Open Access in Italy: Achievements and Future Prospects

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Abstract
The OA movement in Italy enjoys the active participation of single universities, research centres and supercomputing consortia. An overview of OA initiatives in Italy is followed by a more detailed presentation of PLEIADI- Portal for Italian Electronic Scholarly Literature in Institutional Archives, the Italian national platform to provide central access to digital content deposited in Italian Open Archives (http://www.openarchives.it/pleiadi).
The presentation will conclude with some considerations on the future prospects of OA in Italy.

Introduction: OA context

A somewhat perplexing paradox has recently emerged in scholarly publishing. While, on one hand¸ the Internet has changed the exchange and the distribution of information in the scholarly and research environment, and ICT developments continue to offer more advanced and integrated solutions to improve access and circulation, on the other hand several factors conspire to hinder the wide and free dissemination of scholarly content that was to be expected.

Most of these factors can be easily summarized in the so called "serials crisis" which is seriously affecting traditional publishing models and, a cause of great consternation, seriously restricts access to journal literature.

Among the main causes of this crisis are the limits of traditional publishing practices, increasing journal subscription costs , the dominant role of an increasingly limited number of powerful commercial publishers which own a significant share of prestigious high quality academic and research journals, apply restrictive rules for copyright assignment and grant electronic access based on over priced business models. Moreover, the application of new technologies in traditional commercial and not for profit publishing has not ensured that technological improvements in journal output is exploited to the full (in most cases the electronic version is a mirror image of the printed version) or a cost reduction in journal subscriptions. Indeed cost increases are far in excess of inflation, while library budgets continue to shrink.

In this context some significant initiatives have urged the open access to scholarly publishing, such as for example the Budapest Open Access Initiative- BOAI [1].

The BOAI defines open access to scholarly literature, as" *its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited*"

Furthermore the BOAI recommends two complementary strategies to achieve open access principles: self-archiving and open access journals.

In order to avoid any misunderstanding it is worth defining what is meant by self-archiving, open archives and open access journals as used in this paper.

By self-archiving authors deposit an electronic copy of their refereed papers or other refereed material in electronic open archives. The open digital repositories (technically called data providers), compliant to the standards set by the OAI- Open archive Initiative [2], are institutional or disciplinary based. Institutional archives contain e-pre-print or post print refereed scholarly and

research content as well as any other material produced by the institution. Disciplinary archives provide access to high quality refereed scholarly or research content in a certain discipline or multiple disciplines regardless of the author's institutional affiliation.

Within the OAI framework several tools have been developed and implemented to foster the creation, management, and interoperability of open archives via the OAI-PMH protocol [3]. Different service providers have been developed to locate and retrieve metadata of the documents deposited in OAI compliant archives.

Open access journals are those journals that do not charge readers for access and where the copyright is retained by the author. Readers are able to read, download, copy, distribute and print articles and other materials for free. costs are often met by charging authors for the publisher's services in making this material available or through other economic sustainable models (e.g. institutional membership, funding agencies, etc.).

In Europe over the last two years several academic and research institutions have endorsed official statements in support of open access. These include, among others, the Berlin Declaration, the Scottish Declaration, and the Messina Declaration [4]. This constitutes the first step on the part of the institutions to a commitment to implement open archives, to support the deposition of refereed material in these archives via enforced institutional policies and to encourage affiliated authors to publish in open access journals.

These efforts will result in the appearance of a growing number of operational digital repositories, in the constant increase in open access content and consequently in a wider dissemination of scholarly content. This situation will generate a higher impact of research results and therefore vast benefits for both authors and for their institutions, ranging from individual career advancment to further research funding, from increasing each institution's visibility to promoting general research progress, and to contributing to the creation of new and unpredictable forms of communication and research.

Open Access in Italy

In Italy the OA movement has pursued a " bottom up approach" rather than a "top down approach": librarians, IT people, senior researchers in individual universities and research centres have been actively involved in promoting awareness on OA issues, in implementing repositories, in planning projects, writing policies, developing tools, whereas, initially, the academic institutional hierarchies did not take any stand on the issue.

To date neither the government nor the Ministry of Education and Research have made any recommendations on this matter or provided any funding. The Parliament has failed to take any stand on the issue.[5] An important breakthrough, however, was marked by the conference held in Messina on November 4-5 2004 on Open Access to scholarly literature [6] promoted and organised by the Library Committee of the Italian Council of Rectors (CRUI), in collaboration with the University of Messina.

During this conference more than 30 academic institutions agreed on the principle of Open Access to scholarly literature, and signed the "Messina Declaration" in support of the Berlin Declaration on Open Access to knowledge in the Sciences and Humanities. This is the first institutional action on the part of Italian university rectors to support OA.

