



**European Commission  
Directorate General XIII - E/4**

**Electronic publishing and libraries**

# **Telematics for Libraries**

**METADATA WORKSHOP**

**REPORT OF THE WORKSHOP HELD IN**

**LUXEMBOURG, 26 JUNE 1998**



AUGUST 1998

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## **EXECUTIVE SUMMARY**

On 26 June 1998, the second workshop of a series on the subject of metadata organised by the European Commission DGXIII/E4 took place in Luxembourg.

32 participants attended the workshop. Many organisations in Europe involved in the implementation of metadata for electronic resources were represented, as were several European Commission services.

The workshop contained one session on technical and implementation issues and one session on strategic and standardisation issues reflecting the specific objectives of the workshop.

The first specific objective was to give a number of projects the opportunity to present results in the area of metadata from various perspectives. In the morning session, the issues that were covered in the presentations were:

- metadata creation tools
- definition of local extensions to Dublin Core for specific application areas
- the use of controlled vocabulary
- multilingual metadata

The presenters of these subjects conducted a panel discussion on these issues and others raised by the audience.

The second specific objective was to discuss metadata in a broader context with project participants and experts involved in definition and standardisation of metadata elements. In the afternoon session, presentations covered:

- metadata activities in context
- future developments in Dublin Core

In a plenary discussion, the participants discussed strategic issues concerning the definition and standardisation of metadata element sets.

The major conclusions of the workshop can be summarised as follows:

- the strategic discussions highlighted that establishing widely accepted agreements is essential for the success of metadata;
- it is necessary that consensus on agreements for metadata is achieved across domains (e.g. libraries, museums, education, business, etc.);
- agreements and standards need to be maintained over time in a clear and open way with participation of all interested parties (especially user communities) to guarantee stability over time;
- formal and informal bodies involved in the standardisation of metadata sets (Dublin Core community, CEN, ISO) need to find effective ways of co-operation to ensure maximum acceptance of agreements and to avoid overlapping activities;
- further metadata workshops organised by the European Commission are considered to be valuable platforms for co-ordination and exchange of experience.

For further information, including PowerPoint presentations, see the Workshop's Web site at: <http://www2.echo.lu/libraries/en/metadata2.html>

For more information on the Libraries sector of the Telematics Application Programme, see: <http://www2.echo.lu/libraries/en/libraries.html>

## 1. INTRODUCTION

This document is the report of the second Workshop on Metadata, held in Luxembourg on 26 June 1998.

DGXIII/E4, the Electronic publishing and libraries unit, is organising a series of workshops on the issue of metadata. Intended participation is from libraries sector projects within the Telematics Applications Programme and from projects in other TAP sectors and other programmes, both EU and national. The primary objectives of the workshops are:

***To establish a platform for co-ordination between projects concerned with metadata in a broad sense.***

Under the current Framework Programme for RTD there are a number of projects concerned with metadata as such or with descriptions and descriptors of electronic documents. These projects will come across the same issues and problems and will benefit from concertation, as this will allow them to compare their concepts and approaches with others.

***To make a wider European community aware of developments in the standards arena and stimulate feedback from the projects to the standards.***

Developments in metadata in the Internet, specifically in Dublin Core, are moving fast. Some European organisations invest in participating in the Dublin Core workshops but not all have easy access to this activity. By inviting Dublin Core workshop participants to present the developments in the proposed workshops, a wider European audience can be informed on this subject. At the same time, models and experiences from the projects can be fed back into the standards arena.

The first workshop which took place on 1 and 2 December 1997, contained a tutorial, project presentations, breakout sessions discussing various aspects of metadata creation and usage.

The workshop, although recognising the usefulness of Dublin Core as a starting point in metadata descriptive standards, brought forward a number of concerns regarding the current state and the further development of Dublin Core:

- There is currently no formal responsibility for the maintenance of Dublin Core: development takes place in an informal group of invited experts which meets once or twice per year in what is known as the Dublin Core Workshop Series.
- The current technical state of Dublin Core is unstable: during the meetings of the Dublin Core group, changes are being made to the format and there is no convergence to a stable version.
- The use of the current Dublin Core metadata format is not supported by the existence of guidelines: some of the philosophy and terminology of Dublin Core is

not obvious to the uninitiated user which could lead to different interpretations adversely affecting interoperability.

