1	3	1
2.08.1.1	Description.Abstract	4.0	1	3	3
2.08.2.1	Description.Abstract Refinements	3.5	1.1	6	3
2.09.1.1	Description.TableOfContents	4.3	0.9	1	3
2.09.2.1	Description.TableOfContents Refinements	3.6	1.2	6	4
2.10.1.1	Description.ProgramRelatedText	4.1	1.1	3	4
2.10.2.1	Description.ProgramRelatedText Refinements	3.6	1.3	8	6
2.11.1.1	Type	4.5	0.8	2	3
2.11.2.1	Type Refinements	4.0	0.9	2	3
2.12.1.1	Type.Form	3.6	1.3	9	6
2.12.2.1	Type.Form Refinements	3.5	1.4	9	6
2.13.1.1	Type.Genre	4.0	1.2	7	4
2.13.2.1	Type.Genre Refinements	4.1	1	4	3
2.14.1.1	Source	3.8	1.1	5	6
2.14.2.1	Source Refinements	3.4	1.3	7	7
2.15.1.1	Relation.Type	3.6	1.1	3	6
2.15.2.1	Relation.Type Refinements	3.5	1.2	6	9
2.16.1.1	Relation.Identifier	3.9	1	2	5
2.16.2.1	Relation.Identifier Refinements	3.5	1.2	7	5
2.17.1.1	Coverage.Spatial	3.5	1.2	8	3
2.17.2.1	Coverage.Spatial Refinements	3.5	1.3	7	4

2.18.1.1	Coverage.Temporal	3.9	1.2	5	2
2.18.2.1	Coverage.Temporal Refinements	3.7	1.3	6	1
2.19.1.1	Audience.Level	4.0	1	3	1
2.19.2.1	Audience.Level Refinements	3.9	1	3	1
2.20.1.1	Audience. Rating	4.2	1	2	0
2.20.2.1	Audience.Rating Refinements	4.2	1.1	3	2

**Table 7: Content Element Scores**

The Content Elements with the greatest “spread” between the overall mean and the scores of any subset of reviewers were:

Element	Name	All Mean	Low Mean	Low-Scoring Subset
2.10.2.1	Description.ProgramRelatedText Refinements	3.6	2.5	CONTENT ROLE
2.08.2.1	Description.Abstract Refinements	3.5	2.7	CONTENT ROLE
2.14.2.1	Source Refinements	3.4	2.8	CONTENT ROLE
2.16.2.1	Relation.Identifier Refinements	3.5	2.8	CONTENT ROLE/EXPERTS
2.17.2.1	Coverage.Spatial Refinements	3.5	2.9	DISTRIBUTION/OPS ROLES
2.18.2.1	Coverage.Temporal Refinements	3.7	2.9	DAM EXPERTS/EDUCATION

**Table 8: Content Element With Lowest Scores by Sub-Group**

Discussion:

*Note: the following discussion is not designed to find the “answer,” but to guide the next PBCore team in refining the next version of the Dictionary.*

Of greatest concern is the fact that four “content elements” received a 2.8 or lower mean score from the respondents who identified themselves as primarily working with program content. The two “coverage” elements received a 2.9 rating by at least one cluster of respondents.

Some of the comments associated with these fields (element, refinement and “confusing” entries) follow in an edited form. Where an “expert” responded to a question about this element, it too is included.

1. Description.ProgramRelatedText Refinements

- *I don't see the usefulness of this as a field element. Better would be to assume related program text as content not metadata. Individual systems*

*might handle textual content as metadata but it serves no purpose in a metadata dictionary.*

- *Metadata seems like the wrong place for Program Related Text (PRT). PRT is itself an object that should be linked to (or part of) the main object it's related to and described with its own metadata.*
- *Clearly identifying related text (and its language and usage) will be of immense help in assisting end-users in locating materials they want.*
- *Good thing this is repeatable because with the automated text/speech extraction tools coming into use, this is going to be a popular field.*

## 2. Description.Abstract Refinements

- *This is a key thing, and should be highlighted: "why an asset or media file is important at all or within certain contexts."*
- *It's important but needs better definition. Vague (to me) line between this and description.*

