



***Metadata Intersections:  
Bridging the Archipelago of Cultural Memory***

**2014 Proceedings of the International  
Conference on Dublin Core and Metadata  
Applications**

*Proceedings Edited by:*

William Moen

*College of Information, University of North Texas, United States*

Amy Rushing

*University Libraries, University of Texas at San Antonio, United States*

*Published by:*

Dublin Core Metadata Initiative

*a project of ASIS&T*

*Conference Host:*



**Austin, Texas, USA  
8-11 October 2014**

**ISSN: 1939-1366 (Online)**



## WORKSHOPS

- DC-1, Dublin, Ohio USA — 1-3 March 1995
- DC-2, Warwick, U. K— 1-3 April 1996
- DC-3, Dublin, Ohio USA — 24-25 September 1996
- DC-4, Canberra, Australia — 3-5 March 1997
- DC-5, Helsinki, Finland — 6-8 October 1997
- DC-6, Washington D.C. USA — 2-4 November 1998
- DC-7, Frankfurt, Germany — 25-27 October 1999
- DC-8, Ottawa, Canada — 4-6 October 2000

## CONFERENCES

- DC-2001, Tokyo, Japan — 22-26 October 2001
- DC-2002, Florence, Italy — 14-17 October 2002
- DC-2003, Seattle, Washington, USA — 28 September - 2 October 2003
- DC-2004, Shanghai, China — 10-14 October 2004
- DC-2005, Leganés (Madrid), Spain — 12-15 September 2005
- DC-2006, Manzanillo, Colima, Mexico — 3-6 October 2006
- DC-2007, Singapore — 27-31 August 2007
- DC-2008, Berlin, Germany — 22-26 September 2008
- DC-2009, Seoul, Korea — 12-16 October 2009
- DC-2010, Pittsburgh, Pennsylvania, USA — 20-22 October 2010
- DC-2011, The Hague, The Netherlands — 21-23 September 2011
- DC-2012, Kuching, Sarawak, Malaysia — 3-7 September 2012
- DC-2013, Lisbon, Portugal — 2-6 September 2013
- DC-2014, Austin, Texas — 8-11 October 2014

© DCM I 2014

Copyright for individual articles is retained by the authors with first publication rights granted to DCM I for publication in print and electronic proceedings. By virtue of their appearance in this open access publication, articles are free to be used with proper attribution of the author for educational and other non-commercial purposes. Other uses may require the permission of the authors.

ISSN: 1939-1366 (Online)

DC 2014 A U S T I N  
T E X A S





# DC-2014 Welcome

**Welcome to DC-2014 in Austin, Texas!** This gathering of researchers, practitioners and students of metadata for the annual meeting and conference of the Dublin Core Metadata Initiative (DCMI) marks the twenty-second formal meeting of our community. It also marks the end of a year of reinvention and reimagining of the way DCMI works, manifested in large part through a return to the organizational model found in the early years of the initiative, with responsibility for direction and management resting in the hands and minds of the membership.

Much of the groundwork for this re-envisioning came from meetings of the Advisory Board held at the annual meeting in Lisbon last year, and has been shepherded through early stages by the newly elected officers of the Advisory Board, the newly named Governing Board (formerly the Oversight Committee), and the newly formed Technical Board, along with critical assistance from our current Managing Director, Stuart Sutton. We believe the end outcome will be a stronger, member-driven organization that opens new doors for ideas and initiatives that will build on the strengths and reputation DCMI has already established in the international community.

The program this year has a number of new innovations designed to foster this goal, ranging from the Best Practice Posters and Demonstrations, which will showcase concrete examples of current practice in metadata applications, to the Next Generation Metadata Specialist Program, which provides an opportunity for emerging professionals to network with veterans throughout the conference. As always, there are many opportunities to catch up with some of the boundary-pushing technical work being accomplished by task groups and your colleagues in their everyday work, as well as pre and post conference workshops and tutorials. Many thanks to the program committee and chairs for creating a stimulating and diverse program this year.

