
Final Report of the Task Force on Cost/Value Assessment of Bibliographic Control

submitted to the Heads of Technical Services in Large
Research Libraries Interest Group

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Executive Summary

The Task Force on Cost/Value Assessment of Bibliographic Control was charged with identifying measures of the cost, benefit, and value of bibliographic control for key stakeholder communities, and developing a plan for implementing these measures. The objective of this work was not to develop a complete model of costs and value for bibliographic data, but to begin to identify sound measures that can inform decisions by those engaged in the creation, exchange, and use of bibliographic data. Our ability to make sound decisions and mindful changes around bibliographic control is hindered by our lack of operational definitions of value and methodologies for assessing value within our institutions. The Task Force struggled with its charge in the larger cultural context of the profession's inability to articulate value and, until recently, not generally being asked to do so in measured ways. Given the lack of research in this area and our desire to move forward discussions about quantifying the value of bibliographic control in an environment where the vocabulary for doing so does not yet exist, the Task Force on Cost/Value Assessment of Bibliographic Control proposes seven operational definitions of value and offers suggestions for research in these areas. The Task Force also recommends that the Heads of Technical Services in Large Research Libraries Interest Group identify institutions among themselves or solicit partners from the community who are eager to act. We outline these proposals for responsibility as well. The seven operational definitions of value are:

1. Discovery success
2. Use
3. Display understanding
4. Ability of our data to operate on the open web and interoperate with vendors/suppliers in the bibliographic supply chain
5. Ability to support the FRBR user tasks
6. Throughput/Timeliness
7. Ability to support the library's administrative/management goals

The Task Force also found it challenging to define a vocabulary around which to discuss cost. While it is possible to outline elements contributing to the cost of cataloging (and work has been done in this area), it is difficult to evaluate those metadata costs, and to determine whether those costs are currently too high, without first having a clear understanding of value. In this report, the Task Force recommends further research into the relationships between cost and value, and encourages cataloging departments to embrace a culture of continuous assessment of cost, value, and priorities.

The final element of the Task Force's charge was to identify the interdependencies among creators and consumers of bibliographic data. The Task Force believes that this has been well documented for the MARC record ecosystem by the October 2009 R2 Consulting *Study of the North American MARC Records Marketplace*, who completed their work in the midst of ours. While we note that their work was scoped to MARC, we did not identify any missing components particular to the ARL community within that scope and believe it may be extended to encompass our non-MARC metadata creation partners as well.

Task Force Charge

The Task Force on Cost/Value Assessment of Bibliographic Control is charged with identifying measures of the cost, benefit, and value of bibliographic control for key stakeholder communities, taking into account interdependencies among creators and consumers of bibliographic data, and developing a plan for implementing these measures. Measures of cost and value may be granular and relative – e.g., the relative cost/value of controlled and uncontrolled name headings in different contexts; or of description according to library standards as compared to data commonly used by the publishing or book trade industry. Stakeholders should include not only the end users of library materials, but parties and processes involved in the management of information resources and data such as book vendors, system vendors, and software applications. Cost and value should be considered in relation to all sizes and types of libraries (public, academic, special, school, etc.) Interdependencies among creators and consumers of bibliographic data should be identified, since the benefits of bibliographic control may be separated from the current cost centers by multiple business processes, or may be cumulative over time.

The objective of this work is not to develop a complete model of costs and value for bibliographic data, but to begin to identify sound measures that can inform decisions by those engaged in the creation, exchange, and use of bibliographic data. The context for the group's charge is provided by Section 5.1 of "On the Record: Report of the Library of Congress Working Group on the Future of Bibliographic Control":

Bibliographic control occurs in a complex system of participants (contributors and users), information resources products and services, and technological capabilities. There are increasing numbers of participants, information formats and media, and information technologies. Contributors of bibliographic data and services may have different and sometimes conflicting agendas. Multiple user communities may have changing and expanding needs and expectations. In this increasingly complex environment, the actions taken by key players can have downstream impacts on others. Unfortunately, there are still inadequate measures of the costs, benefits, and value of bibliographic information and almost no information on the interdependencies within the broader bibliographic control environment, including the impact of internationalization.

Although the use of cost-benefit analysis for service organizations such as libraries is problematic, all organizations must achieve goals and provide value. Bibliographic control may be considered by many to be a public good, but it has real costs attached to it, just as, presumably, it has real value.

The Task Force is sponsored by the Heads of Technical Services in Large Research Libraries Interest Group. The Task Force should provide a report to the Interest Group by fall 2009. [extended to ALA Annual, Washington D.C., July 2010].

Introduction

The Task Force on Cost/Value Assessment of Bibliographic Control was charged with identifying measures of the cost, benefit, and value of bibliographic control for key stakeholder communities, and developing a plan for implementing these measures. The objective of this work was not to develop a complete model of costs and value for bibliographic data, but to begin to identify sound measures that can inform decisions by those engaged in the creation, exchange, and use of bibliographic data.

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Although the use of cost-benefit analysis for service organizations such as libraries is problematic, **all organizations must achieve goals and provide value.** Bibliographic control may be considered by many to be a public good, but it has real costs attached to it, just as, presumably, it has real value.¹

[emphasis ours]

As noted in *On the Record*, our ability to make sound decisions and mindful changes around bibliographic control is hindered by our lack of operational definitions of value and methodologies for assessing value within our institutions. To date, libraries have not developed robust cost/benefit metrics and those for bibliographic control are even further lacking.² The Task Force struggled with its charge in the larger cultural context of the profession's inability to articulate value and, until recently, not generally being asked to do so in measured ways.