### Experts' Comment on "Description" Elements

- *I like the idea of minimizing the number of fields, but it seems to me that DESCRIPTION.TABLEOFCONTENTS, and DESCRIPTION.PROGRAMRELATEDTEXT are good stand-alone elements. DESCRIPTION.ABSTRACT might be rarely used but I see why it should be separated out. I would be inclined to leave it the way the scheme is but identify DESCRIPTION as part of the minimal elements within the core of the Core and make DESCRIPTION.ABSTRACT, DESCRIPTION.TABLEOFCONTENTS, and DESCRIPTION.PROGRAMRELATEDTEXT optional. In a situation like mine, we are rarely going to have the information for DESCRIPTION.ABSTRACT and DESCRIPTION.TABLEOFCONTENTS. But we will want DESCRIPTION and DESCRIPTION.PROGRAMRELATEDTEXT to be different fields.*
- *Description.Abstract seems like a useful field for most types of programs. That said, I think a picklist gives you more flexibility for choosing types of description, rather than having to hard code specific types in a field name. Also it allows the individual station to use only the terms it wants to use. As long as these are common industry terms, I don't see a problem with a picklist.*

## 3. Source Refinements

- *Though we use this element internally for capturing legacy metadata, I am not convinced of its usefulness for metadata change. Too similar to Relation.*
- *I think that this part needs to be fleshed out more. There needs to be a clear definition of entities-- programs, producers, etc, that can be a source.*
- *Source should have derivation categories. (e.g. books, film, program).*
- *I think an example would help; I assume it means something like the underlying literary work of a broadcast play or musical, but it was not clear in the definition.*

#### 4. Relation.Identifier Refinements

- *What's confusing is the bond between this and Relation Type.*
- *It's probably good to specify Identifier but confusing when one looks at the Relation Type values: not all suggest an Identifier value.*
- *If people can wrap their heads around the concepts involved in Source and Relation.Type, then this field is a piece of cake and highly relevant if people use it.*
- *I think more emphasis needs to be put on uniquely identifying a related resource. Saying 'x is version of y' and only providing a shelf location for y could be a problem when someone decides to reshelve....*

#### 5. Coverage.Spatial Refinements

- *It could be a bit clearer that this concerns "spatial" elements within the program; at first, it almost seemed like an archival determination of the physical location of the program.*
- *The examples add to my confusion in they list both descriptive and geospatial metadata, which seems like apples and oranges, subject vs. format data.*
- *Teachers really like to localize resources. I would suggest, at a minimum, using the ISO 3166-1 and -2 country and state codes to provide some searchable uniformity here.*
- *Really need some sort of thesaurus or at least rules for entering information. Need to develop an authority file outlining form and definition.*

#### 6. Coverage.Temporal Refinements

- *I think you will be sorry not to provide uniformity here. MARC guidelines can provide uniformity and are readily available at loc.gov if you don't like the ISO standard.*
- *Dates are messy. Allowing free text dates keeps them that way. Note that without applying not-yet-invented artificial intelligence, searches for 1863 won't find the asset labeled '1861-1865'. No good solutions here, unfortunately.*
- *Time periods should be standardized and not made a free-form text entry.*

### **IP/Rights Elements with Lower Ratings**

Of the 18 Intellectual Property (Rights-related) elements, none scored below a 3.5 mean across all respondents. Half of these elements however, had a higher than average standard deviation. Three elements had a significant number of respondents scoring them a "1" or "2" in usefulness.

Following are all of the IP/Rights element means, along with their Standard Deviation, the number of respondents scoring below a "3" in "usefulness", and the number of respondents indicating that the element or refinement was too confusing to fully score. Higher differences are indicated in red.

