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Dissemination of information in the field of cultural heritage conservation: the adoption of open access in ICOMOS

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Abstract

This document presents the reasons to set up an open access archive or thematic repository, specialized in the conservation and restoration of cultural heritage, in ICOMOS and coordinated by its Documentation Centre. Firstly, we introduce "open access" and the function and characteristics of open archives. After a short analysis of the current situation of scientific literature in the cultural heritage conservation field, we describe the results of a questionnaire by the Documentation Centre, sent to the ICOMOS committees. We detail the benefits of an open access archive to ICOMOS, its Documentation Centre, ICOMOS members and to the international scientific community in the field of cultural heritage conservation. As there are only a few similar initiatives in this field, the implementation of an open access archive by ICOMOS will help it become the global reference point for the promotion and dissemination of cultural heritage conservation scientific documentation.

1. Open access to scientific information

Open archives, also called repositories, are the most recent phenomena in the area of scientific communication, and one of the fundamental axis of open access to scientific literature. The main characteristic of open access self-archiving is that the author manages the electronic storage of their scientific text, free from restrictions. An open access archive complements traditional scientific publishing and is not a substitute to it. The interoperability of these repositories enables:

1. greater dissemination and visibility of the scientific texts – wider visibility to the international scientific community;
2. easy access to documents – the availability of full texts, without financial or time concerns undermining their storage/access; and
3. greater probability of citation – due to increased dissemination, accessibility and visibility of the scientific texts.

Open access addresses the monopoly of the main publishers who currently distribute scientific information. The distribution of these publishers is complicated by their costs, which limit a significant part of the scientific community from accessing their publications. This limited access results in decreased chances of the texts being cited. Citation is crucial to the promotion of the scientific text. Alternatively, open access promotes electronic access to academic literature free from any restrictions.
By open access we imply the free availability to scientific literature on the Internet, without any technical or financial restrictions. This allows any user to read, download, copy, print, or redistribute the text (or any other legal use of it). The only limitation is to the texts' reproduction and redistribution – here copyright would apply to give the author the right to be recognized and cited[1]. Open access to scientific literature is compatible with the peer review process. The only exception is preprints, which are disseminated before the peer review process.

The procedures used by open access to reach its objectives are: authors deposit a copy of their documents in a repository or open archive, and the authors publish in the open access journals, where they retain the full copyright. Although open access is electronic and free for the readers, it does not exclude the access to the printed text and consequently their payment, taking into account that the printed editions are more expensive to produce. Several global initiatives demonstrate that open access is not a utopia, but a consolidated reality. In Europe, the most important initiative is the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities[2].

Open archives are fundamental to open access, because this is where authors deposit their scientific texts in electronic format. The types of texts can be various, doctoral theses, articles, communications, chapters of books, technical reports, etc. The interoperability of these repositories increases accessibility and the probability of citation. They can be organized by discipline or by institution. In open archives, the author does not publish just deposit or archive. The repository's editorial committee will verify the validity of the metadata, the electronic file(s) and the texts. Therefore, a peer review process does not exist. The editorial committee can give open access to their repository or let each author control the accessibility of their works.

Central archives focus on a discipline. It is impossible for central archives to be complete, because authors cannot be forced to submit texts. Authors will only contribute

when the repository proves useful to the related scientific community. This occurs when a critical mass of information exists in the central repository and it contains contributions from the main actors in the discipline. Building a mass of texts is difficult and requires sustained effort from the developers of the archive. Besides the central archives collide with the own different dynamics and ways of work for each discipline. Successful central archives only exist for a few disciplines; where there is strong international research and a tradition to share texts and preprints. The main central archives that exist were created during the 1990s to improve the dissemination of preprints.

As an example, the central archive arXiv[3] specializes in physics, maths and computer science. It was the first repository of freely accessible documents on the Internet and was created by Paul Ginsparg in 1991 at the Alamos National Laboratory (LANL). E-LIS[4] (E-prints in Library and Information Science) specializes in library science, documentation and related disciplines and aims to distribute documents quickly. It is the largest open archive in LIS with more than 5,000 documents. It is a multilingual archive that stores texts in several languages, e.g. Turkish, Serbian, Chinese and Russian.

A repository supposes the archive by the researchers of their own work in open archives, central or institutional. Authors do not need permission to archive their preprints. If a journal refuses texts that have been distributed as preprints, it is the sole decision of that journal and not influenced by copyright legislation. If an author transfers copyright of a postprint to a journal, the author will need the publisher's permission to archive the postprint. The majority of journals allow texts to appear in repositories. When a journal forbids the addition of its postprints to repositories, the author can submit the preprint and a corrigendum. The Sherpa[5] Web site contains information on the editorial policies of open archives.