As you participate in this year's conference we hope that you will think about how you can contribute to the growth and strengthening of DCMI in the coming year—through contributions to the technical work and outreach being accomplished by task groups, by volunteering to take on a role as a chair or co-chair of one of the Standing Committees or the Technical or Advisory Board, by helping engage new members or re-engage old participants, or just by joining as an Individual Member to help support the important work DCMI is doing that we all benefit from in our own activities during the rest of the year.

I personally hope that many of you will also take advantage of the opportunity to add your voice and support to the background work critical to keeping DCMI alive and thriving by attending the Annual Meeting on Saturday. Active members are important in keeping the initiative moving ahead, and this is a chance to join in that work and meet some of the people who contribute their time and effort to making it possible for all of us to reap the benefits of the thought and creativity engendered through DCMI's activities.

We are sure that you will find the conference and meeting exciting and that you will leave Austin with an even greater commitment to the work DCMI is doing, and a deeper engagement with your colleagues in the world of metadata throughout the coming year. Enjoy!!

*Michael Crandall*, Chair, DCMI Governing Board



## Chair's Notes on the Program

At the 2012 South by Southwest Interactive Conference in Austin, Texas, Jon Voss led a panel of speakers to introduce and discuss a “global movement afoot” that encourages greater public access to metadata in the world’s libraries, archives, and museums. The movement, led by a network of practitioners and professionals across cultural heritage institutions, aims to increase adoption and implementation of Linked Open Data within the cultural heritage community. The panelists discussed use cases and applications of linked open data and presented a variety of possibilities for cultural data access, remix, and reuse.

In keeping with the Dublin Core’s history of reflecting and engaging the evolution of the metadata field, this year’s conference builds upon that movement Voss and his panelists spoke about. The theme of this year’s conference – “Metadata Intersections: Bridging the Archipelago of Cultural Memory”—acknowledges that while metadata is the essential element to enabling access to the world’s galleries, libraries, archives, and museums (GLAM), there are significant differences in domain praxis. The conference program explores how these differences may be bridged in the context of linked open data.

A pre-conference comprising a full-day workshop and two half-day tutorials launches the conference. A post-conference workshop on linked data brings the week to an end. These enable deeper engagement with a variety of topics that touch on this year’s theme including emerging practices in archival description; linked open data hands on training; RDF in the cultural heritage sector; and a historical overview of the accomplishments of the DCMI community.

This year’s conference program includes two days of full-length conference papers and project reports. Special sessions and poster viewings run concurrent to the papers and reports throughout the two days. Participants from a variety of cultural heritage institutions and practitioners utilizing linked open data and semantic web technologies will present both theoretical and project-based papers. In this year’s submissions, we are seeing true momentum in the exploration and adoption of linked open data across all cultural heritage sectors.

DC 2014 unveils two new efforts: one that attempt to recruit young professionals and students to attend, and the other to provide more opportunities for presenting the best practices of metadata workers. The Next Generation Metadata Specialist Program solicited iSchools, other library and information science programs, and libraries to sponsor one or more of their students and early-career metadata professionals to attend the conference. Thirteen organizations are participating. The participants selected for the Next Generation Metadata Specialist Program will engage one on one and in group interactions with leading researchers, consultants, and practitioners shaping the metadata ecosystem and in a special session, designed for them; they will gain an understanding of how the discourse and practice of metadata are evolving.

Also new this year, the non-peer reviewed Best Practices Poster and Demonstrations tracks. Intended to encourage practitioners to showcase innovative approaches to metadata best practices, these tracks garnered a great response: we have a total of 17 posters and two demonstrations. A conference as special as Dublin Core owes so much to so many. We are grateful to all of the people who submitted proposals to share their ideas, experiences, and research. Similarly we are grateful to the many people who volunteered their time as reviewers of all of those proposals. As program co-chairs we are especially grateful for the opportunity to serve and contribute to this year’s conference.