RIGHTS Element	NAME	ALL MEAN	ST DEV	No. <3	No. Confuse
3.01.1.1	Creator	4.7	0.5	0	1
3.01.2.1	Creator Refinements	4.4	1	1	0
3.02.1.1	Creator.Role	4.4	0.8	2	0
3.02.2.1	Creator.Role Refinements	4.2	1	3	0
3.03.1.1	Publisher	4.7	0.5	0	2
3.03.2.1	Publisher Refinements	4.1	1.1	3	1
3.04.1.1	Publisher.Role	4.2	1	4	1
3.04.2.1	Publisher.Role Refinements	4.1	1.1	4	0
3.05.1.1	Contributor	3.8	1.1	5	1
3.05.2.1	Contributor Refinements	3.9	1.2	5	0
3.06.1.1	Contributor.Role	3.7	1.1	3	2
3.06.2.1	Contributor.Role Refinements	3.8	1.2	6	0
3.07.1.1	Rights.Usage	4.9	0.4	0	1
3.07.2.1	Rights.Usage Refinements	3.8	1.4	5	1
3.08.1.1	Rights.Reproduction	4.5	0.8	1	3
3.08.2.1	Rights.Reproduction Refinements	3.8	1.3	6	3
3.09.1.1	Rights.Access	4.4	0.8	1	1
3.09.2.1	Rights.Access Refinements	4	1.3	6	2

**Table 9: IP/Rights Element Scores**

The IP/Rights Elements with the greatest “spread” between the overall mean and the scores of any subset of reviewers were:

Element	Name	All Mean	Low Mean	Low-Scoring Subset
3.07.2.1	Rights.Usage Refinements	3.8	2.8	EXPERTS
3.08.2.1	Rights.Reproduction Refinements	3.8	3.0	EDUCATION
3.06.2.1	Contributor.Role Refinements	3.8	3.1	EDUCATION
3.09.2.1	Rights.Access Refinements	4.0	3.4	EDUCATION

**Table 10: IP/Rights Element With Lowest Scores by Sub-Group**

Discussion:

*Note: the following discussion is not designed to find the “answer,” but to guide the next PBCore team in refining the next version of the Dictionary.*

Some of the comments associated with these fields (element, refinement and “confusing” entries) follow in an edited form. Where an “expert” responded to a question about this element, it too is included.

### 1. Rights.Usage Refinements

- *Free text: you are doing the best you can. But a suggested (not enforced) vocabulary might be warranted.*
- *I strongly recommend creating a standardized value list to enable interoperability across stations and standard information for end users via public portals. A more formal set of rules than free-form text would be useful.*

### 2. Rights.Reproduction Refinements

- *How does this element differ significantly from the Rights.Usage element? There needs to be greater emphasis on the distinction between use (as in what can you do with this item) and reproduction (making copies) Can stations choose to put.*
- *I think the whole Rights Elements domain needs to be re-considered and made clear. Each asset has a group of usage rights and each usage has terms and restrictions.*

### 3. Rights.Access Refinements

- *Access is not an on/off switch. Access should be associated with Groups. Again, we may want to combine the simple drop-down list with a free text notes field.*
- *Could there be a "conditional access" if triggered or would this be set-up at another level?*
- *I think the key with this one is that this is the field used for mining. Clarity or highlighting this purpose of this element might be helpful because otherwise people are going to tend to want to lump all 3 rights elements into one field.*

### Experts' Comments on Rights Elements:

- *Formal data models for expressing rights information are \*Very\* difficult to create, and the environment in which public broadcasting operates strikes me as more prone than many to creating unusual rights situations. I would leave these elements free-text at the moment. You may wish to consider whether the public broadcast community needs a separate rights expression language, or whether one of the existing rights languages, such as ODRL, could be adapted to more specifically delineate rights & permissions covering various assets.*
- *Given that rights are such a critical issue for PBS resources, I'd suggest developing a separate rights schema, utilizing MPEG21 (XrML) or ODRL, and reference the rights metadata from the PBCore record.*

- *I would prefer that all values be combined into a rights statement placed into a single metadata element with a standardized way of entering the data at least or a controlled vocabulary at best. However, this is going to be hard to implement too. Are you going to have some place for people to put rights statements that are unusual?*

#### 4. Contributor.Role Refinements

- Even more than Creator role, Contributor roles need to be accurate because it may include anyone from a cameraperson to an intern.
- The enumerated list is pretty much focused on "creative" aspects and (not so much) on copyright-ownership aspects.
- Definitions seem crucial here. Also some policy might be established on what text string is used for these roles: Official job titles? On-screen credit? We also must recognize that the list is too long for a drop-down.