¹ <http://www.loc.gov/bibliographic-future/news/lcwg-ontherecord-jan08-final.pdf>

² CLIR commissioned a detailed study in 1997-1998 on the value of library and information services. These papers discuss at length the difficulty and complexity of defining value: Saracevic, T., and P. B. Kantor. "Studying the Value of Library and Information Services. Part I. Establishing a Theoretical Framework". *Journal- American Society For Information Science*, v. 48, no. 6 (1997): p. 527-542 and Saracevic, T., and P. B. Kantor. "Studying the Value of Library and Information Services. Part II. Methodology and Taxonomy." *Journal- American Society For Information Science*, v. 48, no. 6 (1997): p. 543-563. Despite generating a strong taxonomy of values, the authors stopped short of linking them to economic measures, saying "the challenge is to connect studies of value with some appropriate economic indicators." One notable attempt at doing this is the MIT cost-benefit analysis: Raffel, Jeffrey A., and Robert Shishko. *Systematic Analysis of University Libraries - An Application of Cost-Benefit Analysis to the MIT Libraries*. Cambridge, Mass. : The MIT Press, 2002. A more recent attempt for cost-benefit, narrowly applicable to the larger academic research libraries, is UIUC's attempt to correlate library costs with direct monetary benefits in the form of grant funds: Luther, Judy. "University investment in the library: What's the return? A case study at University of Illinois Urbana-Champaign." *LibraryConnect White Paper #1*. San Diego, Calif.: Elsevier, 2008. Using a return-on-investment model has obvious and acknowledged limitations in applicability. Further mention of other issues on valuing academic libraries is found at <http://research.library.cornell.edu/value>, from Cornell University Libraries Research and Assessment Unit, Library Value Calculations (accessed 18 June 2010).

The Task Force discussed several fundamental questions which seem crucial to defining metrics for value:

1. Is it possible to measure value in ways that are non-numeric?
2. Does it help to discuss relative value over intrinsic value? While we felt that, yes, we can discuss relative value (and this was actually stated in our charge, “Measures of cost and value may be granular and relative”), it is unclear that agreeing to discuss relative over intrinsic value was helpful in moving the discussion forward.
3. Does value equal use? We agreed that, while use (largely circulation, which may include in-house circulation for those libraries that capture this data) is a helpful measure of value, it is certainly not the entire question. What does use mean for non/low-circulating materials, where libraries have strong commitments to preserve the cultural record, including rarely requested primary source materials? Is there not bibliographic control value in helping a user doing comprehensive research determine from the metadata record that a particular item is *not* useful to him/her? Use, quantified by circulation counts, has been examined for collection development and maintenance purposes, but not to assess the impact of library resources on user’s research.³ Hit counts on metadata records in a digital library environment are problematic as they are not reliable measures of the user experience.⁴ Because it is numeric and, therefore, quantifiable, use is a tempting measure for articulating value. But it clearly is only one piece of the puzzle.
4. There was desire among the group membership to define a list of bibliographic elements that are “high-value” and others that are “low-value” so that libraries (particularly the ARL/ Large Research Libraries) could start to make on-the-ground decisions about what is necessary and unnecessary in bibliographic record creation with the sanction of an “industry standard” for quality. We have not done so, for several reasons:
 - a. As noted in our charge, “The objective of this work is not to develop a complete model of costs and value for bibliographic data, but to begin to identify sound measures that can inform decisions by those engaged in the creation, exchange, and use of bibliographic data.” We have outlined proposals below for how we might move towards defining such an “industry standard,” but more research into how users employ library (or even non-library)

³ Circulation statistics have been used as a tool for collection management/collection maintenance: Knievel, J. E., et. al. “Use of Circulation Statistics and Interlibrary Loan Data in Collection Management.” *College & Research Libraries*, v. 67 no. 1 (January 2006) p. 35-49; Dinkins, D. “Circulation as Assessment: Collection Development Policies Evaluated in Terms of Circulation at a Small Academic Library.” *College & Research Libraries* v. 64 no. 1 (January 2003) p. 46-53. A research on circulation numbers in relation to bibliographic information value has been done as well: Enger, K. Brock. “Using Citation Analysis to Develop Core Book Collections in Academic Libraries.” *Library & Information Science Research*, v. 31, no. 2 (April 2009): 107-112. Selth et al. argues that circulation statistics don’t actually reflect the use of resources, especially current usages: Selth, Jeff; Koller, Nancy; Briscoe, Peter. “The Use of Books within the Library.” *College and Research Libraries*, v. 53, no.3 (May 1992): 197-205.

⁴ Bollen et al. write that usage data has great potentials for analyzing scholar’s use of resources. However, without standards to record and exchange the data, it is hard to understand the exact meaning of usage data: Bollen, Johan, Herbert Van de Sompel, and Marko A Rodriguez. “Towards Usage-based Impact Metrics: First Results from the MESUR Project.” (April 23, 2008). <http://arxiv.org/abs/0804.3791>. Hit counts are not reliable measures of the actual use of resources, for the number only reflects the visits to the web-site. The path analysis is more appropriate way to look at user behaviors and use of resources: Perneger, Thomas V. “Relation Between Online ‘Hit Counts’ and Subsequent Citations: Prospective Study of Research Papers In the BMJ.” *BMJ*, 329, no. 7465 (September 4, 2004): 546-547. Hit counts are ambiguous since they include “all of the complex elements that are loaded separately to comprise that page as well as the web crawlers”: Miller, Rush G. “Shaping Digital Library Content.” *The Journal of Academic Librarianship* v. 28, no. 3 (May): 97-103.

metadata is first required and this is beyond the scope of this Task Force. Doing so will also require statistical, methodological, user behavior research, and surveying expertise beyond the scope of this Task Force.