It was also identified that the current take-up of Dublin Core is slow and that there is a lack of critical mass. This seems to be a classical chicken-and-egg situation: authors and publishers do not invest in providing Dublin Core metadata if the Internet indexing services (the ‘harvesters’) do not utilise it, and harvesters do not collect Dublin Core and use it for selective indexing if there is not enough data available. If this situation cannot be changed, Dublin Core might not turn into reality.

The workshop identified a number of actions that could be taken to promote and encourage the use of Dublin Core, including the following:

1. There needs to be clarity about version control and maintenance of Dublin Core. The Dublin Core group, addressed through the mailing list META2, will be asked to give a clear statement about this.
2. Further pilot projects should be started to further develop experience, test out the issues and help realise a critical mass of Dublin Core metadata. The European Commission and national bodies like National Libraries might have a role to play by encouraging the provision of Dublin Core metadata in documents, e.g. in project deliverables and electronic documents in the national deposit.
3. The interest and requirements existing in Europe warrant the establishment of a European group of implementers discussing the practical issues of implementing metadata in general and Dublin Core in particular. The Luxembourg workshops, such as this December 1997 one and a second one scheduled for mid-1998, could develop into a regular series.
4. The liaison with other groups concerned with metadata, such as the CEN/ISSS working group on Metadata for Multimedia Information (MMI), should be established to ensure applicability and interoperability of metadata as widely as possible and cover the needs of a wide range of communities.

The report of the first workshop is available on the Web at <http://www2.echo.lu/libraries/en/metadata.html>.

## **2. SPECIFIC OBJECTIVES OF THE SECOND WORKSHOP**

The specific objectives of this second workshop, held in Luxembourg on 26 June 1998, were as follows.

The first specific objective of the second workshop was to give a number of projects the opportunity to present results in the area of metadata from various perspectives. In the morning session, the issues that were covered in the presentations were:

- metadata creation tools
- definition of local extensions to Dublin Core for specific application areas

- the use of controlled vocabulary
- multilingual metadata

The presenters of these subjects conducted a panel discussion on these issues and others raised by the audience.

The second specific objective was to discuss metadata in a broader context with project participants and experts involved in definition and standardisation of metadata elements. In the afternoon session, presentations covered:

- metadata activities in context
- future developments in Dublin Core

In a plenary discussion, the participants discussed strategic issues concerning the definition and standardisation of metadata element sets.

The programme of the workshop is attached in Appendix 1. Printouts of the presentation, with short biographical notes of the presenters are attached in appendix 2.

### **3. PARTICIPATION**

32 persons representing projects from the Telematics programme, national projects and various Commission services attended the workshop.

The list of participants is attached as appendix 3.

### **4. STRUCTURE OF THE WORKSHOP**

This second workshop was organised on a single day and contained two sessions: one session on technical and implementation issues and one session on strategic and standardisation issues reflecting the specific objectives of the workshop.

### **5. MORNING SESSION: TECHNICAL ISSUES**

In the first presentation, *Anna BRÜMMER of Lund University in Sweden* demonstrated metadata creation software constructed for the Nordic Metadata Project. This creation software on the Web offers an easy way to attach descriptive metadata to resources and has helped to build the SweMeta Dublin Core Database for Sweden, which contains 110.000 records. The system also allows users to assign a unique URN to their resource. Currently there is no statistical information on the use of the various elements, which could provide interesting information. There is no validation of the terms entered. This could be considered in the future.