#### Experts' Comments on Contributor/Creator Elements

- *No one outside of people who have been trained by PBCore is going to be able to figure this one out, and even then it's murky. Can there be more than one creator? What if they're not all at the same creator level? What if someone is somewhat linked to the creating process but not a full-blown creator? Where is the cutoff? Creator.role helps, but deciding who's a creator to begin with is the biggest problem.*
- *I think that this highlights the fact that having separate creator and contributor elements is not particularly valuable. In my opinion, Dublin Core made a mistake in asserting that distinction.*

### Instantiation Elements with Lower Ratings

Of the 58 Instantiation elements, only eight (8) scored below a 4.0 mean across all respondents; 14 of these elements however, had a higher than average standard deviation. Five (5) elements had a significant number of respondents scoring them a "1" or "2" in usefulness, and/or "confusing."

Following are all of the Instantiation element means, along with their Standard Deviation, the number of respondents scoring below a "3" in "usefulness", and the number of respondents indicating that the element or refinement was too confusing to fully score. Higher differences are indicated in **red**.

INSTANTN. Element	NAME	ALL MEAN	ST DEV	No. <3	No. Confuse
4.01.1.1	Date.Created	4.6	0.7	0	0
4.01.2.1	Date.Created Refinements	4.7	0.7	0	0
4.02.1.1	Date.Issued	4.3	1.0	2	1
4.02.2.1	Date.Issued Refinements	4.3	1.1	3	3

4.03.1.1	Date.AvailableStart	4.3	1.0	1	<b>4</b>
4.03.2.1	Date.AvailableStart Refinements	4.5	0.8	1	1
4.04.1.1	Date.AvailableEnd	4.4	1.0	1	0
4.04.2.1	Date.AvailableEnd Refinements	4.4	0.9	1	2
4.05.1.1	Format.Physical	4.8	0.7	1	0
4.05.2.1	Format.Physical Refinements	4.4	1.0	3	1
4.06.1.1	Format.Digital	4.7	0.7	1	0
4.06.2.1	Format.Digital Refinements	4.2	1.1	3	0
4.07.1.1	Format.Identifier	4.5	1.0	2	2
4.07.2.1	Format.Identifier Refinements	3.9	1.0	2	1
4.08.1.1	Format.FileSize	4.5	0.7	0	0
4.08.2.1	Format.FileSize Refinements	4.0	1.0	<b>4</b>	0
4.09.1.1	Format.AudioBitDepth	4.3	0.9	2	0
4.09.2.1	Format.AudioBitDepth Refinements	4.3	0.9	1	0
4.10.1.1	Format.AudioChannelConfiguration	4.4	0.9	2	3
4.10.2.1	Format.AudioChannelConfiguration Refinements	3.8	1.2	<b>4</b>	0
4.11.1.1	Format.AudioDataRate	4.2	0.9	2	3
4.11.2.1	Format.AudioDataRate Refinements	4.1	1.0	2	2
4.12.1.1	Format.AudioSamplingRate	4.3	1.0	2	<b>4</b>
4.12.2.1	Format.AudioSamplingRate Refinements	4.2	0.9	0	1
4.13.1.1	Format.ImageAspectRatio	4.5	0.9	1	2
4.13.2.1	Format.ImageAspectRatio Refinements	4.4	0.8	1	1
4.14.1.1	Format.ImageBitDepth	4.2	1.0	2	2
4.14.2.1	Format.ImageBitDepth Refinements	4.3	0.9	1	1
4.15.1.1	Format.ImageChannelConfiguration	4.1	0.9	2	<b>5</b>
4.15.2.1	Format.ImageChannelConfiguration Refinements	3.8	1.1	<b>5</b>	<b>8</b>
4.16.1.1	Format.ImageColorCode	3.9	1.2	<b>4</b>	1
4.16.2.1	Format.ImageColorCode Refinements	4.0	1.2	<b>4</b>	1
4.17.1.1	Format.ImageDataRate	4.3	1.0	3	2
4.17.2.1	Format.ImageDataRate Refinements	4.0	1.1	<b>4</b>	0
4.18.1.1	Format.ImageFrameRate	4.4	0.8	2	1
4.18.2.1	Format.ImageFrameRate Refinements	4.3	0.8	1	0
4.19.1.1	Format.ImageFrameSize	4.3	1.0	3	1
4.19.2.1	Format.ImageFrameSize Refinements	4.3	0.9	2	0
4.20.1.1	Format.TimeStart	4.6	0.8	1	2
4.20.2.1	Format.TimeStart Refinements	4.4	0.8	1	0

