Roadmap for DCMI Documentation

Contents

Introduction

The Dublin Core Metadata Initiative (DCMI) has evolved over the past ten years as a community of developers. At ten years, DCMI finds itself with a stable set of metadata terms ("the Dublin Core" and related vocabularies) and a coherent, Semantic-Web-compatible data model ("DCMI Abstract Model"). Among DCMI's participants and stakeholders there is a widespread feeling that DCMI should now shift its focus away from the incremental expansion of the DCMI vocabularies and towards the practical and interpretive issues raised by the real-world deployment of those vocabularies in application profiles.

This report takes a fresh look at the documentation produced by DCMI from the standpoint of Dublin Core users and describes a path towards accomplishing such a shift. Part One considers DCMI documentation from the standpoint of users, describing materials needed by Dublin Core implementers and, more generally, by organizational decision-makers. Part Two looks behind the scenes of DCMI's public presentation and examines the

documentary tasks and workflows involved in the ongoing maintenance of DCMI vocabularies and specifications.

1 User-oriented documentation

1.1 High-level overviews

1.1.1 Dublin Core from 10,000 feet — the five-pager

There is a need for a document which explains the Dublin Core Model in simple terms for ordinary users, potential implementers, and decision-makers. This story would need to cover:

- What metadata is and what it is used for. Reliable information about a resource — who created it and when — provides a basis for managing information throughout its life-cycle, for finding the information with accuracy, and for sorting or filtering the information once found.
- Why "interoperability" of metadata is important and what it means in a practical sense. For example: that descriptive information collected from many sources can be merged into a common view in a portal.
- The Dublin Core philosophy: that application profiles use both DCMI and non-DCMI elements, as needed, to create implementation-specific metadata on the basis of an underlying model for interoperability. In particular:
  - The DCMI Abstract Model shares a grammar of properties and classes with other Semantic Web applications and is designed to facilitate the integration of data from multiple sources.
  - Building on core elements, implementors can use the model to build application profiles for specialized implementations, flexibly extending the implementation model in principled ways with additional modules as needed.
  - Featured application profiles [1.3.3] illustrate the use of Dublin Core in practice.

1.1.2 Dublin Core from 30,000 feet — the one-pager

There is a need for a well-written, carefully vetted one-page summary of the above for use in boardrooms.

1.1.3 Why metadata? — the boardroom presentation

There is a need for overhead presentations to introduce Dublin Core to a range of audiences, from Webmasters and decision-makers. This presentation could be featured on the DCMI home page for the benefit of people who prefer to get an overview from presentation slides.

1.2 The Dublin Core model

Since the invention of qualifiers in the late 1990s and the parallel rise of data-modeling activities in the World Wide Web Consortium ("Resource Description Framework"), the Dublin Core grammar has matured into a Semantic-Web-compatible Abstract Model and stands alongside the element set itself as a defining feature of Dublin Core.

1.2.1 The DCMI Abstract Model, extended

The DCMI Abstract Model (DAM) has withstood close scrutiny since its publication in March 2005 as a DCMI Recommendation, though some minor points have been identified for possible revision or extension. Specifically, the DAM does not yet formally define the notion of an "application profile." This remains to be done somewhere, whether as a separate document or as part of a revised DCMI Abstract Model.

1.2.2 Clarifications of the model

The use and application of the Abstract Model continues to raise issues of interpretation. These issues are being addressed in a growing category of "model-related" notes such as "Element refinement in Dublin Core metadata" [1] [2.1.4].

1.2.3 The Abstract Model made simple

Understanding the DCMI Abstract Model (DAM) as currently written presupposes that the reader knows something about data modeling. A document is needed which describes the abstract model in a more intuitive (if less rigorous) manner.

1.3 Featured application profiles

1.3.1 Simple Dublin Core

"Simple Dublin Core" has long been defined as the classic fifteen elements of ISO 15836, used exclusively with string values. In terms of the DCMI Abstract Model, the use of these restrictions means that Simple Dublin Core is, in effect, an "application profile," though it has hitherto never been defined and presented as such. Presenting it as such would help clarify, among other things, how the simple schema mandated by the Open Archives Initiative Protocol for Metadata Harvesting relates to other types of Dublin Core–based records.

1.3.2 Minimal Dublin Core

It has long been recognized that there is a need in many implementation scenarios for descriptive metadata even less detailed than the fifteen elements of the ISO 15836 Dublin Core. The emphasis in the DCMI community on the extensibility of Dublin Core has sometimes obscured the point that, in many cases, it could be enough to specify just (for example) Title, Contributor, Type, Date, and Description. A short profile for "Minimal Dublin Core" (a "Kernel") could make this point quite effectively.