*Erik DUVAL of Leuven University in Belgium* presented the Ariadne project aiming at sharing and re-use of pedagogical resources to make the best use of scarce high-quality material for educational purposes. The project provides authoring tools that produce base metadata, which helps in creating a corpus of consistent descriptions. The project constitutes a closed environment for the participants, allowing a strong

exercise of editorial control and therefore of quality. Furthermore, users have the possibility to add annotations to the descriptions. A “Replicator Scheme” controls the distribution and access to the resources available in the Central Pool and the Local Pools in various places around Europe. The project has not reached the stage where a critical mass of material is available and is looking for further participants. The Ariadne project is co-operating with the IMS (Instructional Management Systems) project to co-ordinate the metadata definitions and agree a common metadata set. This set is not technically speaking Dublin Core as it has a richer structure and contains elements specific to educational use of the resources, but the mapping of Dublin Core into the Ariadne metadata set is considered to be possible. Also the project participates in the work in the IEEE Learning Technology Standards Committee which develops technical Standards, Recommended Practices, and Guides for software components, tools, technologies and design methods that facilitate the development, deployment, maintenance and interoperation of computer implementations of education and training components and systems.

*Paul MILLER of the Archaeology Data Service in the UK* introduced the advantages of using controlled vocabularies and thesauri. For users, these tools would help gaining more effective access to resources and reduce the number of false hits. Creators would be able to make more consistent descriptions and achieve a better integration of new and existing resources. It was noted that a major factor for the use of controlled vocabulary is the ease with which it can be used in both the process of creation of metadata and in the process of searching.

*Matthew STIFF of the Museum Documentation Association in the UK* spoke about multilingual aspects of information retrieval. He discussed the creation of parallel metadata in multiple languages versus the use of translation tools and multilingual thesauri. He identified the need for new tools but also noted these tools will be expensive and will take a lot of time to develop. Various options can be explored to create multilingual thesauri, including linking existing monolingual ones and translating one thesaurus in multiple languages. He touched upon the fundamental issue of incomplete equivalence of terms in different languages. Project Term-IT is investigating mechanisms to facilitate the production and dissemination of multilingual thesauri in the cultural sector through establishing dialogue with users and analysis of the economics of thesaurus production.

As a conclusion of the technical session it was identified that:

- quality is a crucial issue both in the creation of metadata and in its maintenance
- there should be a clear focus on the user when designing tools to help create and use metadata; user communities should be actively involved to make sure their requirements are taken into account
- special attention must be given to the change in concepts and terminologies over time.

## 6. AFTERNOON SESSION: STRATEGIC ISSUES

The first presentation in the afternoon session was delivered by *Ian CAMPBELL-GRANT of ICL, chairman of the CEN/ISSS Workshop on Metadata for Multimedia Information*. He introduced the work of this group as part of a new approach to standardisation especially intended to achieve rapid agreements on standards and a wide acceptance in the market. The specific objectives of the group include to gather information on metadata activities, to identify gaps and overlaps in current work and to disseminate this information to European industry, projects and programmes. The group is currently working to establish a framework that will help to find existing activities in the area of metadata definition.

In the final presentation, *Stuart WEIBEL of OCLC in the US* presented the current state and the future prospects for the Dublin Core metadata initiative. He outlined the objectives of the initiative, noting that it is a simple set for descriptive elements that are relevant for resource discovery. It could be used as a cross-domain “switching” language, working together with other sets in the framework provided by RDF. He presented the current thinking on the issue of more formally standardising Dublin Core, working through any body that would be appropriate for that purpose (IETF, ISO, NISO, CEN/ISSS).

In the discussion that took place after the presentations, several aspects were identified:

- the involvement of user communities and business areas is crucial to make sure their requirements are being taken into account
- again the issue of critical mass was raised: Dublin Core and other structured metadata forms an ‘island in the sea of marked data’. There needs to be more metadata before it can produce benefits to the users.
- the CEN/ISSS workshop could form an appropriate platform for rapid standardisation of Dublin Core in the form of a CEN Workshop Agreement; this needs to be further explored.
- the issue of maintenance of metadata standards is very important. The mechanism and structure should allow open and international participation to ensure the widest possible agreement

## 7. CONCLUSIONS

The major conclusions of the workshop can be summarised as follows:

- the strategic discussions highlighted that establishing widely accepted agreements is essential for the success of metadata;
- it is necessary that consensus on agreements for metadata is achieved across domains (e.g. libraries, museums, education, business, etc.);
- agreements and standards need to be maintained over time in a clear and open way with participation of all interested parties (especially user communities) to guarantee stability over time;

- formal and informal bodies involved in the standardisation of metadata sets (Dublin Core community, CEN, ISO) need to find effective ways of co-operation to ensure maximum acceptance of agreements and to avoid overlapping activities;
- further metadata workshops organised by the European Commission are considered to be valuable platforms for co-ordination and exchange of experience.