4.21.1.1	Format.Duration	4.8	0.6	1	1
4.21.2.1	Format.Duration Refinements	4.6	0.5	0	0
4.22.1.1	Format.Standard	4.7	0.5	0	2
4.22.2.1	Format.Standard Refinements	4.4	0.7	0	0
4.23.1.1	Format.Type	4.0	1.1	4	5
4.23.2.1	Format.Type Refinements	4.0	1.2	4	3
4.24.1.1	Format.Encoding	4.3	0.9	1	5
4.24.2.1	Format.Encoding Refinements	3.7	1.3	7	4
4.25.1.1	Identifier	4.6	0.7	0	3
4.25.2.1	Identifier Refinements	3.9	1.1	4	5
4.26.1.1	Language	4.7	0.6	0	2
4.26.2.1	Language Refinements	4.4	0.8	0	1
4.27.1.1	Language.Usage	4.3	0.9	2	1
4.27.2.1	Language.Usage Refinements	4.2	1.0	4	2
4.28.1.1	Annotation	3.8	1.1	4	2
4.28.2.1	Annotation Refinements	3.5	1.4	7	0
4.29.1.1	Location	4.2	1.1	3	2
4.29.2.1	Location Refinements	3.9	1.2	3	1

**Table 11: Instantiation Element Scores**

The Instantiation Elements with the greatest “spread” between the overall mean and the scores of any subset of reviewers were:

Element	Name	All Mean	Low Mean	Low-Scoring Subset
4.28.2.1	Annotation Refinements	3.5	2.5	EXPERTS
4.24.2.1	Format.Encoding Refinements	3.7	2.9	EXPERTS
4.25.2.1	Identifier Refinements	3.9	2.7	EXPERTS
4.29.2.1	Location Refinements	3.9	2.8	EXPERTS

**Table 12: Instantiation Element With Lowest Scores by Sub-Group**

Discussion:

*Note: the following discussion is not designed to find the “answer,” but to guide the next PBCore team in refining the next version of the Dictionary.*

Some of the comments associated with these fields (element, refinement and “confusing” entries) follow in an edited form. Where an “expert” responded to a question about this element, it too is included.

## 1. Annotation Refinements

- *Notes will ultimately make or break a metadata exchange initiative. I recommend the addition of an AnnotationType Element with a list that includes other top-level Dictionary Elements (Publisher Notes, Creator Notes, etc).*
- *Risky to give people an unstructured notes space - they could get lazy and just use this instead of properly using the other elements. Also would be difficult to search/index. All necessary metadata should be capturable in structured elements.*
- *Although this is an excellent tool, I know from experience it can be overused; perhaps add wording to indicate that it should not be used for all fields.*

### Experts' Comments on Annotation

- *At some level, I think an annotation/note facility can become overkill, and part of the point of a metadata standard is to force people to express information within a particular structure, instead of allowing free-text everywhere. I think a single annotation element provides the flexibility to give additional information not covered within the main metadata element set; separate annotation elements for every other metadata element would be unwieldy and probably pointless. I doubt many people are going to have the time to put in that much annotation information.*
- *I think the possibilities of adding ANNOTATION as a qualifier of elements is a useful idea, but in reality, I don't know that they would actually be used as intended. I would think that in the rush to get the "paperwork" done, these elements would remain empty and useless while if something really remarkable stood out that had to be presented, people would want to look for a general notes field. I think that PBC should not support individual Annotation Elements for each major element, but leave the option open to see if any agencies actually do want to make use of fields like these.*

## 2. Format.Encoding Refinements

- *I wonder if a Compression Standard Element with a Compression Rate would be more understandable. Why repeatable?*
- *The definition is confusing regarding what information you expect to see in this element. It's only when you view the examples that you know what kind of information you are supposed to place in this field, but still not understanding the definition.*
- *NEED CONTROLLED VALUE LIST. Encoding needs to be pre-defined from an authority based on format.type.*