- b. There is likely no universal value assessment that we can tie down to individual elements. We do not believe that it will be possible to create a single “industry standard” that would be appropriate for all consumers of bibliographic data. Different communities must define their own needs for quality. We hope to propose methodologies for assessing value that can be adopted by various communities to help them assess the value of their metadata to their community, rather than asserting one (or even a few) value statements that would serve all communities.
- c. Those separate communities include distinctions in domain (e.g. music and law) where certain elements, such as uniform titles, would rank of substantially higher value than for other communities. But, there is also variation in the value propositions between libraries and vendor creators of bibliographic data. While we can state that accurate identifiers are of crucial significance across the board and are rapidly increasing in value, unfortunately, at this point in time the specific identifiers cannot necessarily be agreed upon. For the vendor community, for example, LCCN is a crucial match point because they largely are using data from the Library of Congress, while the library community is increasingly reliant on OCLC numbers as manifestation identifiers to which vendors generally do not have access and, therefore, may not currently rank high on their element value list.

Given the lack of research in this area and our desire to move forward discussions about quantifying the value of bibliographic control in an environment where the vocabulary for doing so does not yet exist, the Task Force on Cost/Value Assessment of Bibliographic Control proposes seven operational definitions of value and offers suggestions for research in these areas. While our charge was to develop measures for value, we have determined that it is not helpful to do so until we have a common vocabulary for what constitutes value and understanding of how value is attained, and until we have user research into which bibliographic elements result in true research impact. The Task Force hopes that what we provide below serves to scope the problem in such a way as to encourage discussion into value from various angles and to provide next steps for institutions interested in taking on these crucial questions.

While we are unable to propose a single solution, the cataloging community has many strengths to support these discussions. We are large in number and, across institutions, we have significant similarity both in our datasets and in how we present our data to our users. We hope to encourage collaboration in research. As representatives of the large research community, we submit this report to the Heads of Technical Services in Large Research Libraries Interest Group, but we also feel that ownership of these questions is required of entities in the library community of all sizes and types (including vendors of bibliographic data) and we hope that the community at large can amass enough data to start to ask questions of the results. There may be some methodological strategies that would best be undertaken by a single, centralized entity, but we also believe that individual institutions can do much of this work on smaller scales in line with their institutional missions. We believe the only practical way forward is for institutions to ask value questions in their arenas and to begin to pool the information in search of commonalities and differences. In an effort, however, to encourage that next steps be taken quickly, we also propose that the Heads of Technical Services in Large Research Libraries Interest Group identify institutions among themselves or solicit partners from the community who are eager to act. We outline these proposals for responsibility below as well.

Operational definitions of value & a research agenda

1. *Operational definition of value: Discovery success*

Research question: While there is existing research into which elements are used in bibliographic data (largely MARC records), this research generally speaks to “inputs”: what cataloging librarians are entering, based on what our rules tell us to include. The MARC Content Designation Utilization Project, funded by IMLS in 2005-2007, provides a wealth of statistical data on MARC tag usage and publications from that project also address the correlation between MARC tag usage and cooperative cataloging guidelines and instructions.⁵ This work was followed up in 2010 by OCLC, who recently issued the report *Implications of MARC Tag Usage on Library Metadata Practice*.⁶ The Task Force would like to echo the OCLC report: “the presence of a field does not necessarily tell us anything about the utility of the data within the field for retrieval, matching, or intellectual use.”⁷ This research does not directly or in measurable ways speak to which elements are of value to users. The Task Force proposes research into which bibliographic elements are producing retrieval.

Suggestions for methodology:

- Using search terms from user logs, evaluate which bibliographic elements matched those search terms. The 2010 OCLC report also outlines the inadequacy of current log data generated by MARC-based systems⁸, but the Task Force believes it necessary to attempt to analyze which bibliographic elements are supporting retrieval. The OCLC report is focused on MARC usage; possibly there are non-MARC bibliographic systems in which this data can be more easily and accurately captured.
- In addition to log analysis, directly watch user behavior to determine which records users clicked through to and why.
- A/B testing -- testing discovery success in two systems when indexing two versions of the same record with/without certain metadata fields available. When elements are available and when elements are not available, how does that affect user’s ability to retrieve?
- In projects where brief records are being upgraded, capture the initial record set pre-upgrade and compare with discovery success post-upgrade.
- Identify delivery systems where one system indexes table of contents data and the other does not; research impacts on discovery from user log data.

⁵ MARC Content Designation Utilization Project, <http://www.mcd.unt.edu/>

⁶ Smith-Yoshimura, Karen, et. al. *Implications of MARC Tag Usage on Library Metadata Practices*. Dublin, Ohio: OCLC Research, 2010. <http://www.oclc.org/research/publications/library/2010/2010-06.pdf>

⁷ Smith-Yoshimura, p. 18.

⁸ Smith-Yoshimura, p. 15.

Caveats/Considerations: Data across institutions would vary based on indexing and system design issues (such as last in/first out sorting decisions or relevancy). Assessing such data across institutions would cause us to ask questions about whether such differences are based on indexing decisions, display decisions, the nature of the collections, etc. While it would be difficult to prove correlation between trends in findings and any particular factor if the institutions comparing results ran tests under different conditions, using statistical techniques such as meta-analysis, this approach could identify useful value similarities and would have the advantage of enabling analyses of the value of bibliographic data in the information ecosystem that includes systems design.

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could select a group of their libraries prepared to do this work, soliciting participation from other willing institutions and researchers in the community.

2. *Operational definition of value: Use*

Research question: While we note above that use is clearly only part of the value equation, we repeatedly asked this question: do items with “better” records circulate more frequently (or are electronic resources with “better” records more highly used)? Discussion among Task Force members revealed several uncataloged (or minimally cataloged) collections that have been put into open stacks to enable patron browsing. Some of these institutions catalog materials only upon discharge from circulation; others have staff (or students) working their way slowly through these collections. Is fuller bibliographic information for these materials valuable enough to be worth the cost?