## 8. LIST OF ACRONYMS AND REFERENCES

<b>ACM</b>	the Association for Computing Machinery, an international scientific and educational organization dedicated to advancing the arts, sciences, and applications of information technology. <a href="http://www.acm.org">http://www.acm.org</a>
<b>ADS</b>	Archaeology Data Service. <a href="http://ads.ahds.ac.uk/ahds/">http://ads.ahds.ac.uk/ahds/</a>
<b>AHDS</b>	Arts and Humanities Data Service. <a href="http://ahds.ac.uk/">http://ahds.ac.uk/</a>
<b>ALA</b>	American Library Association. <a href="http://www.ala.org/">http://www.ala.org/</a>
<b>ALCTS</b>	<a href="http://www.lib.virginia.edu/ccda/">http://www.lib.virginia.edu/ccda/</a>
<b>Ariadne</b>	RTD project under the "Telematics for Education and Training" sector of the 4th Framework Programme of the European Union. The project focuses on the development of tools and methodologies for producing, managing and reusing computer-based pedagogical elements and telematics supported training curricula. <a href="http://ariadne.unil.ch/">http://ariadne.unil.ch/</a>
<b>CEN</b>	European Committee for Standardisation. <a href="http://www.cenorm.be/">http://www.cenorm.be/</a>
<b>CEN/ISSS</b>	European Committee for Standardisation - Information Society Standardisation System. <a href="http://www.cenorm.be/iss/default.htm">http://www.cenorm.be/iss/default.htm</a>
<b>CIDOC</b>	The International Committee for Documentation of the International Council of Museums (ICOM), the international focus for the documentation interests of museums and similar organisations. <a href="http://www.cidoc.icom.org/">http://www.cidoc.icom.org/</a>
<b>CIMI</b>	Consortium for the Computer Interchange of Museum Information. <a href="http://www.cimi.org/">http://www.cimi.org/</a>
<b>CPA</b>	Commission on Preservation and Access. <a href="http://www.clir.org/programs/cpa/cpa.html">http://www.clir.org/programs/cpa/cpa.html</a>
<b>DC</b>	Acronym for Dublin Core

<b>Desire</b>	Telematics for Research project addressing the needs of research users in the context of a European information network based on the World Wide Web (WWW). <a href="http://www.surfnet.nl/surfnet/projects/desire/">http://www.surfnet.nl/surfnet/projects/desire/</a>
<b>DG XIII</b>	Directorate General XIII of the European Commission. <a href="http://europa.eu.int/en/comm/dg13/13home.htm">http://europa.eu.int/en/comm/dg13/13home.htm</a> . See also: <a href="http://www2.echo.lu/home.html">http://www2.echo.lu/home.html</a>
<b>Dublin Core</b>	Dublin Core is a 15-element metadata element set intended to facilitate discovery of electronic resources. <a href="http://purl.oclc.org/metadata/dublin_core/">http://purl.oclc.org/metadata/dublin_core/</a>
<b>EC</b>	European Commission. <a href="http://europa.eu.int/">http://europa.eu.int/</a>
<b>ERCIM</b>	The European Research Consortium for Informatics and Mathematics - aims to foster collaborative work within the European research community and to increase co-operation with European industry. <a href="http://www.ercim.org">http://www.ercim.org</a>
<b>EULER</b>	Telematics for Libraries project aiming to provide user-oriented, integrated network based access to mathematical publications. <a href="http://www.emis.de/projects/EULER/">http://www.emis.de/projects/EULER/</a>
<b>ICL</b>	<a href="http://www.icl.com/">http://www.icl.com/</a>
<b>ICOM</b>	The International Council of Museums, a Non-Governmental Organisation (NGO) maintaining formal relations with UNESCO, devoted to the promotion and development of museums and the museum profession at an international level. <a href="http://www.icom.org/">http://www.icom.org/</a>
<b>IEEE</b>	The Institute Of Electrical And Electronics Engineers, Inc., a technical professional society with the objective to advance the theory and practice of electrical, electronics and computer engineering and computer science. <a href="http://www.ieee.org">http://www.ieee.org</a>
<b>IETF</b>	The Internet Engineering Task Force, a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. <a href="http://www.ietf.org">http://www.ietf.org</a>
<b>IMS</b>	Instructional Management Systems Project, an investment membership of academic, commercial and government organisations developing a set of specifications and prototype software for facilitating the growth and viability of distributed learning on the Internet. <a href="http://www.imsproject.org/">http://www.imsproject.org/</a>
<b>ISO</b>	International Organisation for Standardisation. <a href="http://www.iso.ch/">http://www.iso.ch/</a>
<b>MDA</b>	Museum Documentation Association, body in the UK for museum information management, supporting museums in all