1.3.3 Good examples of application profiles in practice

DCMI should provide good examples of application profiles — profiles which have been subject to qualified review and found to be "conformant" with the Dublin Core model [2.1.2]. Featured application profiles could be presented on a DCMI Web page along with a description of their implementation contexts and, when applicable, with review texts commenting on interesting or unusual features of the profiles [2.3.1]. Application profiles to be reviewed could be drawn from research projects, institutional or corporate implementations, or from DCMI working groups.

1.3.4 Record templates for featured application profiles

Ideally, a featured application profile should be linked to templates for metadata produced in accordance with that profile — for example, the XML schema used to validate metadata records. Such templates would constitute good-practice models directly usable by systems vendors in developing applications.

1.4 Practical guidance for implementers

1.4.1 How to implement an application profile

A document is needed for describing the DCMI notion of an application profile — its motivation (interoperability on the basis of a model), its role (to declare restrictions not present in the standard itself), and its form (documentation of how Dublin Core and other vocabularies are being used to describe information in a specific context). Specifically, it should describe:

- How to build an application profile: the process by which an implementor meets common descriptive requirements in DAM-conformant ways.
- How to present an application profile: what information should be documented in a profile, along with a simple tabular format for its presentation [2.3.1].
- How to evaluate an application profile in terms of conformance to the DCMI Abstract Model, with clearly explained checklists [2.1.4].

1.4.2 How to declare a metadata vocabulary

By design, a Dublin Core Application Profile should only use terms which have already been declared somewhere, whether by a vocabulary maintenance organization such as DCMI or by a metadata-using project or organization. To meet this requirement, implementers need to know how to first declare any new terms they have defined in order then to be able to cite them in their own application profiles. There are several aspects to this:

- How to assign identifiers to new (local) properties [2.1.4]. A draft "Guidelines for assigning identifiers to metadata terms" [17] addresses a key aspect of the problem and should be reviewed for DCMI status.
- How to publish terms — how to publish locally declared terms as a Web page, an RDF schema, or both, with advice about maintaining such documents [2.2.4].
- How to identify a controlled vocabulary as a DCMI encoding scheme. (Note: DCMI has in the past considered various ways of opening DCMI namespaces to the "registration" of controlled vocabularies with DCMI-maintained URIs for use in metadata records as encoding schemes but abandoned this approach in favor of encouraging implementers to coin and maintain URIs for their own vocabularies [2.1.4].)

- How to maintain a controlled vocabulary. The document on publishing terms could point readers to related work on publishing thesauri and other controlled vocabularies using, for example, the RDF vocabulary "SKOS Core" [19].

1.4.3 How to encode Dublin Core metadata in XML

The DCMI Recommendation for embedding Dublin Core metadata in HTML and XHTML using the META and LINK elements is currently regarded as stable [6], though recent developments such as the draft W3C specifications for GRDDL [18] and XHTML 2.0 [20] may require that this recommendation be revised in the medium term.

The recommended guidelines on implementing Dublin Core in XML [2], however, need to be revised in order to clarify their support for specific features of the Abstract Model.

1.4.4 How to encode Dublin Core metadata in RDF/XML

DCMI currently has a Recommendation for expressing "Simple Dublin Core" in RDF/XML" [3] and a Proposed Recommendation on expressing "Qualified Dublin Core" in RDF/XML [7]. For historical reasons, these two specifications take different approaches to modeling Dublin Core descriptions [15] — i.e., limits values to strings, while the latter considers values as resources in themselves (i.e., as "nodes") — with subtle implications for interoperability.

The evaluation of both specifications in light of the DCMI Abstract Model has recently been undertaken by a task force of the DCMI Architecture Working Group, and the emerging consensus seems to be that both of the above recommendations be superseded by one consolidated specification. The resolution of this issue would directly affect how DCMI expresses its own metadata term vocabularies in RDF [2.2.3].

1.4.5 Frequently Asked Questions

The FAQ currently posted on the DCMI Web site no longer accurately reflects the questions which are in fact frequently asked about Dublin Core [8]. Questions continually get asked on DCMI mailing lists or in the AskDCMI service, and in most cases the questions do get answered — often in tightly-argued, FAQ-sized paragraphs. However, there currently exists no mechanism for capturing these answers, incorporating them into a FAQ, and assigning each answer a URI for the purposes of citation. As answers often involve fundamental issues of interpretation, they should ideally be subject to periodic

review and revision. For the FAQ to remain fresh, each answer should ideally be reviewed by qualified experts at least once per year.