### Experts' Comments on Format.Encoding

- *I think that format.standard and format.encoding are, fundamentally, trying to express the same information: formally identifying the technical standard/specification that defines the data format used for the asset. I think they can be collapsed into a single element which \*should\* be more carefully defined, and perhaps employ a controlled vocabulary. Format.type, on the other hand, seems to be expressing a bit different from the other two elements, a more 'high-level' description of the nature of work's format.*
- *I'd look at what is required for interoperability with schemas like MPEG7 and SMPTE and also ask what purpose these data elements serve, and who benefits from their existence. Are they important for migrating to newer technologies to support digital permanence? Are they important to end users who play back the files? Is this important for a station considering the purchase of the resource, or preparing to download the resource? The data elements should serve a purpose, perhaps tied to the 3 FRBR core user information needs--find, identify, select or obtain, or they should serve the purpose of maintaining the intellectual content in perpetuity.*

### 3. Identifier Refinements

- Of course, this Element as defined is imperative, but the examples seem all over the map. I emphatically do not think shelf location should be used as an identifier. I recommend distinct elements for Identifier.Barcode and Location.PhysicalLocation.
- Definition is confusing, not until you see the examples is it understand it's along the lines of "tape location."
- I recommend identifying the scheme used (UMID, NOLA, et.)

### 4. Location Refinements

- *Clarify re identifier elements; this is what a non-expert would look for first. In a particular case, if I can use either Location or Identifier should I use one, the other or both?*
- *It is too similar to other Elements like Identifier and Format.Identifier to nail down its purpose.*
- *Note that this is the same as the MODS metadata schema's location element (comes from MARC). Also used in DC-Library application profile.*

### Experts' Comments on Location

- *How about multiple locations? How about electronic storage locations and physical storage locations. Should this element be broken down to those levels?*
- *In the case of multiple manifestations for an item, the assets in different locations will very likely have different format characteristics as well (bit depth, data rate, frame size, frame rate, encoding, etc.). You'll need some way to associate all of the other formatting metadata elements with a particular location(s).*
- *This is a good idea. Using this element to note the several copies of something. However, how are you going to distinguish, what version is*

*kept in which place. Also, how do you identify which is your primary item and what FORMATS your other versions are in?*

## **Additional Experts' Comments**

In a separate “open-ended” survey, the panel of metadata “experts” provided a number of specific suggestions as to specific elements. This document is included as *Attachment ##*. Some of their more general suggestions include the following:

- **Keep It Simple** – develop a core set of questions for each workflow area, decide what is truly “mandatory” versus “desired,” eliminate terms that don’t apply in the broadcast/media environment. “Remember, this [is] to be [a] real-world tool, not an arcane philosophical model.” Develop a “lay-person’s guide.”
  - *Whatever PBMI comes up with should do the following: 1. Be as intuitive as possible to the end user. Try to use industry terms as much as possible. If these can be coded through XML mapping in the background to link to other standard terms, fine. But you'll save yourself a lot of grief in the beginning if the user doesn't feel totally lost and can recognize familiar terms. 2. Don't be wedded absolutely to standards. You are creating this to be a tool for PB stations. If it makes more sense to display notes next to the item they describe, do it. You want the record to be as easy to follow as possible. Again, field names in forms can be linked in the background to other standards terms and rearranged by the computer in the background. 3. Allow for flexibility and station individuality. Standard lists to pick from are okay but allow for manual entry for exceptions or as needed. 4. Remember stations have been exchanging programs without the assistance of computers for a long time. Being able to set it up online is a convenience, but it is still a tool, not an end in itself. It is not supposed to be an arcane model of philosophical perfection, this is something that is meant to be used. Don't make it so complicated it makes the IRS tax code look like a picnic.*
- **Don't Do It Alone.** Continue to test your definitions with vendors and other broadcast organizations. SMPTE (MXF, RP210), MPEG (MPEG7), and the Library of Congress (METS, MODS) can all offer some guidance. The U.S. Department of Education’s “Gateway to Educational Materials”™ (GEM) metadata initiative can provide a useful “extension” for educational data elements.
- **Rights Management will require its own full schema.** PBCore can keep its classifications simple, but link to a more complex set of rules (such as MPEG21) being developed by media owners and distributors.
- **PBCore need not follow Dublin Core’s “one record per item” rule.** While two experts said, “stay with DC’s approach,” as discussed earlier, six said that in the world of computer searches and multiple formats of media content, adhering to DC was a step backwards, or worse.