aspects of heritage information management including the crucial area of Information and Communications Technology (ICT).

<http://www.mda.org.uk/>

- MIT** Massachusetts Institute of Technology.  
<http://www.mit.edu/>
- MMI** CEN/ISSS Workshop on Metadata for Multimedia Information.  
<http://www.cenorm.be/iss/Workshop/MMI/Default.htm>
- NGDF** National Geospatial Data Framework (UK).  
<http://www.ngdf.org.uk/>
- NISO** U.S. National Information Standards Organization:  
<http://www.niso.org>
- Nordic Metadata** Scandinavian co-operation project creating basic elements of a metadata production and utilisation system:  
<http://renki.helsinki.fi/meta/>
- NSF** National Science Foundation (US), an independent U.S. government agency responsible for promoting science and engineering through programs that invest in research and education projects in science and engineering.  
<http://www.nsf.gov/>
- OCLC** Online Computer Library Center, Inc., a non-profit, membership, library computer service and research organisation in Dublin, Ohio, USA  
<http://www.oclc.org>
- RDF** Resource Description Framework, a specification currently under development, designed to provide an infrastructure to support metadata across many web-based activities:  
<http://www.w3.org/RDF/>
- RLG** Research Libraries Group.  
<http://www.rlg.org>
- RTD** Research & Technological Development
- SweMeta** Dublin Core Database for Sweden.
- TAP** The Telematics Applications Programme, one of the European Commission's research programmes, aimed at stimulating RTD on applications of information and/or communications technologies in areas of general interest:  
<http://www2.echo.lu/telematics/telehome2.html>
- TEISS** Telematics - European Industry Standards Support
- Telematics for Libraries** The Libraries sector of the Telematics Applications Programme:  
<http://www2.echo.lu/libraries/en/libraries.html>

**Term-IT** a preparatory-phase project under the Language Engineering sector of the Telematics Applications Programme, aimed at leading to the development of methods and systems to improve the production, dissemination and exploitation of multilingual terminology resources  
<http://www.mda.org.uk/term-it/>

**URN** Universal Resource Name:  
<http://www.ietf.org/html.charters/urn-charter.html>

## APPENDIX 1. PROGRAMME

### METADATA WORKSHOP 26 JUNE 1998

#### EUROFORUM Building

#### PROGRAMME

09:00-09:20 Welcome, registration  
*Patricia Manson, European Commission DG XIII/E-4*

09:20-09:30 Introduction  
*Makx DEKKERS, The Libraries Support Team*

#### Morning session: Technical issues

09:30-10:00 Metadata creation tools  
*Anna BRÜMMER, Univ. of Lund*

10:00-10:30 Extension of Dublin Core for Educational material  
*Erik DUVAL, Univ. of Leuven*

10:30-11:00 *Coffee break*

11:00-11:30 Controlled vocabulary  
*Paul MILLER, Archaeology Data Service*

11:30-12:00 Multilingual issues  
*Matthew STIFF, Museum Documentation Association*

12:00-12:30 Panel discussion

12:30-13:30 *Lunch break*

#### Afternoon session: Strategic issues

13:30-14:00 Metadata activities in context  
*Ian CAMPBELL-GRANT, ICL (chair CEN/ISSS open Workshop on Metadata for Multimedia Information)*

