

Chapter 10 Supplement

Designing and Documenting a Metadata Scheme

Questions for Review, Study, or Discussion

1. What is a critical aspect of metadata for digital collections, according to the opening paragraph of this chapter, and how does it compare with the world of library cataloging?
2. What is a *metadata scheme*? In what two different ways is the term often used? In what sense is it being used in Chapter 10? What various names are frequently used for the documentation of a local metadata scheme?
3. As part of the larger process of digital collection creation, what should ideally be the relationship between metadata scheme design and some of the other components of that process?
4. Is there a one-size-fits-all process or clearly-delineated set of steps for metadata scheme design? How so or not so? What provisos are made about the steps covered in this chapter?
5. What is the first logical step in metadata scheme design, as covered in this chapter? Explain the triad of *context*, *content*, and *users* and why it is vital to consider each of these three aspects when designing a metadata scheme.
6. What points are made on page 253 about employing principles and practices of user-centered design, usability, and iterative and cyclical usability testing in the metadata scheme design process? Is there value to doing even a small amount of modest and inexpensive usability testing?
 - As you go through each of the steps covered in this chapter, what are ways in which user's thoughts, ideas, needs, feedback, and reactions might be gathered?
 - See also the supplement in the Companion Website on "User-Centered Design and Usability Testing."
7. What are *functional requirements*? What kinds of questions should be answered in order to help determine functional requirements for a metadata application context or project? How can determining functional requirements lead to developing a "wish list" of initial ideas for metadata elements? What kinds of functions might different elements be needed to provide?
8. What is the second logical step in designing a local metadata scheme or application profile? What options do implementers have? What do almost all cultural heritage institutions choose? What various considerations go into the selection of a standardized metadata element set?
9. What distinction is made between "general" and "domain-specific" element sets in the sidebar on page 255? What are examples of each type?
10. This chapter subsumes various scheme design options into two broad methods or models of metadata design. What are they? How do they differ from each other? Note also the real-world examples of each model given in Section 10.2.
11. A critical point to understand is that the Dublin Core, MODS, and VRA 3.0 and 4.0 standardized schemes have been developed with what understanding? Application profile development commonly entails what kinds of decisions?
12. When designing a collection-specific element set, how does mapping to a standardized scheme come into play? What is the necessary relationship of local, collection-specific elements to the standardized elements to which they are mapped? How does setting up a collection-specific scheme work in CONTENTdm?
13. What are some important factors in the choice of metadata element set as covered in Section 10.1.3.3 on page 257?
14. What fourth major step in metadata scheme design is covered in Section 10.1.4?

- a. What is *obligation* in metadata scheme and database design? What are some common designations for obligation?
 - b. What is *cardinality*, also known as *repeatability* or *occurrence*, in metadata scheme and database design? How do some digital content management systems, such as CONTENTdm, deal with this?
 - c. Data value specification is a critical aspect of metadata scheme design. What does it entail?
 - d. What other factors often need to be designated in database set-up?
15. Why is the establishment of controlled vocabularies and syntax encoding schemes for certain elements or fields important? What factors go into making decisions about particular vocabularies?
 16. What are content or input guidelines, and why is their development an important part of metadata scheme or application profile design? Note also the real-world examples given in Section 10.2 of the text.
 17. What is the logically final step in designing a local metadata scheme or application profile? What purposes does scheme documentation serve?
 18. What are some common names for metadata scheme documentation in the world of cultural heritage metadata practice today? How are the terms *data dictionary* and *application profile* sometimes used? In common practice how much difference is there in the nature and scope of documentation called by each of these names? What term does Chapter 10 prefer to use as a general term encompassing all of these types of documents?
 19. Because metadata scheme documentation is so important, the second section of the chapter presents a selection of examples from different application profiles, both general and collection-specific. What four especially important points is it hoped that readers will take away when looking over these examples?
 20. What are some of the significant similarities and differences among (a) the Collaborative Digitization Program's *Dublin Core Metadata Best Practices*, (b) the Ohio LINK *Digital Resources Commons (DRC) Metadata Application Profile*, (c) the Indiana Memory Project's *Dublin Core Metadata Guide*, and (d) the *Digital Library Federation/Aquifer Implementation Guidelines for Shareable MODS Records*?
 21. How do these general application profiles compare and contrast with the three collection-specific application profiles included in Section 10.2.2?
 22. What are some of the significant similarities and differences among the application profiles for (a) the University of Washington's Architecture Collection, (b) the University of Washington's Musical Instruments Collection, and (c) the University of Wisconsin–Milwaukee's Transportation Collection?
 23. Section 10.2.3. provides a number of examples of screens from the CONTENTdm digital content management system. What steps and aspects do they illustrate? What aspects of metadata scheme design covered in the first part of Chapter 10 do you see here? Is there anything especially interesting that stands out for you about one or more of these screen captures? Do you have experience working with CONTENTdm, either setting up the metadata scheme for a new collection or creating metadata for a collection, or both?
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Recommended Readings and Resources for Reference or Further Study