## **Implementation Plans and Issues**

Developing a metadata dictionary for public broadcasting is not an academic exercise, but a response to a real world need.

Almost eighty percent (80%) of the respondents agreed that that the use of PBCore would provide public broadcasting with a necessary tool for increasing station and network efficiencies, inter-station resource sharing, and to some degree, revenues.

Response	Count	Percent
1	1	2.3%
2	8	18.2%
3	13	29.5%
4	17	38.6%
5	5	11.4%

Mean = 3.39, Standard Deviation = 0.99

**Table 14: Likelihood of Revenue Or Service Enhancement**

Most respondents cited the benefits of sharing and exchanging assets between and within organizations, generating revenue from making assets available to the public or other media organizations, and the resulting impact in efficiencies and service (both nationally and locally) as the main reasons for a standard dictionary of metadata terms. Archiving, document and program retrieval, distribution automation, and “ways to infuse local content into national programs and websites” via automated XML feeds, were some cited applications.

- *Participate in other consortial activities, such as the MIC (Moving Image Collections) portal. Standardized metadata would allow MIC to readily ingest data from any PBS station that chooses to participate. 2. Allow for federated searching of assets across PBS repositories. A Z39.50 profile specific to PBCore could be developed, for example. 3. To develop a K12 portal across all PBS repositories with standardized search and retrieval of assets. 4. To add precision and uniformity to the management and identification of assets for scheduling and other programming activities. 5. To enable PBS to develop collaborative preservation and asset migration strategies.*
- *Production: content creation, security, rights clearances, conditional access, broadcast data for EPG systems, educational content, workflow, archiving, media interchange, creation and output over multiple platforms and software/hardware manufacturers. Media: broadcast, radio, online services, datacasting, interactive television, EPG, CDs, DVDs, digital libraries, education.*
- *Sharing between producers, distributors and broadcasters. Each step of the path-to-air must preserve the metadata to avoid confusion and unnecessary work. Shared metadata standards not only help this process, but also communication back from distributors and stations to producers regarding licensing (of essences and sub-essences), carriage, and payment*
- *As more and more assets become or are born digital, with a standardized descriptive language, we will be able to make certain collections of material available to new users or more affordably make them available to existing partners. This means that the costs associated with providing material to partners drop, and makes the barrier to entry lower for any new venture.*

- *The ability to share assets within a search is vital in the access of these resources. Metadata would make this possible. While new revenue is not an outcome, the efficiency gained by the PBCore could potentially save money in staff costs as wells as increase quality and productivity.*

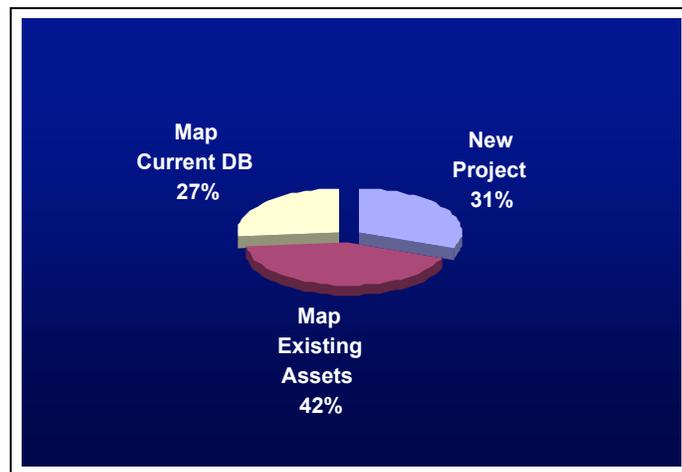
These comments are not just “brainstorms,” for of the 43 respondents to the question on “how likely is it that you will implement a project using PBCore,” three-quarters planned to implement a project within the next two years, seven respondents (16%) said that their organization had a project either underway or planned within the next six months.