14:00-14:30 Future developments in Dublin Core  
*Stuart WEIBEL, OCLC*

14:30-15:00 *Tea break*

15:00-15:45 Discussion

15:45-16:00 Wrap-up and closing  
*Ariane ILJON, Head of Unit, European Commission DG XIII/E-4*

## **APPENDIX 2. PRESENTATIONS**

## Metadata creation tools

*Anna BRÜMMER, Univ. of Lund*

*Biographical note:*

Anna Brümmer is an electronic information services librarian at Lund University Library development department NetLab since the first of February 1996. She began after having finished her studies in library and information science in January 1996. Between 1996-1998 she has, among other things, been involved in the EU-project DESIRE, the Development of a European Service for Information on Research and Education. She is also involved in project EULER, European Libraries and Electronic Resources in Mathematical Sciences, integrating bibliographic databases, library online public access catalogues, electronic journals from academic publishers, online archives of pre-prints and grey literature, and indexes of mathematical Internet resources. For the time being she is the pro tem. head of NetLab.

*Abstract:*

Metadata tags are, in an end user perspective, complicated to produce. The talk presented one solution aiming to facilitate the metadata creation process (for end users): a metadata creation tool. The presentation described the issues involved in, and related to, the Dublin Core metadata creation and provided explanations on construction of DC Metadata records.

The starting point was the Nordic Metadata project, which has developed basic elements of a metadata production and utilisation system, based on the Dublin Core Metadata Element Set. The result is the Nordic Metadata DC production template/creator, which was demonstrated at the workshop.

The presentation included a short introduction to the web resource identifier URN (Uniform Resource Names) and an URN generator.

The presentation is available on the Web at:  
<http://www.lub.lu.se/EULER/presentations/creator.html>.

(one page print-out of Web page)

# Extension of Dublin Core for Educational material

*Erik DUVAL, Univ. of Leuven*

*Biographical note:*

Erik Duval is a post-doctoral fellow of the National Fund for Scientific Research - Flanders and a part-time professor at the Katholieke Universiteit Leuven, Belgium. His main research areas are distributed hypermedia systems, data modelling, the application of information and communication technology in education, metadata and computer science education. He coordinates the development of the Knowledge Pool System for the ARIADNE project and is a member of the IEEE Computer Society, the ACM and the program committee of the WebNet Conference Series.

*Abstract:*

This presentation covered the current status of the author's work on educational metadata. Since about two years, the ARIADNE project has developed both a structure and an infrastructure for educational metadata <<http://ariadne.unil.ch>>. The structure extends Dublin Core to a considerable extent and includes circa 70 data elements, grouped in 9 categories and defined over abstract data types. The infrastructure includes a tool for describing pedagogical documents and a distributed database of these documents and their descriptions, called the Knowledge Pool System. The ARIADNE results have been input in standardisation work in the Learning Object Metadata Working Group of the IEEE Learning Technology Standards Committee <<http://www.manta.ieee.org/p1484>>.

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# Controlled vocabulary

*Paul MILLER, ADS*

*Biographical note:*

Dr. Paul Miller is Collections Manager for the Archaeology Data Service (ADS) <<http://ads.ahds.ac.uk/>>, one of five service providers comprising the Arts & Humanities Data Service (AHDS) <<http://ahds.ac.uk/>> in the United Kingdom.

The ADS seeks to both preserve and encourage the reuse of digital archaeological data, whether by physically taking and mounting data or by working with existing organisations and technologies to facilitate distributed access mechanisms.

Paul is responsible for the development of this distributed catalogue, and is closely involved with a number of evolving metadata initiatives around the world. These include the Dublin Core <[http://purl.org/metadata/dublin\\_core](http://purl.org/metadata/dublin_core)>, the UK's National Geospatial Data Framework (NGDF) <<http://www.ngdf.org.uk/>>, and the work of the Consortium for the Computer Interchange of Museum Information (CIMI) <<http://www.cimi.org/>>.

*Abstract:*

This presentation went into the problems of terminology and vocabulary, which become increasingly apparent as opportunities for cross-searching between different data sources grow. Efforts to develop controlled lists of terms have been relatively isolated in individual disciplines or geographic areas.