Suggestions for methodology: Identify institutions where collections were shelved in open, browseable stacks before cataloging and compare circulation statistics of the same items before and after full cataloging. Criteria for choosing institutions would necessarily include running an ILS that logs the date of completion of the catalog record and that contains sufficient historical circulation data. Alternatively, this would need to be a longitudinal study going forward.

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could select a group of their libraries prepared to do this work, soliciting participation from other willing institutions and researchers in the community.

3. *Operational definition of value: Display understanding*

a. *Research question:* How much of the data we create do users understand?

Suggestions for methodology: User studies, including focus groups and other behavioral research. Interview users, asking such questions as: (1) what in this display do you not understand; (2) what of the display helps you decide this item is what you are looking for. North Carolina State University Libraries is currently doing work in this area with EAD and GIS metadata, testing the metadata with users from multiple approaches, i.e. the presence or absence of certain metadata; the displays of certain data elements for ease of use; and the rate of use and perceived usefulness of specific metadata elements.⁹ Particular attention

⁹ For further information, contact Joyce Chapman at North Carolina State University, joyce_chapman@ncsu.edu.

should be paid to the elements that are beyond basic description, such as subject access, uniform titles, and classification. Another set of questions would involve user-assigned data: if you could add something to this record to help the next person encountering it know whether this resource would be useful or not, what would you add?

- b. *Research question:* How frequently does a user go from a brief display to a full display? When a user does go to the full display for more information, what information is s/he looking for?

Suggestion for methodology #2: User studies, including focus groups and other behavioral research. A/B testing would also be appropriate here (testing two iterations of the same interface, displaying different metadata elements).

- c. *Research question:* When users request items from storage/ILL, what was missing in the bibliographic display to help them assess the usability of that item before requesting it? An [unknown] percentage of users of ILL or stored items request them to evaluate their usefulness for their research. Are there ways in which the bibliographic record can help better at this evaluation step?

Suggestion for methodology: User survey at the point of return of storage/ILL items.

Caveats/Considerations: It is very difficult to assess the value of metadata separately from the quality of any particular discovery interface. Data across institutions would vary based on system design issues. Assessing such data across institutions would cause us to ask questions about whether such differences are based on indexing decisions, display decisions, the nature of the collections, etc. It would be difficult to prove correlation between trends in findings and any particular factor if the institutions comparing results ran tests under different conditions. However, using statistical techniques such as meta-analysis, this approach could identify useful value similarities and would have the advantage of enabling analyses of the value of bibliographic data in the information ecosystem that includes systems design. Libraries have made different decisions about which elements go on the brief/full display, already effectively demoting the value of elements available on the full display. But research is lacking as to the usability implications.¹⁰

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could select a group of their libraries prepared to do this work, soliciting participation from other willing institutions and researchers in the community.

¹⁰ Preference is given to author title and publication in many Library OPACs, with great variation among the display and/or sequence of all other elements. Additionally, many OPACs display information such as control number data, which is generally thought to be meaningless to users, and potentially useful information, such as coded data in the MARC leader, is often displayed in confusing and sometimes meaningless manners: Mi, Jia and Weng, Cathy. "Revitalizing the Library OPAC: Interface, Searching and Display Challenges." *Information Technology and Libraries* (March 2008): 5-22. Some research has been evaluating web logs and fine tuning relevancy and results: Wang, Xuanhui and Zhai, ChengXiang. "Learn from Web Search Logs to Organize Search Results." *Proceedings of the 30th SIGIR Conference* (July 2007): 7-24, <http://sifaka.cs.uiuc.edu/czhai/pub/sigir07-org.pdf>

4. **Operational definition of value: Ability of our data to operate on the open web and interoperate with vendors/suppliers in the bibliographic supply chain**

Research question: Significant work has been undertaken in this area in preparation for RDA by Diane Hillmann, Karen Coyle, and the Metadata Registry.¹¹ Anecdotally, we believe it will be valuable if we can launch our metadata out of the library silo, but how do we know this for certain? How do we measure that value? And how will we measure success? Will we need to wait a couple of years until enough RDA records exist? How can we wait that long? Where would libraries derive value if our data were more integrated with web services (separate from/in addition to making our data more valuable to non-library entities)? Certainly, the extent to which our data employs a syntax that is machine processable contributes to the value of our data. We also need further study on how much non-library entities know about and understand library data and how the use of ONIX data is impacting the library supply chain.

Suggestions for methodology:

- Research ONIX uptake throughout the bibliographic community. There are several library initiatives underway currently using ONIX publisher data. Most well known are projects from OCLC¹² and the Library of Congress.¹³ The University of Illinois at Urbana-Champaign is also working with ONIX vendor data as a means of providing users faster access to e-books. They are working directly with two e-book vendors and using the Library of Congress's ONIX-to-MARC XSLT.¹⁴ ONIX data is created to meet different needs than we have in libraries and is a legitimately different standard. The standards interleave at a certain point but they come from different perspectives. With concrete ONIX-MARC projects underway, analysis can now be done to determine the extent to which ONIX data is valuable for cataloging workflows. OCLC recently issued a report on their crosswalk implementation that should forward this discussion.¹⁵ The extent to which data is compatible can also be said to be a measure of value and we could pose that the data elements that make connections between standards (identifiers, titles, etc.) are among the most valuable. An additional methodology for determining ONIX-to-MARC uptake and value would be to select a set of ONIX records from a known publisher, track over time how that metadata is used throughout the supply chain to vendors of bibliographic data, OCLC, libraries (i.e. PCC upgrade) and out to the open web (Amazon, Google, LibraryThing, etc.) as a gauge of value and a measure of success in sharing data beyond our community borders.