<b>Response</b>	<b>Count</b>	<b>Percent</b>
1. The next 6 months	7	16.3%
2. 6 months to a year	12	27.9%
3. 1-2 years	13	30.2%
4. 2-3 years	3	7.0%
5. Not likely within the next 3 years	8	18.6%

Mean = 2.84, Standard Deviation = 1.33

**Table 13: Likelihood Implement PBCore**

Nineteen respondents indicated a project within the next year, 32 within the next two years. The 27 projects planned within the next year were equally divided between those “mapping existing data elements” to PBCore” (11), mapping an existing asset management system’s database to the PBCore dictionary” (7), and/or “mapping new assets” directly to PBCore” (8).



**Chart 6: Projects Using PBCore in Next Year**

The good news about the acceptance of PBCore by the RFC respondents is tempered by the fact that two-thirds (69%) of the respondents felt that implementing PBCore in their organizations would “require significant organizational changes.” Comments included the following concerns:

- *Staff resistance to required processes (fields, formats, etc) -Broad range of related changes, from logging to media storage ... again, staff resistance (what’s in it for me?) -Not enough technology in the house to make it easy; not enough connectivity. -How do we handle legacy material? -Long term project; getting the stages/steps right will take careful planning.*
- *My first instinct was to say no to this, but then I considered our users. Any change to them is often difficult to get used to-- whether it be new terminology, new vocabularies, or new formats for the data. Additionally, with any changes in names or formats, we'd have to modify all existing reports and queries that use those fields/elements*
- *Metadata creators would need training in how to use the standard properly and consistently. People would need to be educated first about the business benefits of undertaking the extra work otherwise they will find "work-arounds", refuse to use it, etc.*
- *Getting people to follow the rules about what goes into what field. Getting people to enter more data than what they have in front of them or know immediately. No one is going to fill out more than 15 fields when they handle a resource, not even the tape library staff will have the patience or see the benefit of carefully entering information in as many of the PBC elements as possible. People are not used to generating metadata for anyone but themselves.*

All respondents agreed that training would be a critical requirement. Anyone who does coding, support, training, documentation, etc. would need to be able to work with the proposed PBCore. Staff in all areas – pre production, production, post production, traffic, broadcast, public information, engineering and operations – all would need some form of training:

- *For most users, it should be like training for a new word processing system. For traffic, and others managing content, higher levels of training (would be needed).*
- *At a basic level, each contributor to the metadata process would require sufficient training to preclude their unintended mucking up of the process. After that it's all gravy!*

Providing PBCore in multiple formats for use was also recommended. In addition to the choices offered in the survey, a number of respondents added “XML” versions and style sheets as a preferred option.

Response	Count	Percent
----------	-------	---------

Application Profile in PDF	27	55.1%
Website Utility Tool	32	65.3%
Database or GUI template	31	63.3%
Other	14	0.0%

Mean = 2.04, Standard Deviation = 0.81

**Table 14: Most Valuable Form Of PBCore**

In the end of course, whether or not “it’s gravy,” will depend on the adequate training of station personnel. And, as one skeptic commented at the end of the survey:

*There's no funding to implement this kind of a project, to buy the software necessary, to do all the data entry or correcting the data entry to get clean metadata. This is not unlike putting in new transmitters for digital television, but I don't see the funding sources for that like I do for the transmitters. Nor do I see the staff support or commitment. People understand what transmitters do, people still don't really understand what media asset managers, DAM systems and metadata do.*

Despite this somewhat cynical attitude, almost everyone involved with the survey supported the publication and distribution of the draft Dictionary.

- *Excellent job. It is obvious that much work has gone into this project. Very excited and very interested in using this ASAP!*
- *Simply having a dialog about exchanging information is healthy. Some simple practical applications/examples might be a good next step. Thank you.*
- *I hope you plan to make this a public accessible item. That way, anyone working with PBS stations will have an opportunity to be better informed and better able to help the stations.*
- *You have done a terrific job and I look forward to this being a success.*

Finally, a number of experts suggested that the next step was to actually *test* the viability of PBCore at a number of stations and network operational work units. “Get it into use” was one comment.

*Learn how it works. Then be ready to make changes. A "gedanken" experiment is very useful but only in so far as it models the real world. You need the real world experience to answer these questions.*