1.4.6 Introductory texts and tutorial materials

Tutorials are offered every year at the annual DCMI conference and should continue to be a primary source of presentation materials about Dublin Core. These, along with other Powerpoint presentations, training materials, and project manuals, are currently made available on the Web page "Metadata training resources" [9].

1.5 Distribution channels

1.5.1 User-oriented Web interface

The DCMI home page is currently very well designed for use by active participants of the DCMI community — working group members and metadata experts. However, there is a recognized need for an additional Web page designed primarily for interested non-experts ranging from potential implementers to boardroom decision-makers. The design of such an interface may be covered in a future marketing and communication plan for DCMI.

1.5.2 DCMI textbook ("Dublin Core Primer")

As the success of O'Reilly Publisher demonstrates, there is a continuing demand, even in the Web age, for printed documentation. All of the materials described above (except for Powerpoint slides) could be re-purposed and packaged in a Dublin Core Primer to be published, perhaps for profit, by DCMI.

2 DCMI behind the scenes

Part One discussed documentation intended for use by the general public — by decision-makers, vendors, system implementers, and end-users. Part Two discusses the internal maintenance processes underpinning those public results. Documents produced in support of these processes are intended primarily for use by members of the DCMI community, though they will of course be available to interested members of the community on the public Web.

2.1 Principled review

2.1.1 Approval and maintenance of metadata terms

The review of metadata terms for conformance with the Dublin Core model has and should continue to be a key activity of DCMI. In this report, the DCMI vocabularies themselves fall under the heading "behind the scenes" as a consequence of the shift in emphasis away from term sets per se towards specific application profiles that use and package those terms for specific implementation purposes.

2.1.2 Conformance review of application profiles

Reviews of application profiles would aim primarily at verifying the conformance of the profile as a whole (and of its constituent terms) to the DCMI Abstract Model. The result would typically be the assignment of a DCMI status to an application profile (e.g., "conforming"), after which a profile could be presented on the DCMI Web site as a Featured Application Profile [1.3.3]. Reviews would be undertaken with regard to profiles of strategic importance for DCMI; other profiles could potentially be reviewed on a consulting basis. Policies and procedures for review of non-DCMI profiles would need to be formulated as part of a broader DCMI approach to the development of review and certification services.

2.1.3 Endorsement of terms in non-DCMI namespaces

In cooperation with the US Library of Congress, DCMI is currently finalizing an agreement whereby the Library of Congress formally asserts a set of MARC Relator terms (such as Translator) to be sub-properties of the Dublin Core element Contributor, while DCMI, in turn, formally endorses those assertions. The recognition of MARC Relator terms allow implementers to use an existing, well-maintained term set, thereby avoiding the needless creation

and maintenance of a new vocabulary for the same purpose by DCMI. If such a need were to present itself with regard to other vocabularies, this assertion-endorsement form could be followed for other such agreements.

2.1.4 Criteria for review

One very important outcome of DCMI's experiences with reviewing both individual terms and application profiles as wholes for conformance with the Abstract Model will be the formulation of criteria by which terms and profiles can be evaluated in general. First drafts of a "DCMI mixing and matching FAQ" [14] and a draft "DCMI-compliant 'term' decision tree" [16] are important steps in this direction and will undoubtedly be refined as a result of experience. Documents such as these will provide crucial input to guidelines for creating application profiles [1.4.1] and metadata vocabularies [1.4.2].

2.1.5 Review-related processes and policies

In the interests both of transparency and of providing good-practice models for others to follow, DCMI should ensure that the processes and underlying policies for the review of metadata terms and and application profiles are properly documented. One key policy underlying all of these activities is the DCMI Namespace Policy [4], which must be amended to support DCMI Extension Namespaces. Process documents to be maintained also include Usage Board administrative processes [11].

2.2 Multiple-format publication of namespaces

DCMI's model for the formal documentation of its namespaces in the Semantic Web environment is one of the best-developed maintenance models in the Semantic Web environment. To the extent that Semantic Web applications become deployed in the mainstream, the model and work-flows used by DCMI to document and publish its namespaces should provide an example of good practice for maintainers of other such vocabularies.

2.2.1 An application profile for describing metadata terms

DCMI metadata terms are currently described with a set of attributes such as Label, Definition, and Status. This descriptive model is, in effect, a Dublin-Core-like application profile, though it has not yet been defined and presented as such.