Open Archives Initiative

The objective of the Open Archives Initiative (OAI) is to lead the development and promotion of interoperability by facilitating the efficient dissemination of contents on a network. This initiative originated from the Convention of Santa Fe (New Mexico, USA, October 1999), where representatives of the main e-print archives met. The aim was to determine procedures and tools to improve access to texts stored in archives, to increase the texts' visibility and to improve the scientific communication in the related disciplines. The name OAI reflects its origins: "open" refers to the accessibility of the system's architecture and "archive" refers to the long-term storage. Custom interfaces allow the access to OAI texts that have originated from various providers. Therefore, the OAI is not only a project dedicated to scientific texts, but also to the exchange of metadata about any material stored in an electronic format.

The OAI-PMH (Open Archives Initiative – Protocol for Metadata Harvesting) was developed by the open archive community to allow the communication of metadata between machines connected to a network[6]. It's architecture has two fundamental elements: the data providers or machines that store information about electronic texts and the service providers responsible for collecting the information that offer some services of added value that can be directly useable by the final user. In this sense they would play the role of adders of contents responsible for creating new services as search engines, classification of documents, link of references, etc.

An important feature of the OAI-PMH is simplicity. Learning from the experience of protocols like Z39.50 or Dienst, which where difficult to implement, an aim of OAI-PMH was to be adopted by any institution with minimum difficulty. The communication between archives and service providers is carried out by three standards that are extensively used on the Internet:

1. the queries are transmitted through HTTP;
2. the communication of data is carried out in XML; and
3. the metadata uses the Dublin Core standard. It also accepts additional optional bibliographical information exchange formats like MARC.

The OAI-PMH is currently version two, published in June 2002.

The information distributed through the open archives is metadata about electronic texts. This information, in general, is of little use to researchers. It is necessary the participation of some intermediaries that harvest the information and aggregate some added value in order to offer it to the final users. This function is carried out by the services providers. The simplest type of service provider is one that collects metadata from a selection of archives (according to a thematic or geographical criterion) and builds a database that can be accessed through an Internet portal. For example, the METALIS[7] search engine provides access to various archives in the field of library and information science. In other cases, more complex services can be provided. For example, reference link services and analyses of references, performed by the Open Citation Project[8] with the physics data from the arXiv archive. Analyzing the impact of freely available texts against those that are not is a clear way to demonstrate to the authors the usefulness of archiving their texts. Studies show that freely available texts are referenced 336% more than those with paid access. Finally, there are general service providers that aim to maintain a database of all existing archives. An example is the OAIster, which stores more than five million records from more than 450 archives. The OAI maintains a registration of service providers.

2. Current situation of scientific literature in the field of cultural heritage conservation

In the field of cultural heritage conservation, there are numerous publications and scientific journals, in printed format, published by specialized institutions and organizations. The high cost of printing has caused many institutions to reduce their printed output. Emerging technologies make it economically feasible to publish in electronic format, with the additional benefits of increased visibility and accessibility.

The current scientific literature in the field of conservation of cultural heritage is described in this section; by analysing firstly the typology of the journals, and secondly related open archives.

In recent years, the number of heritage institutions that publish texts (publications, reports, bulletins) to the Internet has increased, in many cases in parallel to the printed version. The following journals, in the field of cultural heritage conservation, are available on the Internet:

- **Journals that are available in printed format**. Typically include the summary of each issue and the abstract of each article. Often, there is information about subscribing to the printed version. These are not open access journals, but the authors may have permission to add their articles to a repository. Examples: *Studies in Conservation*, *Public Archaeology* and *Journal of Architectural Conservation*.
- **Online journals available through subscription**. These journals provide a summary of every isse and subscription information (annually, by issue or per article). These are not open access journals, but allow their articles to be added to a repository. Examples: *Conservation and Management of Archaeological Sites*, *Journal of Archaeological Science* and *Architectural Engineering and Design Management*.
- **Open access journals**. The number of full-text, Internet-based, electronic journals in the field of cultural heritage conservation is limited. According to the Directory of Open Access Journals (DOAJ)[9], journals exist in architecture (6), the history of art (5), archaeology (15) and anthropology (37).