*William E. Moen*, College of Information, University of North Texas, United States  
*Amy Rushing*, University of Texas at San Antonio Libraries, United States



## ORGANIZING COMMITTEE

### DC-2014 Conference Committee Chair

Stuart A. Sutton, Dublin Core Metadata Initiative (DCMI), United States

### Program Committee Chairs

William E. Moen, College of Information, University of North Texas, United States  
Amy Rushing, University of Texas at San Antonio Libraries, University of Texas at San Antonio, United States

### Outreach Committee Chair

Eric Childress, OCLC Research, United States

### Local Organizing Committee Chair

Kristi Park, Texas Digital Library

### Program Committee

Leif Andresen, Advisor to the Director the Royal Library. National Library of Denmark, Denmark  
Ana Alice Baptista, Universidade do Minho, Portugal  
Uldis Bojars, National Library of Latvia, Latvia  
Dan Brickley, Vrije Universiteit Amsterdam  
Joseph A Busch, Taxonomy Strategies, United States  
Eric Childress, OCLC Research, United States  
Marie-Claude Côté, Treasury Board Secretariat of Canada, Canada  
Karen Coyle, Consultant, United States  
Michael D. Crandall, University of Washington  
Makx Dekkers, AMI Consult SARL, Spain  
Jacques Ducloy, University of Lorraine, France  
Gordon Dunsire, Independent Consultant, United Kingdom  
Kai Eckert, University of Mannheim, Germany  
Kevin Ford, Library of Congress, United States  
Muriel Foulonneau, Public Research Centre Henri Tudor, Luxembourg  
Anne Gilliland, Department of Information Studies, UCLA, United States  
Carol Jean Godby, OCLC, United States  
Jane Greenberg, University of North Carolina, Chapel Hill, United States  
Willem Robert van Hage, VU University Amsterdam, Netherlands  
Corey A. Harper, New York University  
Seth van Hooland, Université Libre de Bruxelles, Belgium  
Eero Hyvönen, Aalto University, Finland  
Antoine Isaac, Europeana & Vrije Universiteit Amsterdam, Netherlands  
Masahide Kanzaki, Keio University Xenon Limited Partners, Japan  
Tomi Kauppinen, University of Muenster, Germany  
Johannes Keizer, Food and Agriculture Organization of the United Nations (FAO), Italy  
Dean Blackmar Krafft, Cornell University Library, United States  
Michael Lauruhn, Elsevier, United States  
Akira Maeda, Ritsumeikan University, Japan  
Filiberto Felipe Martinez-Arellano, National Autonomus University of Mexico, Mexico  
Philipp Mayr, GESIS - Leibniz Institute for the Social Sciences, Germany  
Eva M. Méndez, University Carlos III of Madrid, Spain  
Shawne Miksa, University of North Texas  
Steven J. Miller, University of Wisconsin-Milwaukee School of Information Studies, United States  
Akira Miyazawa, National Institute of Informatics, Japan  
William E. Moen, College of Information, University of North Texas, United States  
Peter E Murray, LYRASIS, United States  
Jin-Cheon Na, Nanyang Technological University, Singapore  
Liddy Nevile, Independent Consultant, Australia  
Annelies van Nispen, Eye Film Institute, Netherlands



Johan Oomen, Netherlands Institute for Sound and Vision, Netherlands  
Jung-ran Park, College of Information Science and Technology, Drexel University, United States

Oknam Park, Sangmyung University, Republic of Korea

Cristina Pattuelli, Pratt Institute, United States

Vivien Petras, Humboldt-Universität zu Berlin, Germany

Magnus Pfeffer, Stuttgart Media University, Germany

Serhiy Polyakov, University of North Texas, United States

Sarah Potvin, Texas A&M University Libraries, United States

Jian Qin, Syracuse University, United States

KS Raghavan, Centre for Knowledge Analytics & Ontological Engineering, PES Institute of Technology, India

Stefanie Ruehle, SUB Goettingen, Germany

Amy Rushing, University of Texas at San Antonio, United States

Johann Wanja Schaible, GESIS - Leibniz-Institute for the Social Sciences, Germany

Bernhard Schandl, Gnowsis.com, Austria

Jodi Schneider, INRIA Sophia Antipolis, France

Ryan Shaw, University of North Carolina at Chapel Hill, United States

Aida Slavic, UDC Consortium, United Kingdom

Shigeo Sugimoto, University of Tsukuba, Japan

Stuart A. Sutton, Dublin Core Metadata Initiative (DCMI), United States

Lars G. Svensson, Deutsche Nationalbibliothek, Germany

Hannah Tarver, University of North Texas Libraries, United States

Joseph T. Tennis, University of Washington, United States

Douglas Tudhope, University of Glamorgan, United Kingdom

Vassilis Tzouvaras, National Technical University of Athens, Greece

Sherry L. Vellucci, University of New Hampshire, United States

Paul Walk, EDINA, United Kingdom

Mei-Ling Wang, Graduate Institute of Library, Information and Archival Studies, Taiwan