With the current explosion in projects to provide remote access to these resources, and initiatives to link diverse resources together for the first time, new problems have arisen, namely;

- divorcing of resources from the local expertise developed to support and maintain them
- integrating diverse terminologies
- contextualising the terminologies
- providing access to the terminologies

In conclusion, controlled terminology remains an important weapon in the information scientist's arsenal, but the new distributed world in which these terminologies are increasingly being used perhaps requires a new approach to some old problems, an approach which was explored in this paper.

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## Multilingual issues

*Matthew STIFF, MDA*

*Biographical note:*

Matthew Stiff studied English Language and Literature at Manchester University where he graduated in 1986. He then worked for two years as an Analyst/Programmer at the Ford Motor Credit Company. During this period he was responsible for implementing a branch office systems upgrade and for the management of telephone support for users, as well as contributing to software development and maintenance projects. He also carried out analysis work for a management information system. From 1988 to 1994 he studied for a D.Phil. in archaeology at Oxford University. At the same time, he completed a Diploma in Museum Studies at Leicester University and worked for Oxfordshire County Museum Service both as a volunteer and contract worker.

In 1995 Matthew joined the staff of the River and Rowing Museum in Henley-on-Thames before moving on to the Museum Documentation Association in February 1997. MDA develops standards and promotes best practice in museum documentation and information management. He is now MDA's Terminology Projects Manager and is co-ordinator of Term-IT, a project supported by the Language Engineering sector of the EC Telematics Applications Programme. He also represents MDA on the Standards and Terminology Working Group of CIDOC, the documentation committee of the International Council of Museums (ICOM).

*Abstract:*

This presentation began by discussing current trends in the languages of the World Wide Web. Although it is likely that English will continue to be the main language of the Web for some time to come, current trends indicate that its percentage share will drop dramatically as increasing resources are made available in other languages.

Multilingual issues relate both to the creation of metadata and to its retrieval. This paper discussed multilinguality and the metadata schema, creating metadata in more than one language (including the pros and cons of this approach when related to multilingual information retrieval) and discussed retrieval of information using multilingual tools. In particular, machine translation was compared with the use of multilingual thesauri. Finally, the creation of multilingual thesauri was covered, including examples of projects and initiatives aimed at facilitating their development .

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## **Metadata activities in context**

***Ian CAMPBELL-GRANT, ICL***

*Biographical note:*

Ian Campbell-Grant chairs the CEN/ISSS open Workshop on Metadata for Multimedia Information and leads the TEISS project (Telematics - European Industry Standards Support). Ian was previously chair of the European Workshop for Open Systems work on multimedia and document architecture.

Ian Campbell-Grant is one of ICL's key technical consultants, now specialising in Outsourcing and Managed Services architecture and policy.

Ian's achievements and contribution have been recognised by his appointment by the ICL Chief Executive as an ICL Fellow, one of only ten in the company. Fellows represent ICL at the highest technical level, operate as world class technical authorities and handle major technical issues of importance to a wide range of ICL customers.

Ian holds a bachelor's degree in mathematics and two master's degrees, one in computer science from the Massachusetts Institute of Technology (MIT) and the other in mathematical statistics. In addition Ian holds the degree of electrical engineer from MIT.

*Abstract:*

Metadata is significant for a wide variety of organisations, particularly in support of the evolution of the new types of activities made possible by the Information Society.

A very wide variety of areas are affected and to facilitate this evolution there is a need for co-ordination of efforts. This presentation reported on the work in this area within the CEN/ISSS Workshop on Metadata for Multimedia information. This included an explanation of the goals of the CEN/ISSS group and its relations with other groups. A status report described the (preliminary) results of the workshop, including the development of a framework and a classification of the areas within this framework, some decisions on terminology and on focus business areas.

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## Future developments in Dublin Core

*Stuart WEIBEL, OCLC*

*Biographical note:*

Stuart Weibel is Consulting Research Scientist at OCLC Online Computer Library Center, Inc, Office of Research, in Dublin, Ohio, USA.

Dr. Weibel has worked in the Office of Research since 1985. Recent responsibilities include organisation and management of the Dublin Core Metadata Workshop Series, founding member of the International World Wide Web Conference Committee, and library standards liaison to the Internet Engineering Task Force.