Readings

- Chopey, Michael A. 2005. "Planning and Implementing a Metadata-Driven Digital Repository." In *Metadata: A Cataloger's Primer*, edited by Richard P. Smiraglia, 255–287. Binghamton, NY: Haworth Press.
- Foulonneau, Muriel, and Jenn Riley. 2008. *Metadata for Digital Resources: Implementation, Systems Design and Interoperability*. Oxford, UK: Chandos.
- Greenberg, Jane. 2005. "Understanding Metadata and Metadata Schemes." In *Metadata: A Cataloger's Primer*, edited by Richard P. Smiraglia, 17–36. Binghamton, NY: Haworth Press.
- Haynes, David. 2004. "Managing Metadata." In *Metadata for Information Management and Retrieval*, pages 147-169. London: Facet Publishing.
- Hicks, Emily A., Jody Perkins, and Margaret Beecher Maurer. 2007. "Application Profile Development for Consortial Digital Libraries: An OhioLINK Case Study." *Library Resources and Technical Services* 51, no. 2: 33–43.
- Krug, Steve. 2006. "Usability Testing on 10 Cents a Day." In *Don't Make Me Think: A Common Sense Approach to Web Usability*, 2nd ed., 130-167. Berkeley, CA: New Riders Press.
- Matusiak, Krystyna K. 2006. "Towards User-centered Indexing in Digital Image Collections." *OCLC Systems & Services* 22, no. 4: 283–298.
- Nevile, Liddy, and Sophie Lissonnet. 2006. "Dublin Core and Museum Information: Metadata as Cultural Heritage Data." *International Journal of Metadata, Semantics and Ontologies* 1, no. 3: 198–206.

Digital Collection and Metadata Best Practice Guides

- NISO (National Information Standards Organization). 2007. *A Framework of Guidance for Building Good Digital Collections*, 3rd edition. NISO. <http://framework.niso.org/>.
 - Section on Metadata, last updated 05/12/2008: <http://framework.niso.org/node/24>.

Application Profile Examples

- CDP Metadata Working Group. 2006. "CDP Dublin Core Metadata Best Practices." Version 2.1.1. September. <http://www.lyrasis.org/Products-and-Services/Digital-and-Preservation-Services/Digital-toolbox/Metadata.aspx>.
- Indiana Memory Project. 2007. "Dublin Core Metadata Guide." Last modified February. http://www.in.gov/library/files/dig_metast.pdf.
- OhioLINK Digital Resources Management Committee (DRMC) Metadata Subcommittee. 2010. "OhioLINK Digital Resources Commons (DRC) Metadata Application Profile." Version 1.2. OhioLINK. October 1. https://sites.google.com/a/ohiolink.edu/drmc/Home/Subcommittees/Metadata/drmc_metadataprofile--10-5-10.pdf.
- Mountain West Digital Library. 2010. "Mountain West Digital Library Dublin Core Application Profile." Version 1.1. Last modified June 7. http://mwdl.org/public/mwdl/MWDL_DC_Profile_Version_1.1.pdf.
- University of Washington Libraries Metadata Implementation Group. 2011. "Data Dictionaries (a.k.a. Schemas and Metadata Application Profiles or MAPS)." <http://www.lib.washington.edu/Msd/mig/datadicts/default.html>
 - "Musical Instruments in the Collection of the University of Washington Ethnomusicology Division Data Dictionary." Last modified November 5, 2003. <http://www.lib.washington.edu/msd/mig/datadicts/ethnomus.html>.