¹¹ Hillmann, Diane, et. al. "RDA Vocabularies: Process, Outcome, Use." *D-Lib Magazine*, v. 16, no. 1/2 (January/February 2010), <http://dlib.org/dlib/january10/hillmann/01hillmann.html> and The RDA (Resource Description and Access) Vocabularies, NSDL Registry, <http://metadatarregistry.org/rdabrowse.htm>

¹² Next Generation Cataloging, <http://www.oclc.org/partnerships/material/nexgen/nextgencataloging.htm> and OCLC Metadata Services for Publishers, <http://publishers.oclc.org/en/metadata/default.htm>

¹³ Library of Congress, ONIX Pilot, <http://cip.loc.gov/onixpro.html>

¹⁴ For further information, contact Myung-Ja Han at University of Illinois at Urbana-Champaign, mhan3@illinois.edu.

¹⁵ Godby, Carol Jean. Mapping ONIX to MARC. Dublin, Ohio: OCLC, 2010. <http://www.oclc.org/research/publications/library/2010/2010-14.pdf>

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could reach out to OCLC to pursue work in this area.

- Determine what amount of library data is currently being used outside the library ecosystem. While the potential here lies in the RDA Vocabularies as linked data, doing some research on this now would give us a baseline for comparing the extent of usability of our data in non-library contexts now with what we hope will happen when our data becomes more truly accessible on the open web.

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could reach out to OCLC to pursue work in this area.

- Analyze the extent to which our data is successfully interacting with other programs in the user's bibliographic toolset (EndNote, Zotero, etc.).

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could reach out to the relevant application developers to pursue work in this area.

5. *Operational definition of value:* **Ability to support the FRBR user tasks**

Research question: The Task Force was surprised to realize that nowhere is it explicit in the RDA text which RDA elements support which FRBR user tasks. While RDA speaks directly to the bibliographic entities -- work/expression/manifestation/item -- the element lists do not speak directly to the facilitation of the user tasks (find/identify/select/obtain). The RDA text includes discussion of the user tasks in the introductory matter for the relevant chapters, the chapters have been mapped to the FRBR user tasks,¹⁶ and a number of the chapter names reference a user task (e.g. "Identifying Manifestations and Items"). Documentation around the development of the core element list explains that core elements were determined by assessing the value of those elements according to how they support the user tasks.¹⁷ Much of this work, however, is buried in narrative and a direct mapping of RDA elements to FRBR user tasks has not been issued.

The Task Force believes it would be useful to surface this data more explicitly. Because there is discussion in the community about libraries moving from having a primary discovery role to a primary fulfillment role, research into which of the FRBR user tasks is most highly valued is also an avenue to explore. If we were to learn that Obtain is the most valuable user task and we were clear on which RDA elements supported that task, that knowledge may give the community direction on how to proceed with specific aspects of bibliographic control.

Suggestion for methodology: Undertake a mapping of the RDA elements to the FRBR user tasks and undertake usability research to determine if, in fact, these elements do provide value towards facilitating the user tasks. As proof of concept, the Task Force has attempted to aggregate a number of datasets/documents. These include:

¹⁶ Joint Steering Committee for Development of RDA, "RDA, FRBR/FRAD, and Implementation Scenarios" (23 January 2008), <http://www.rda-jsc.org/docs/5editor4.pdf>

¹⁷ Joint Steering Committee for Development of RDA, "RDA Core elements and FRBR user tasks" (5 November 2008), <http://www.rda-jsc.org/docs/5chair15.pdf>

- The RDA (Resource Description and Access) Vocabularies, Group 1 & Group 2 entities
<http://metadataregistry.org/rdabrowse.htm>
May 6, 2010 RDF download
- Functional Requirements for Bibliographic Records, Final Report, 6.2 Assessing Value Relative to User Tasks (IFLA, 1998)
http://archive.ifla.org/VII/s13/frbr/frbr_current6.htm#6.2
Maps FRBR attributes and relationships to the FRBR user tasks they support and assigns a high/medium/low value to that support
- FRBR to RDA mapping (Joint Steering Committee for Development of RDA, July 1, 2009)
<http://www.rda-jsc.org/docs/5rda-frbrdamappingrev.pdf>
Maps FRBR entities to RDA elements
- RDA, FRBR/FRAD, and Implementation Scenarios (Joint Steering Committee for Development of RDA, January 23, 2008)
<http://www.rda-jsc.org/docs/5editor4.pdf>
Maps RDA chapter numbers to FRBR user tasks
- Functional Analysis of the MARC 21 Bibliographic and Holdings Formats (Tom Delsey, for the Library of Congress Network Development and MARC Standards Office, April 6, 2006)
<http://www.loc.gov/marc/marc-functional-analysis/functional-analysis.html>
Maps MARC tags to the FRBR user tasks they support
- Also referenced but not directly included:
FRBR Analysis (MARC Content Designation Utilization Project: Inquiry and Analysis, May 5, 2006)
<http://www.mcd.unt.edu/wp-content/FRBRAnalysisglsd105May2006.pdf>
Maps MARC usage by catalogers to FRBR entities and user tasks

The Task Force's goal was to attempt to aggregate various datasets/documents in order to create a mapping of RDA bibliographic elements to FRBR user tasks and to illustrate a value ranking. This is only an attempt to *aggregate* data. While some interpretation has been made in order to map the data, the Task Force has not assigned its own value mappings beyond what was found in IFLA and LC/Delsey. The aggregated data is available as an appendix to this report. We recommend that further work be done in this area.