Additional activities include participation in the CPA/RLG Taskforce on the Preservation of Digital Information, the ALA ALCTS Taskforce on Metadata, and participation on the program committees of major conferences and workshops, including:

- Internet Society Annual Meeting
- International World Wide Web Conference Series
- European Conference series on Advanced Research in Digital Libraries
- The Joint Workshop on Metadata Registries (July 1997).

Dr. Weibel serves on a joint committee of the NSF and ERCIM to identify common research objectives in the area of metadata for North American/European digital library research. In addition, he serves on various advisory committees on metadata and digital library activities in North America and Europe.

Previous project management experience includes research projects in electronic publishing, automated cataloguing, optical character recognition systems, and document structure analysis.

*Abstract:*

The Dublin Core has attracted wide attention as the leading candidate for description of electronic resources. The Dublin Core Workshop Series has drawn participants from 18 countries on 4 continents and major pilot projects are underway in at least 10 countries.

Interest in Dublin Core reflects the growing need for better resource description on the Web on the one hand, and recognition of the importance of an international approach to the development of interdisciplinary consensus on the other.

The challenges ahead include balancing the need for stability and standardisation on the one hand, and providing for continued maturation of the standard on the other. This presentation described the current status of the Dublin Core, the evolution of a process to support its further development, and progress toward standardisation.

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## APPENDIX 3. LIST OF PARTICIPANTS

### SECOND METADATA WORKSHOP Luxembourg 26 June 1998

#### List of Participants

Mr. Hans J. BECKER, Staats- und Universitätsbibliothek Göttingen	Germany
Mrs. Gertrud BERGER, Lund University Library – NetLab	Sweden
Mr. Ian BLOOR, De Montfort University	UK
Mrs. Anna BRÜMMER, Lund University Library – NetLab	Sweden
Mrs. Tone Merete BRUVIK, University of Bergen	Norway
Mr. Martin BRYAN, The SGML Centre	UK
Mr. Ian CAMPBELL GRANT, ICL	UK
Ms. Robina CLAYPHAN, The British Library	UK
Mrs. Patrizia COTONESCHI, Università di Firenze	Italy
Mr. Makx DEKKERS, Coopers & Lybrand/The Libraries Support Team	Luxembourg
Mr. Jacopo DI COCCO, Università degli Studi di Bologna	Italy
Mr. Erik DUVAL, Katholieke Universiteit Leuven	Belgium
Mr. Peter FINCH, CEC - DG XIII/D-2	Luxembourg
Mr. Stefan GRADMANN, Pica	Netherlands
Mrs. Dominique GROENEZ, CEC - EUROSTAT/A3	Luxembourg
Ms. Ariane ILJON, CEC - DG XIII/E-4	Luxembourg
Mr. Hans-Jörg LIEDER, Staatsbibliothek zu Berlin	Germany
Mrs. Pat MANSON, CEC - DG XIII/E-4	Luxembourg
Mr. Paul MILLER, Archaeology Data Service	UK
Mrs. Gitte NIELSEN, Aarhus Kommunes Biblioteker	Denmark
Mr. Gordon PEDERSEN, Fischer & Lorenz/The Libraries Support Team	Luxembourg
Mrs. Marianne PEEREBOOM, Royal Library	Netherlands
Mr. Ian PIGOTT, CEC - DG XIII/E-4	Luxembourg
Mr. Jean-Michel ROTTIERS, Université Libre de Bruxelles	Belgium
Mr. Matthew STIFF, Museum Documentation Association	UK
Mr. John TAIT, University of Sunderland	UK
Mr. Jean VISEUR, CEC - EUROSTAT/A2	Luxembourg
Mr. Repke Eduard DE VRIES, NIWI	Netherlands
Mr. Guy WEETS, CEC - DG XIII/C-3	Belgium
Mr. Stuart L. WEIBEL, OCLC - Online Computer Library Center Inc.	US
Mrs. Lieve VAN WOENSEL, CEC - DG XIII/D-2	Luxembourg
Mr. Robin YEATES, LITC - Library Information Technology Centre	UK