- “Architecture Collection Data Dictionary.” Last modified February 26, 2006. <http://www.lib.washington.edu/msd/mig/datadicts/archcolldd.html>.
 - DLF Aquifer Metadata Working Group. 2009. “Digital Library Federation/Aquifer Implementation Guidelines for Shareable MODS Records.” Version 1.1. March. https://wiki.dlib.indiana.edu/confluence/download/attachments/24288/DLFMODS_ImplementationGuidelines.pdf
 - TDL (Texas Digital Library) Metadata Working Group. 2005. “MODS Application Profile for Electronic Theses and Dissertations,” Version 1, December. http://www.tdl.org/wp-content/uploads/2009/04/etd_mods_profile.pdf.
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Exercises

Recommended Exercises

1. Create an original metadata scheme, either a general scheme to be used for a variety of digital collections or a collection-specific scheme for a particular digital collection. The scheme may be applicable to a context within which you actually work, to a collection which you are actually working on, or to an application context and/or digital collection that you invent yourself for purposes of this exercise.
 - a. Follow the steps outlined in this chapter to give an analysis of the context, content, and users of your digital resources and to develop a set of functional requirements for the metadata for those resources.
 - b. Select, customize, and document an element set and element specifications that will meet those functional requirements and connect the intended users to the digital content in the organizational context.
 - c. Include specifications for obligation, cardinality, and required controlled vocabulary and syntax encoding schemes.
 - d. Also include some content guidelines, even if minimal.
 - e. You may follow the pattern of any of the application profile examples included in this chapter, or follow any other documentation format you actually use or are aware of, or create your own variant form of documentation. See also the examples in the companion website supplementary document titled “[Metadata Application Profiles, Records, Functionality, and Quality Examples](#).”
2. Create one or more metadata records, in a simple document table format, that conform(s) to your scheme and application profile. You may base this on one or more actual or invented digital resources.

Suggestions for Instructors

- Consider providing students with one or preferably three or four different invented application scenarios, including notes on context, content, and users. Use different types or sizes of institutions, different resource types, and different subject matter for each. Have them develop a set of functional requirements and a metadata scheme, tailoring each scheme to the specific application scenario. Also consider providing some actual digital objects appropriate for each scenario, or some selected descriptive information for some invented digital objects, and have students create one or more metadata records that conform to the specific metadata application profiles designed for each scenario.
- Use the first exercise above as a major course or workshop project, perhaps the primary culminating project. Having students invent their own imaginary digital collection and create a

collection-specific Dublin Core-based metadata scheme and metadata application profile (MAP) can help to ensure originality and creativity. You might also require a mapping from DC to MODS as part of their MAP. You might also have them create one or several metadata records that conform to their MAP. You might also possibly include additional components and/or short answer or essay questions, and/or have the students present their final work to the class.

- See also the examples in the companion website supplementary document titled “[Metadata Application Profiles, Records, Functionality, and Quality Examples.](#)”

Additional Exercise Ideas

1. Find one or two examples of metadata documentation not used in this chapter, whether institutional, consortial, or collection-specific. What name has been given to the documentation? Is it called a guide, guidelines, best practice guide, data dictionary, application profile, or some other name? What are some noteworthy characteristics? How does it handle element name, definition, obligation, value standard/controlled vocabulary specifications, content guidelines, and/or other specifications or instructions?
 2. Find a digital collection created according to the document above. Can you see the correlation between the metadata scheme documentation and the metadata records created for the collection? What functionality is enabled by the metadata scheme in terms of identification and retrieval, including search and browse options?
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