- Continue to aim for a common understanding of stated value for individual bibliographic elements.
- The value rankings in these studies are based on academic and theoretical analyses of the value of an element for a user task. We still need significantly more user research on whether these elements do support the user tasks. The 2009 OCLC report *Online*

*Catalogs: What Users and Librarians Want*¹⁸ calls particular attention to user desires for elements supporting delivery. Users also requested discovery-related data, such as the ability to preview the book, cover art, summary/abstract data, and tables of contents data. While not all of these are covered by the RDA element set, summarization of the content, for example, was rated by IFLA low for the identify task and medium for the select task. Clearly, there is a disconnect between our academic and theoretical analyses and our users' desires.¹⁹

- In conjunction with other operational definitions of value above, determine which of these elements are commonly indexed, which are commonly displayed, which users pay attention to/understand/etc.
- Consider integration of an RDA-to-FRBR User Tasks mapping analysis into the upcoming RDA Toolkit. Such a resource could provide guidance to catalogers particularly in light of the RDA Toolkit workflow functionality.

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could reach out to the RDA leadership (ALA, the Joint Steering Committee, the Library of Congress, etc.) to more explicitly surface the value assumptions inherent in RDA; there is also likely synergy here with the work of the MARC Content Designation Utilization Project. To pursue work on value testing, the Heads of Technical Services in Large Research Libraries Interest Group could select a group of their libraries prepared to do this work, soliciting participation from other willing institutions and researchers in the community.

6. *Operational definition of value: Throughput/Timeliness*

Research question: The Task Force asserts that the extent to which our data creation processes facilitate timeliness in resource availability is a measure of value. Users cannot access materials which are sitting (literally or digitally) in uncataloged backlogs. Additionally, the value of editing existing records over cataloging materials completely lacking description is, of course, questionable. Research into this area would ideally demonstrate the impact on a community of not having new materials made quickly available.

Suggestion for methodology: Measure the uptake of the data we are creating. In cases where the resource itself is available to users both before and after release of metadata in the library's discovery systems, compare resource use before full metadata has been loaded with use (in a defined

¹⁸ Calhoun, Karen, et al. *Online Catalogs: What Users and Librarians Want*. Dublin, Ohio: OCLC, 2009, p. 12-13, <http://www.oclc.org/reports/onlinecatalogs/fullreport.pdf>

¹⁹ Work has been published by the MARC Content Designation Utilization Project showing how catalogers code MARC tags in support of the FRBR user tasks, but it does not provide value research into the user perspective : Miksa, S. "Understanding Support of FRBR's Four User Tasks in MARC-Encoded Bibliographic Records." *Bulletin of the American Society for Information Science and Technology*, August/September 2007, http://www.mcdu.unt.edu/wp-content/UnderstandingSupportOfFRBRUserTasks_ASISTBulletin_Aug07.pdf and Miksa, S., et. al. "Metadata Assistance of the Functional Requirements for Bibliographic Records' Four User Tasks: a report on the MARC Content Designation Utilization (MCDU) Project." [PrePrint]. Published in *Knowledge Organization for a Global Learning Society: Proceedings of the 9th International Conference for Knowledge Organization. International Society for Knowledge Organization 9th International Conference*. (Vienna, Austria. July 5-7, 2006). *Advances in Knowledge Organization*, vol 10. Wurzburg: Ergon, <http://www.mcdu.unt.edu/wp-content/ISK006sdm23May2006REVISED.pdf>

timeline) post release of the metadata. Existing research demonstrates increased usage of e-books when MARC records are integrated into the OPAC,²⁰ but does not consider the importance of timeliness of record creation and integration.

- Identify older imprints newly added to OCLC. How quickly do other institutions add their holdings once the record has been input? This metric would not demonstrate direct user impact, but could show something about how quickly uptake of new cataloging occurs throughout the MARC bibliographic ecosystem. While OCLC does not retain long term data on record edits, they could potentially do a rolling analysis on records newly added to their database.

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could reach out to OCLC to pursue work in this area.

- For a set of materials, analyze publication dates against the dates when items were first acquired, first cataloged, and first circulated to identify trends in resource discovery and use. While there are other variables which would be difficult to control for that impact discovery and use, having an understanding of how quickly newly cataloged materials circulate could help determine appropriate throughput expectations.

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could select a group of their libraries prepared to do this work, soliciting participation from other willing institutions and researchers in the community.

7. *Operational definition of value:* **Ability to support the library's administrative/management goals**

Research question: Which bibliographic elements provide value to the library for collection development, acquisitions, auditing, and inventory purposes beyond the value they provide for discovery or use by patrons? Note that the Task Force asks this question only about bibliographic data (e.g., series elements, LC class numbers, local notes including donor information, etc.). The Task Force has not considered within scope for our discussions other administrative data, e.g., item level data (including order, receipt, and invoicing data) that is often stored in the ILS and has functional system relationships to the bibliographic data.

Suggestion for methodology: Survey the community to understand the value of the bibliographic data elements for librarians involved in managing collections.

To move forward: The Heads of Technical Services in Large Research Libraries Interest Group could reach out to their counterparts in the Chief Collection Development Officers of Large Research Libraries Interest Group to pursue work in this area. Acquisitions management, while also represented by the Heads of Technical Services in Large Research Libraries Interest Group, could

²⁰ Belanger, J. (2007). Cataloguing e-books in UK higher education libraries: report of a survey. *Program: Electronic Library & Information Systems*, v. 41, no. 3, p.203-216; Dillon, D. "E-books: the University of Texas experience, part 2", *Library Hi Tech* v. 19, no. 4 (2001), pp. 350-62; Gibbons, S. "netLibrary eBook usage at the University of Rochester Libraries, Version 2." (2001), <http://www.lib.rochester.edu/main/studies/analysis.pdf>

also specifically be called together for these conversations. Additionally, ILS administrators in LITA may have interest in this area.