The number of repositories or institutional open archives is rare. Few institutions have repositories that publish the scientific and academic literature of their researchers. It is in the universities that most of the texts related to the field of conservation of cultural heritage are stored in repositories (for example architecture, archaeology or anthropology), although the number of texts is limited. Some examples are:

- St Andrews University
  http://eprints.st-andrews.ac.uk
- The Australian National University
  http://eprints.anu.edu.au
- The University of Melbourne
  http://eprints.unimelb.edu.au
- Universidad Complutense de Madrid
  http://www.ucm.es/eprints
- University College of London
  http://eprints.ucl.ac.uk
- University of Delhi
  http://eprints.du.ac.in
- University of Glasgow
  http://eprints.gla.ac.uk
- University of Queensland
  http://eprint.uq.edu.au

Like institutional repositories, thematic archives in the field of conservation of cultural heritage are rare. Since the beginning of 2006, the repository of the EPOCH Network (The European Network of Excellence in Open Cultural Heritage) has been available (http://epoch-net.org:8180/dspace/index.jsp).
Although not related to open access, there are some interesting initiatives related to cultural heritage conservation, which offer free access to information about historic monuments and sites.

- The CyArk Digital Archive is a database on historic monuments and sites that stores data collected through laser scanning, digital modelling, 3D and other emerging technologies. See http://archive.cyark.org.
- The ArchNet digital online library is an international online community with a focus on Muslim cultures and civilisations; for architects, planners, urban designers, landscape architects, conservationists, and scholars. See http://archnet.org.

ICOMOS has decided to adopt open access through the creation of a repository dedicated to cultural heritage conservation, not only for its members, but also for the international scientific community involved in this field.

3. ICOMOS and its Documentation Centre

ICOMOS is a non-governmental organization that works for the conservation and protection of historic monuments and sites. Its objective is to promote the application of theory, methodology and scientific techniques for the conservation of architectural and archaeological heritage. ICOMOS is also the professional and scientific advisor to the UNESCO World Heritage Committee, on all aspects of cultural heritage. It is responsible for the evaluation of all nominations of cultural and mixed properties to the World Heritage List.

ICOMOS is a network of experts that benefits from the interdisciplinary exchange of its members, among which are anthropologists, archaeologists, architects, art historians, engineers, geographers, historians, town planners, etc. The members (nearly 9,000 in 2007) take part in national and international scientific committees. All cultural heritage conservation professionals may apply for membership through their national committee. Members of the international scientific committee consist of internationally renowned experts and are assigned by their own national committees. They also have associated members in the scientific committee.

The Documentation Centre at the ICOMOS headquarters in Paris, specializes in the conservation, protection, management and enhancement of architectural and archaeological heritage. It was inaugurated in 1974 and open to the public in 1977.

The Documentation Centre has two collections:

- A collection on built heritage, conservation techniques and policies, restoration, rehabilitation, and management and enhancement. The bibliographic collections correspond with the domains of the ICOMOS international scientific committees (historic towns and villages, cultural tourism, vernacular architecture, industrial architecture, archaeological heritage, building materials and techniques, etc). The Documentation Centre also keeps an important collection of international journals on cultural heritage conservation.
- Nomination records of all the monuments and sites inscribed on the UNESCO World Heritage List. ICOMOS is one of the advisory bodies of the UNESCO World Heritage Committee. It is the professional and scientific advisor on all aspects of cultural heritage. Therefore, ICOMOS is responsible for the evaluation of all nominations to the World Heritage List by States Parties to the World Heritage Convention and provides a final recommendation for every site. All the official documentation sent by the States Parties to UNESCO is archived and

available to the public at the Documentation Centre. The nomination records and the associated documentation, which is in often very comprehensive, are the most important and consulted collection at the Centre.

The scientific documentation in ICOMOS

The ICOMOS national (120) and international (28) scientific committees periodically organize scientific meetings like conferences, workshops and seminars. ICOMOS International organizes meetings every three years, in parallel with its General Assembly, an international scientific congress and other events organized with its institutional partners. The texts produced from these scientific events are not always published. Only the proceedings of ICOMOS International's conferences are published. The proceedings of the last conference was printed and published to CD-ROM and the ICOMOS Web site.

Nevertheless, few national or scientific committees obtain financing to publish the proceedings of their conferences in printed format. The committees increasingly publish the results of their meetings on CD-ROM, although distribution is limited to the committees' members and the participants of the meetings. The committees also publish on their own Web sites, which supposes a step forward to facilitate the adoption of open access in some of the committees. However, of the 120 national committees, only 25 have a Web site and of the 28 international scientific committees, only 13 have a Web site. Dissemination of texts among the ICOMOS committees is very limited due to lack of funding; this problem could be solved by setting up a repository.

In addition to the proceedings of the scientific meetings, the ICOMOS committees also produce other kinds of publications, like newsletters (printed or electronic), annual reports and scientific articles. These publications are distributed among the members of their committee and sometimes sent to the ICOMOS Documentation Centre. The Documentation Centre should be, for the ICOMOS community, the central repository where members can deposit and access all ICOMOS texts.