There is currently a good opportunity for DCMI to cooperate with the maintainers of the FOAF [21] and SKOS [19] vocabularies on harmonizing the respective term-description models. Publishing DCMI's application profile of that model and assigning it a formal status would increase its value as a model of good practice for maintainers of other such metadata vocabularies.

2.2.2 A namespace for metadata term properties

Not all of the properties used to describe DCMI metadata terms have yet been formally declared (e.g., Status). These properties could be declared in a DCMI-maintained namespace, but it could also be desirable for DCMI to cooperate with other communities in the development of a shared namespace, whether that namespace is maintained by DCMI or by another organization.

2.2.3 The RDF model for namespace declarations

As one of the earliest adopters of the technology, DCMI has since 1997 maintained machine-processable representations of its vocabularies in RDF. In the context of a broader review of the technical specifications for encoding of Dublin Core metadata in RDF/XML [1.4.4], the RDF model for declaring DCMI vocabularies is also under review. Once this has been done, DCMI should formally clarify the status of these machine-processable representations and how they relate to natural-language definitions of the metadata terms.

(The question is: To what extent are DCMI terms "defined" by their English-language definitions and to what extent by formal assertions such as semantic relations to other terms? In what sense are alternative representations of DCMI vocabularies — Web documents as opposed to machine-processable schemas — to be regarded as "canonical" in this regard? How labels and definitions translated into Japanese or Spanish should exactly be modeled as independently-maintained RDF annotations also remains an open issue, with implications for the scalability of maintaining a namespace translated into many languages.)

2.2.4 Publishing namespaces in both XHTML and RDF

Whenever there is any change in, or addition to, the DCMI term sets, DCMI simultaneously issues new versions of its Web documents and new versions of the RDF schemas. The key Web document is "DCMI Metadata Terms" [5], a one-stop source of up-to-date information on all terms maintained by DCMI. Historical descriptions of DCMI terms are maintained for the interpretation of legacy metadata.

Each new or updated description of a metadata term is associated with a numbered decision [10], which in turn is itself associated with a decision text, meeting notes, and archival copies of supporting materials such as proposals. Every element of this chain — term description, decision, and related materials — is identified with a persistent URI.

For citation purposes, each new Web document and RDF schema is assigned a persistent URI. (These "historical" URIs for published sets have no affect on the persistent URIs used to identify the metadata terms documented therein.) At present, these Web documents and RDF schemas are generated from an single XML-tagged data source using XSLT scripts.

This "manual" approach to document management has proven effective enough given the relative infrequency of updates. If DCMI is to present itself as a leader in the deployment of semantic technologies, however, it would be desirable to solve this problem in a less ad-hoc manner using tools applicable, in principle, to any other vocabulary of metadata terms.

DCMI should therefore remain open to replacing the current term management system with a more sophisticated Semantic Web editing environment. The need for a more sophisticated solution may indeed become more urgent if the manual methods prove not to scale well to the demands of maintaining a growing number of DCMI Extension Namespaces, which are likely to hold a large number of controlled vocabularies and may need to be edited in collaboration with outside organizations. In the medium term, one possible solution might be to express the vocabularies primarily in RDF schemas, using these as the source for generating Web pages, as is currently done with the "SKOS Core" vocabulary [19] [2.2.1].

It is worth noting here that there has long been a request from some implementers that DCMI make its vocabularies available in their entirety as XML schemas. A shift in emphasis by DCMI from the term set to the application profile now provides an opportunity to properly re-define the task from that of maintaining an XML schema of a raw vocabulary to that of providing XML schemas for metadata records based on specific application profiles [1.3.4].

2.3 Multiple-format publication of application profiles

2.3.1 Specification of application profiles as documents

Guidelines for describing and formatting an application profile as a Web document have been formulated in the Dublin Core working group of the European Committee for Standardization (CEN) [13]. By prior agreement with CEN, these guidelines will be further developed by DCMI.

2.3.2 RDF model for application profiles

A draft model for expressing an application profile in RDF was also developed in the CEN working group [22], though the work should at this point still be considered research. While not an immediate priority, this work could be revisited as a basis for indexing multiple application profiles in portal environments and as an aid for constructing queries.

2.4 DCMI as a standards maintenance agency

The NISO and ISO standards for Dublin Core periodically come up for review. As the official maintenance agency for these standards, DCMI has the opportunity at such times to bring the formal standards editorially into line with the latest updates to the vocabularies. These procedures require that changes be documented and justified.