Value Multipliers

The Task Force also discussed aspects of value that impact the operational definitions above:

- the extent to which our bibliographic data is normalized
- the extent to which our data supports collocation & disambiguation in discovery
- the extent to which our data has used controlled terms across format/subject domains
- the extent to which our level of granularity matches what users expect
- the extent to which our data enables a formal/functional expression of relationships (links between resources) to find “like” items
- the extent to which our data is accurate
- the extent to which our data enhancements are able to proliferate out to all derivative records

All of these items contribute to how valuable our data is in conjunction with the goals as defined above. We consider them “value multipliers” as we believe they significantly contribute to value but we cannot assess how much until further research is done on the operational definitions outlined above and our value goals become clearer.

Measures of Cost

The Task Force also found it challenging to define a vocabulary around which to discuss cost. While it is possible to outline elements contributing to the cost of cataloging (and work has been done in this area²¹), it is difficult to evaluate those metadata costs, and to determine whether those costs are currently too high, without first having a clear understanding of value.

Broadly, it is clear that the following elements contribute to cost:

- Salary/benefits x Time for new record creation (for all bibliographic control activities, including searching for copy, original description, MARC encoding, classification, subject analysis, authority work, and local practices that vary from greater accepted practice)

²¹ Most research focused on cataloging or technical services operation costs, e.g., staff salary and number of records processed. However it was also noted that costs were not necessarily comparable among institutions since they varied in terms of factors, such as number and levels of staff, types of resources, and levels of cataloging. McCain & Shorten analyze the results of a survey of academic libraries. The survey questions focused on staffing levels, the number of items processed, the presence and size of a backlog, the automation system in use, and perceptions of efficiency. It presents measures of efficiency and effectiveness for cataloging departments based on those factors: McCain, Cheryl, and Jay Shorten. “Cataloging Efficiency and Effectiveness.” *Library Resources & Technical Services*, v. 46, no. 1 (2002). Morris, et. Al. describes a longitudinal study of time and cost begun in 1987 by Iowa State University about measuring staff time and costs as well as the tasks that staff performed. The paper categorized the tasks in detail -- e.g., copy cataloging, original cataloging, authority control, re-cataloging, and monographic and serials cataloging -- and analyzed the productivity of each task with staff: Morris, Dilys E., et al. “Cataloging Staff Costs Revisited.” *Library Resources & Technical Services*, v. 44, no. 2 (2000): p. 70-83. A subsequent study analyzed tasks library-wide: Dilys E Morris, Joanne M Bessler, Flo Wilson, Jennifer A Younger. “Where Does the Time Go?: The Staff Allocations Project.” *Library Administration & Management*, v.20, no. 4 (fall 2006): p. 177-191.

- Cataloging Tools (including Cataloger’s Desktop, Classification Web, OCLC, the coming RDA Toolkit, WebDewey, etc.)
- Database Maintenance (salary/benefits x time on bibliographic and access (URL) corrections, vended authority control services, vended record upgrade notification services, activities such as “typo of the day”, etc.)
- Overhead (training, policy development, documentation, cooperative cataloging arrangements, the systems that they are built on, and the practices that grow up around them, etc.)

While it is possible to calculate cost for the creation of individual elements or even areas of cataloging (such as authority control) by doing time studies, doing so is most useful against a value question, and it is not clear at what level of granularity it would make most sense to do this. We also, of course, need to be clear on the goal. If the goal is to generally bring down the costs, we calculate the costs above and work to develop systems/infrastructure that would help lower them. If the goal is to ask whether the tasks we are doing *are worth* the costs, then we first need better research into the value questions above.

The Task Force discussed how we might capture the costs of many individual bibliographic elements and, while we acknowledge that even small costs add up over time, given the way bibliographic description is done it is hard to imagine how one might calculate the cost of creating individual bibliographic elements. This direction also causes us to focus on initial record creation and overlook costs of maintaining the integrity of our bibliographic databases over time. Much of the cost of bibliographic control is not in the original data creation but in metadata maintenance activities that come later in the lifecycle.

Alternatively, we considered suggesting an extremely simple solution, such as the number of volumes cataloged divided by salaries. But this type of calculation will fail to illustrate true costs. *Festschrift* is an emblematic example. The act of coding the fixed field value is not where the cost lies, but that is the cost most easily captured. True costs (and true savings, if we stopped coding this value or many others) are in the overhead category of training and documentation, which are significantly harder to quantify.

Deviations from standard practices carry added cost and consume additional processing time, often in the work and always in the overhead (training, policy development, documentation, etc.). We challenge libraries to determine how much their local practices are costing and to undertake conversations around whether they are of appropriate value to their constituencies. All libraries must actively decide what they are willing to pay to support their priorities. Local practices are often brought into question by outside forces: consultants, new administration or staff, planning for vended cataloging services, etc. These influences force articulation and assessment of local priorities. The Task Force encourages cataloging departments to embrace a culture of continuous cost/value discussion and assessment and to invite in external forces that will require us to be attentive to our priorities and their associated costs.