Questionnaire to the ICOMOS Committees

The ICOMOS Documentation Centre circulated a questionnaire to the national and international committees to gain more information about the texts they produce, their distribution and the format. Below is a summary of the results (responses were received from a quarter of the committees):

- 76% of the committees publish an annual report and 56% publish a newsletter of their activities. Other documents like books or conference proceedings are also published.
- 62% of the committees keep the full-texts submitted by conference participants and 23% keep only the abstracts. Only 15% of the committees do not keep any documentation.
- 46% of the committees keep the documentation in both electronic and print format, 32% only in electronic format and 22% only in print format.
- As for the publication of the documentation, more than 36% do not publish. 42% print, 11% to CD-ROM and 11% publish to a Web site.

- Where documentation is published (print or CD-ROM), the number of copies varies, but often exceeds 1,000 (the average is 450 copies per publication).
- Of the committees that produce publications (newsletters, annual reports, books, conference proceedings), 42% do not send their publications to the ICOMOS Documentation Centre.

As reflected in the results of the questionnaire, there is a significant number of committees (36%) that do not publish their conference proceedings, although the majority keep a copy of the articles or the abstracts. Among the committees that publish proceedings, most do so in printed format, very few committees use electronic formats such as CD-ROMs or Web sites.

The most important figures concerning the conference proceedings are related to their limited dissemination: only 11% of the committees use the Internet to make texts available. The rest publish to paper or CD-ROM, with a run of 100 to 1000 copies. These copies are mainly distributed to the participants of the conferences and the committees' members.

The results of the questionnaire reflect the necessity to create a centralised database and coordinated workflow to store the output of these scientific events in the ICOMOS Documentation Centre. This would solve the problem of the limited dissemination and visibility of ICOMOS' scientific texts in the international community.

4. Promoting the dissemination of the scientific production

4.1 ICOMOS as a data provider

For several years, ICOMOS electronically published the proceedings of the scientific symposiums held during the General Assemblies. The latest editions are available on the Internet, such as the minutes of the scientific symposia held in Madrid (2002), Victoria Falls (2003) and Xi'an (2005). The ICOMOS Documentation Centre has initiated a project to digitize older texts; more than 1,300 full text documents are now freely available on the Internet. This collection of texts will provide the foundation of the ICOMOS repository.

4.1.1 Scientific documentation produced by the ICOMOS committees

The proposed repository would include the following documentation:

- The electronic texts of the proceedings of all past scientific symposiums organized by ICOMOS and its committees. This is currently underway through the digitization project initiated by the ICOMOS Documentation Centre.
- The electronic texts of all publications and minutes from future scientific symposiums organized by ICOMOS and its national and international scientific committees. Proceedings from the national, international and scientific committees are often not published due to lack of funds. In this case, an electronic copy of the minutes should be deposited in the repository, whether the proceedings are eventually printed or not.

ICOMOS, or the texts' authors, should retain copyright of the publications in the repository. In the case of joint publications (with partner institutions, like UNESCO or

ICCROM), they will be included in the repository if there is a prior agreement with the contributing institution.

4.1.2 Scientific documentation produced by other institutions or individuals (ICOMOS members and non-members)

It is proposed that this cultural heritage conservation repository is initiated with scientific documentation produced by ICOMOS' national or international scientific committees. Once functioning, the repository will be open to all organizations and national and international institutions within the field of cultural heritage conservation (Getty, ICCROM, UNESCO, ICOM, Council of Europe, TICCIH, universities, publishing houses, electronic journals, etc.) and to all individuals interested in collaborating with the repository. The overall objective is to create a global archive specialized in the conservation and restoration of cultural heritage, facilitating the dissemination and exchange of technical and specialized information among the scientific community.

4.2 ICOMOS as signatory of the Berlin Declaration

ICOMOS, as a worldwide leader in the promotion of the theory, methodology and technology applied to the conservation, protection and enhancement of historic monuments and sites, should support and implement the OAI initiative.
Article 5b of the ICOMOS statutes, states that ICOMOS;

> Gather, study and disseminate information concerning principles, techniques and policies for the conservation, protection, rehabilitation and enhancement of monuments, groups of buildings and sites.

Through the creation of an open access repository, to facilitate the dissemination of its scientific texts, ICOMOS would increase its effectiveness and prestige in the scientific community.

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[9] The open access journals allow authors to keep the copyright of their works. The Directory of Open Access Journals (DOAJ) <http://www.doaj.org/> is the largest directory in internet of open access journals. It is managed by the Lund University Libraries. Its aim is to improve the visibility and promote the use of the scientific literature trough the open access scientific and academic journals.