At present, issues arising with regard to Dublin Core metadata terms, best-practice usage, or DCMI as an organization are tracked primarily in the form of reports on meetings and teleconferences of the Directorate and Usage Board. In the longer term, more sophisticated approaches involving the identification of issues with URIs and formal procedures for resolution, such as those used by the World Wide Web Consortium, could be considered.

2.5 DCMI as publisher

2.5.1 The DCMI Publication Policy

DCMI operates as a publisher with respect to all of the resources described in this report. Changes in the nature of DCMI documentation should be reflected in a revised DCMI Publication Policy [12] [2.5.1].

2.5.2 Documentation of Website procedures

The work-flows and routines related to the publication processes described above need themselves to be documented in sufficient detail to be usable, in principle, by future successors to the current DCMI Webmasters and directors. For example, the scripts and procedures used by the Usage Board chair and by the Web Team for the simultaneous publication in XHTML and in RDF of DCMI terms documentation [2.2.4] should be captured in maintenance documentation for the DCMI Website.

3 Towards a work plan

3.1 High-level user-oriented overviews

In the near term, there is a need for high-level presentations of Dublin Core metadata in various formats — as a five-page introduction [1.1.1], a one-page summary [1.1.2], and as a Powerpoint presentation [1.1.3].

In the medium term, these materials should be featured in a new, user-oriented Web interface [1.5.1] to be designed in accordance with a future DCMI marketing and communication plan.

When	Where	What	Type
2005	1.1.1	Dublin Core from 10,000 feet — five-pager	general
2005	1.1.2	Dublin Core from 30,000 feet — one-pager	marketing
2005	1.1.3	Why metadata? — boardroom presentation	marketing
2006	1.5.1	User-oriented Web interface	marketing

3.2 Practical guidance for implementers

In the near term, existing drafts and specifications should be repurposed or revised, as necessary, in order to put into place a full set of user-oriented guidelines on creating application profiles [1.4.1] and declaring metadata vocabularies [1.4.2]. Taking into account ongoing clarifications of the DCMI Abstract Model [1.2.2], an effort should be made in the medium term to describe the Abstract Model is less–technical terms for ordinary users [1.2.3].

Also in the near term, work on revising the guidelines for Dublin Core in XML [1.4.3] and RDF/XML [1.4.4] in light of the Abstract Model should proceed as quickly as possible, bearing in mind that significant changes in existing recommendations could require a concerted communication effort by DCMI.

In the near-to-medium term, an editorial structure should be put into place for the maintenance of citable answers to Frequently Asked Questions [1.4.5]. In the longer term, DCMI should consider re-packaging its documents and user guidelines for a periodically revised printed textbook [1.5.2].

When	Where	What	Type
2005	1.4.1	How to implement an AP	general
2005	1.4.2	How to declare a metadata vocabulary	general
2005	1.4.3	How to encode DC metadata in XML	technical
2006	1.2.2	Clarifications of the Abstract Model	technical
2006	1.2.3	The Abstract Model made simple	general
2006	1.4.5	Frequently Asked Questions	general
2006	1.4.6	Introductory texts and tutorial materials	marketing
2007	1.5.2	DCMI textbook (“Dublin Core Primer”)	general

3.3 Review of application profiles

In the near term, the first experiences of the DCMI Usage Board in reviewing application profiles [2.1.2] should be used as a basis for progressively refining the criteria used for assessing the conformance of application profiles to the Abstract Model [2.1.4] as well as for testing the specifications for expressing application profiles as documents [2.3.1].

These criteria should be used to assign status to "conforming" application profiles, which could in turn be presented on the DCMI Web site as Featured Application Profiles [1.3.3]. In this context, "Simple Dublin Core" could be re-packaged as a Featured Application Profile [1.3.1]. In the medium term, an even simpler "Minimal Dublin Core" could be developed [1.3.2].

When available, record templates should be made available alongside the application profiles on which they are based [1.3.4].

These first experiences will need to proceed in parallel to the extension of the DCMI Abstract Model to include a formal specification for Application Profiles [1.2.1]. In the longer term, DCMI may want to resume work on a draft RDF model for application profiles [2.3.2].

These first experiences in the review of application profiles should also, in the medium term, flow back into the revision of the process and policy documents underlying DCMI's review processes [2.1.5] and, eventually, into a more fundamental discussion of the model by which DCMI and its affiliates might offer conformance testing and certification services.