Laura Waugh, University of North Texas, United States

Andrew C Wilson, Queensland State Archives, Australia

Oksana Zavalina, University of North Texas, United States

Marcia Lei Zeng, Kent State University, United States

#### **Local Organizing Committee**

Linda Abbey, University of Texas Libraries

Effie Bradley, Texas Digital Library

Debra Hanken Kurtz, Texas Digital Library

Gad Krumholz, Texas Digital Library

Nick Lauland, Texas Digital Library

Jason Sick, University of Texas Libraries

Ryan Steans, Texas Digital Library

Antoinette Yost, Texas Digital Library



## TABLE OF CONTENTS

### **Distributed metadata Environments & Aggregation—Part A**

- 1-11 Linked Data Mapping Cultures: An Evaluation of Metadata Usage and Distribution in a Linked Data Environment  
*Konstantin Baierer, Evelyn Dröge, Vivien Petras & Violeta Trkulja*
- 12-23 The Digital Public Library of America Ingestion Ecosystem: Lessons Learned After One Year of Large-Scale Collaborative Metadata Aggregation  
*Mark A. Matienzo & Amy Rudersdorf*
- 24-30 Applying a Linked Data Compliant Model: The Usage of the Europeana Data Model by the Deutsche Digitale Bibliothek  
*Stefanie Rühle, Francesca Schulze & Michael Büchner*

### **Distributed metadata Environments & Aggregation—Part B**

- 31-36 Designing a Multi-level Metadata Standard based on Dublin Core for Museum Data  
*Jing Wan, Yubin Zhou, Gang Chen & Junkai Yi*
- 37-42 "Lo-Fi to Hi-Fi": A New Way of Conceptualizing Metadata in Underserved Areas with the eGranary Digital Library  
*Deborah Maron, Cliff Missen & Jane Greenberg*
- 43-52 How Descriptive Metadata Changes in the UNT Libraries' Collections: A Case Study  
*Hannah Tarver, Oksana Zavalina, Mark Phillips, Daniel Alemneh & Shadi Shakeri*

### **Metadata in Support of Research**

- 53-63 Metadata Integration for an Archaeology Collection Architecture  
*Sivakumar Kulasekaran, Jessica Trelogan, Maria Esteva & Michael Johnson*
- 64-73 Dublin Core Metadata for Research Data—Lessons Learned in a Real-World Scenario with datorium  
*Andias Wira Alam*
- 74-82 Metadata for Research Data: Current Practices and Trends  
*Sharon Farnel & Ali Shiri*

### **Infrastructure & Models—Part A**

- 83-94 The ARK Identifier Scheme: Lessons Learnt at the BnF and Questions Yet Unanswered  
*Sébastien Peyrard, Jean-Philippe Tramoni & John A. Kunze*
- 95-108 Requirements on RDF Constraint Formulation and Validation  
*Kai Eckert & Thomas Bosch*
- 109-118 Extracting Description Set Profiles from RDF Datasets using Metadata Instances and SPARQL Queries  
*Tsunagu Honma, Kei Tanaka, Mitsuharu Nagamori & Shigeo Sugimoto*

### **Infrastructure & Models—Part B**

- 119-128 The 1:1 Principle in the Age of Linked Data  
*Richard J. Urban*



129-137 Towards Description Set Profiles for RDF using SPARQL as Intermediate Language  
*Thomas Bosch & Kai Eckert*

138-146 Describing Theses and Dissertations Using Schema.org  
*Jeff Keith Mixter, Patrick OBrien & Kenning Arlitsch*

#### **Metadata Praxis**

147-156 Provenance Description of Metadata using PROV with PREMIS for Long-term Use of Metadata  
*Chunqiu Li & Shigeo Sugimoto*

157-166 Interlinking Cross Language Metadata Using Heterogeneous Graphs and Wikipedia  
*Xiaozhong Liu, Miao Chen & Jian Qin*