The 2009 R2 Consulting *Study of the North American MARC Records Marketplace* states:

Given that the work is based on standards, original cataloging should require essentially the same amount of effort, no matter who does the work. Each title requires authority work, subject analysis, physical description, and classification. Unless there are training issues, cataloging an individual title should take the same amount of time, again no matter who is doing the work. The cost of production, then, would be similar, though probably not identical. Pay scales can vary significantly; some formats require more time or skill than others; some operations may be better designed; and some

individuals more productive than others. But these factors would exert only marginal effect. For any title cataloged to the same standard in two operations, it's reasonable to assume that the task requires a similarly high level of investment.²²

The Task Force did not feel comfortable with this assertion. There are many workflow differences from one institution to another that make this currently untrue. While those workflow differences probably can, and maybe should, be resolved, the extent to which any library's workflow is automated, the capabilities of an individual integrated library system (ILS), and the extent to which a library has information technology support to enable the automation of tasks beyond the standard ILS capabilities (such as the extent to which a Library uses macros and the library's ability to automate harvesting of source data) impact the time investments. The Task Force feels uncertain stating that -- even among the ARL community we represent -- our time investment is equivalent across our institutions, let alone including the vendor communities into this discussion. In order to legitimize this claim, many of us need to perform time studies, coordinated such that the resulting data can be normalized for comparison. Such a methodology requires statistical and methodological expertise beyond the scope of this Task Force. The Task Force, therefore, proposes this as a follow-up research agenda item as well.

Finally, opportunity costs need to be quantified. Time spent on low value activities (no matter which operational definition we use for "value") is time *not* spent on high value activities. Having materials sitting in Technical Services waiting for copy to appear, while libraries edit existing records, inhibits discovery and use of our collections.²³ The extent to which our data creation processes facilitate timeliness in resource availability is a crucial component of value. Additionally, the failure to contribute back meaningful edits to the national community causes the community at large to pay editing costs over and over again. While it may be possible to create a metric that would calculate that cost, it is undeniably larger than zero. Any number larger than zero is no longer sustainable.

Interdependencies among creators and consumers of bibliographic data

The final element of the Task Force's charge was to identify the interdependencies among creators and consumers of bibliographic data. The Task Force believes that this has been well documented for the MARC record ecosystem by the October 2009 R2 Consulting *Study of the North American MARC Records Marketplace*, who completed their work in the midst of ours. Appendix B of their report outlines the stakeholders in the MARC record ecosystem. While we note that their work was scoped to MARC, we did not identify any missing components particular to the ARL community within that scope. The R2 report, however, represents ARL libraries only at a very high level. The report's focus on MARC records specifically and within the realm of Library of Congress production puts a different slant on cost and value than in our charge. While R2 discusses "common good" and "social responsibility", ARL has focused on "community good", where we direct our work primarily in response to our campus constituencies, not a general un-contextualized philosophy of

²² R2 Consulting, LLC, *Study of the North American MARC Records Marketplace* (October 2009), p.26, http://www.loc.gov/bibliographic-future/news/MARC_Record_Marketplace_2009-10.pdf

²³ R2 Consulting, LLC: "Our survey results also confirm our direct observation of many "aging" backlogs in libraries. Because of their own staffing constraints, or unwillingness to bear the cost of original record creation, many libraries simply wait for another library to catalog an item they have already received. On average those items are held for three to six months, with periodic searches of OCLC to determine whether another library has blinked. While this makes sense as a way of controlling costs, it does not provide optimal service for users," p. 27.

public good. This Task Force has also focused on the value of metadata to users, while R2 focuses on value of bibliographic data to libraries as organizations (as measured by cost reduction). That said, the Task Force does feel that if there are significant metadata production changes made at the Library of Congress, it will affect methodologies we develop. For instance, one effect could be to make more it urgent that we (as a community, not as a Task Force) develop metrics to cost out increasing cataloging capacity in the way R2 describes. The non-MARC bibliographic marketplace is significantly less well defined, but the creators and consumers of bibliographic data in that eco-system can be placed in the R2 context as well. There are libraries creating original non-MARC data, there are vendors creating (and selling) original non-MARC data, and there are aggregators (commercial and non-commercial) of non-MARC data (through services such as OAI). The Task Force, therefore, believes that Appendix B of the R2 report captures the stakeholder relationships for the ARL community in the MARC eco-system and may be extended to encompass non-MARC metadata creation partners as well.

Conclusion

In 1956, in an article titled "Cataloging Cost Factors," R. C. Swank wrote:

For purposes of evaluation, studies of the use of the catalog would be helpful if related to costs. If we could know, for example, the utility of various added entries and could tell the difference in cost if they were or were not made, we might be able to pass reasonable judgment. But even studies of the use and cost of the catalog would leave much to the imagination, because they would still fail to inform us about the relations of the catalog to other kinds of bibliography. Even though it were demonstrated that a job needs to be done and could be done at reasonable cost in the catalog, there would still be the possibility that the same job might be done better at less cost in some other way. The most valuable single kind of study that could be made at this time, I believe, would be case studies of the experience of readers in using the entire range of a library's bibliographical services studies that could then be related to analyses of the costs of the entire range of services.

[and]

The whole area is a great maze which will never be untangled until (a) adequate studies of readers' needs have been made, (b) the most economical bibliographical [sic] means of satisfying those needs have been determined, and (c) the role of the catalog as one of those means has been established. This is a big order, perhaps an impossible one.²⁴

Fifty-four years later, these unknowns persist. The Task Force found our charge quite difficult but refuses to believe that creating measures for cost and value are impossible. We submit this report to engage the community in conversation about what constitutes value for bibliographic control. The members of our Task Force now ponder these questions continually. Challenging ourselves to do so is the first necessary step towards forwarding the discussion. The community must first agree that this is a task we require ourselves to undertake. In this Year of Cataloging Research,²⁵ we offer the community a research agenda.

²⁴ Swank, R. C. "Cataloging Cost Factors." *The Library Quarterly*, v. 26, no. 4 (October 1956): p. 303-317.

²⁵ 2010 Year of Cataloging Research, <http://faculty.washington.edu/acarlyle/yocr/index.html>

Appendix A, RDA Value Matrix

In reference to: Operational Definition #5, Ability to support the FRBR user tasks,
associated Microsoft Excel file: *CostValueTaskForceReportAppendix2010-06-18.xls* (June 18, 2010)