When	Where	What	Type
2005	2.1.2	Conformance review of APs	technical
2005	2.1.4	Criteria for review	technical
2006	1.3.3	Featured application profiles	general
2006	1.2.1	The DCMI Abstract Model, extended	technical
2006	1.3.1	Simple Dublin Core	technical
2006	1.3.2	Minimal Dublin Core	research
2006	2.1.5	Review-related processes and policies	technical
2006	2.3.1	Specification of APs as documents	research
2007	1.3.4	Record templates for featured APs	technical
2007	2.3.2	RDF model for application profiles	research

3.4 Maintenance of DCMI vocabularies

In the near term, and on an ongoing basis, new terms will be added and existing terms maintained both in "central" DCMI namespaces and, increasingly, in new DCMI extension namespaces. This will involve the review of proposals for new terms, for editorial changes to existing terms, and for application profiles eligible to use extension namespaces [2.1.1]. As an aspect of these activities, DCMI should consider building on the precedent of MARC Relator terms to endorse the use of non-DCMI vocabularies with Dublin Core [2.1.3]. Any changes made in the vocabularies, along with issues arising in their regard, should be tracked in a form usable to support a periodic review of the NISO and ISO standards for Dublin Core [2.4].

In the near-to-medium term, DCMI should liaise with other vocabulary maintenance communities in the formalization of an application profile for describing DCMI metadata terms [2.2.1], which will involve the declaration of DCMI term properties in a namespace maintained either by DCMI or by another organization [2.2.2]. Once discrepancies between DCMI's RDF guidelines and the DCMI Abstract Model [1.4.4] are resolved, the RDF Model for DCMI namespace declarations should be reviewed and given formal status [2.2.3].

When	Where	What	Type
2005	2.1.1	Approval and maintenance of metadata terms	general
2005	1.4.4	How to encode DC metadata in RDF/XML	technical
2006	2.1.3	Endorsement of non-DCMI terms	technical
2006	2.2.1	An AP for describing metadata terms	technical
2006	2.2.2	A namespace for metadata term properties	technical
2006	2.2.3	The RDF model for namespace declarations	research
2007	2.4	DCMI as a standards maintenance agency	general

3.5 DCMI as publisher

DCMI operates as a publisher with respect to all of the resources described in this report. Changes in the nature of DCMI documentation as a result of this report will need to be reflected in a revised DCMI Publication Policy [2.5.1]. Work-flows and routines related to the publication processes described above need to be documented in sufficient detail to be usable, in principle, by any future successors to the current DCMI Webmasters and directors [2.5.2].

DCMI should be in the forefront of adopting new semantic technologies for the maintenance of its own specifications and vocabularies. Sophisticated editing environments currently under development in the marketplace could potentially be deployed with good effect for the simultaneous publication of DCMI vocabularies in XHTML and in RDF [2.2.4].

When	Where	What	Type
2005	2.5.1	The DCMI Publication Policy	general
2006	2.5.2	Documentation of Website procedures	general
2007	2.2.4	Namespaces in XHTML and RDF	technical

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References

[1] http://dublincore.org/documents/dc-elem-refine/

[2] http://dublincore.org/documents/dc-xml-guidelines/

[3] http://dublincore.org/documents/dcmes-xml/

[4] http://dublincore.org/documents/dcmi-namespace/

[5] http://dublincore.org/documents/dcmi-terms/

[6] http://dublincore.org/documents/dcq-html/

[7] http://dublincore.org/documents/dcq-rdf-xml/

[8] http://dublincore.org/resources/faq/

[9] http://dublincore.org/resources/training/

[10] http://dublincore.org/usage/decisions/

[11] http://dublincore.org/usage/documents/process/

[12] http://dublincore.org/usage/documents/publications/

[13] http://www.cenorm.be/isss/cwa14855/

[14] http://www.ukoln.ac.uk/metadata/dcmi/mixing-matching-faq/

[15] http://www.ukoln.ac.uk/metadata/dcmi/rdf-value-strings/

[16] http://www.ukoln.ac.uk/metadata/dcmi/term-decision-tree/

[17] http://www.ukoln.ac.uk/metadata/dcmi/term-identifier-guidelines/

[18] http://www.w3.org/TR/grddl/

[19] http://www.w3.org/TR/swbp-skos-core-spec/

[20] http://www.w3.org/TR/xhtml2/

[21] http://xmlns.com/foaf/0.1/

[22] ftp://ftp.cenorm.be/public/ws-mmi-dc/mmidc144.pdf