167-172 Automated Enhancement of Controlled Vocabularies: Upgrading Legacy Metadata in CONTENTdm  
*Andrew Weidner, Annie Wu & Santi Thompson*

#### **Posters (Peer Reviewed)**

173-175 Retaining Metadata in Remixed Cultural Heritage Objects  
*Jamie Viva Wittenberg*

176-178 Embedded Metadata – A Tool for Digital Excavation  
*Ana Cox*

179-180 Dublin Core to Ensure Interoperability between Models Generated by Tools of Species Distribution Modeling  
*Cleverton Ferreira Borba & Pedro Luiz P. Correa*

181-183 Building Bridges to the Future of a Distributed Network: From DiRT Categories to TaDIRAH, a Methods Taxonomy for Digital Humanities  
*Jody Perkins, Quinn Dombrowski, Luise Borek & Christof Schöch*

184-186 Metadata Workflows Across Research Domains: Challenges and Opportunities for Supporting the DFC Cyberinfrastructure  
*Adrian T. Ogletree*

187-190 A Cooperative Project by Libraries and Museums of China: Metadata Standards for the Digital Preservation of Cultural Heritage  
*Ying Feng & Long Xiao*

191-195 Undressing Fashion Metadata: Ryerson University Fashion Research Collection  
*Naomi Eichenlaub, Marina Morgan & Ingrid Masak-Mida*

#### **Best Practice Posters & Demonstrations**

196-198 MARC to schema.org: Providing Better Access to UIUC Library Holdings Data  
*Timothy Cole, Michael Norman, Patricia Lampron, William Weathers, Ayla Stein, M. Janina Sarol & Myung-Ja Han*

199-200 The TR32DB Metadata Schema: A Multi-level Metadata Schema for an Interdisciplinary Project Database  
*Constanze Curdt & Dirk Hoffmeister*

201-203 Development of the EDDA Study Design Terminology to Enhance Retrieval of Clinical and Bibliographic Records in Dispersed Repositories  
*Ashleigh N. Faith, Eugene Tseytlin & Tanja Bekhuis*

204-206 Applying Concepts of Linked Data to Local Digital Collections to Enhance Access and Searchability  
*Virginia A Dressler*





- 207-209 Normalizing Decentralized Metadata Practices Using Business Process Improvement Methodology: A Data-informed Approach to Identifying Institutional Core Metadata  
*Emily Porter*
- 210-215 The NDL Great East Japan Earthquake Archive: Features of Metadata Schema  
*Julie Fukuyama & Akiko Hashizume*
- 216-218 Reusing Legacy Metadata for Digital Projects: The Colorado Coal Project Collection  
*Michael Dulock*
- 219-221 A Model and Roles of a Common Terminology to Improve Metadata Interoperability  
*(Boaz) Sunyoung Jin*
- 222-224 Converting Personal Comic Book Collection Records to Linked Data  
*Sean Petiya*
- 225-226 Making Vendor-Generated Metadata Work for Archival Collections Using VRA and Python  
*Carolyn Hansen & Sean Crowe*
- 227 A Library Catalog REST API Framework  
*Jason Thomale & William Hicks*
- 228-229 Building the Bridge: Collaboration between Technical Services and Special Collections  
*Susan Matveyeva & Lizzy Anne Walker*
- 230-231 Best Practices for Complex Diacritics Handling in CONTENTdm  
*Jason W. Dean & Deborah E. Kulczak*
- 232-233 Ecco!: A Linked Open Data Service for Collaborative Named Entity Resolution  
*Matthew Miller & M. Cristina Pattuelli*
- 234-236 Wikipedia-based Extraction of Lightweight Ontologies for Concept Level Annotation  
*Michael Lauruhn & Elshaimaa Ali*
- 237-238 How To Build A Local Thesaurus  
*Robert H. Estep*
- 239 Designing an Archaeology Database: Mapping Field Notes to Archival Metadata  
*Ann Ellis*
- 240 Utilizing Drupal for the Implementation of a Dublin Core-Based Data Catalog  
*Lisa Federer*
- 241 PunkCore: Developing an Application Profile for the Culture of Punk  
*Joelen Pastva & Valerie Harris*