This event has helped foster the awareness of Open Access issues and has boosted interest in Open Archives and related technologies for a more effective dissemination of scholarly content.

Since the Messina Declaration 63 out of 77 Italian universities have signed the Berlin Declaration and the rest are expected to sign soon.[7]

By signing this Declaration these universities have committed themselves to achieving the goals set by the University of Southampton at the Berlin 3 Open Access Conference: a) to implement a policy to require their researchers to deposit a copy of all their published articles in an open access

repository, b) to encourage their researchers to publish their research articles in open access journals where a suitable journal exists and provide the support to enable that to happen.[8]

Current projects in favour of open access cover in Italy the following areas:

   a. Institutional repositories and disciplinary based repositories
   b. Infrastructure and services provided by supercomputing consortia
   c. Technology developed by research centres
   d. OA Journals
   e. Promotion & Advocacy

a. Institutional repositories and disciplinary based repositories

The implementation of Italian digital repositories is still at an early stage, but it is constantly growing. [9]
Generally speaking, in each university it is the library that usually takes the initiative to select, evaluate and install the institutional repository with the support of the ICT group. Therefore any attempts to gain the Rector's or the Senate approval, institutional repository planning, policy strategies, metadata creation, selection of a classification scheme, training, promotion, copyright help-desk are all handled by the library in cooperation with researchers and IT people.
The different types of digital content deposited include refereed e-pre-print/post print articles, conference proceedings, teaching material, doctoral theses, working papers, technical notes and in some cases digital objects related to cultural events held by the Universities (recordings of lectio magistralis, of the rector's academic year opening lecture, lectures held by experts from different fields, etc.). Presently 19 institutional archives are operational, and some others are still at the testing stage.. Some of these only contain a limited area of academic output (e.g. doctoral dissertations, such as the archives at the University of Padua and Rome "La Sapienza") or didactic material(the University of Parma, for example). A few others continued to contain more metadata than accessible full-text papers, though it is their intention to provide wider access to their academic output (University of Messina and SISSA). The European University Institute maintains an archive located in Italy, though strictly speaking it is not an Italian institution.
The most used OA software is Eprints, followed by Dspace and CDSware.
 While the number of institutional repositories is growing at a fast speed, the content deposited is not matching this growth . To encourage self-archiving some universities plan to link the allocation of funds to the deposition of material in the institutional archives.
The Senate of the University of Rome "La Sapienza", the largest Italian university, has made the deposition of doctoral theses in the institutional repository compulsory. Institutional repositories of research centres contain refereed pre-print/post print articles, conference proceedings, technical notes on their area of interest and they tend to be less multidisciplinary compared to university archives.

With reference to institutional repositories based on discipline, E-Lis on Library and Information Science is worth a mention. E-Lis is the first international e-server implemented in 2003 for the deposition of documents in Library and Information Science (LIS). It is hosted at CILEA, one of the three Italian interuniversity Supecomputing consortia. E-Lis relies on the voluntary work of Library and Information science experts from a wide range of backgrounds from 33 different countries. Presently over 2,800 papers have been archived. It accepts

published or unpublished documents in scientific or technical areas related to Library and Information Science in any language and format.[10]

b) Infrastructure and Services provided by supercomputing consortia

The two publicly funded interuniversity supercomputing consortia CASPUR, based in Rome, and CILEA, based in Milan, have developed, within the AEPIC project, a joint programme aimed at providing Italian universities with technical support for implementing and/or hosting open archives and OA journals creation. [11]

Within the framework of the AEPIC, CASPUR and CILEA have also been working on a project to implement an Italian national platform to provide central access to digital contents deposited in the Italian Open Archives. The platform, PLEIADI (stands for Portal for Italian Electronic Scholarly Literature in Institutional Archives), was launched at the Messina Conference . [12]

The goal of this initiative is to offer the Italian academic and research community solutions to some of the problems that are arising in the OA worldregarding locating and retrieving OA full text scholarly documents, the need for metadata harmonization, lack of awareness of existing OA data providers, as well as the need for better integration between OA and commercial resources. At the same time PLEIADI aims to promote awareness of OA issues in Italy, to contribute to the debate on OA and to the advancement of technical knowledge and expertise in this field by offering its forum as an arena for information exchange among the OA community members (from university and research centres policymakers, researchers, IT people, librarians, students, press, etc.).

The platform allows federated search on the different Italian open archives as long as they are OAI-PMH compliant. It also provides the end-user with a personalized environment offering several services of high interest to the researcher and to his/her work, and it aims at keeping the end-users abreast with what is going in the OA realm and contributing to his/her awareness and support of OA. Personalised services include users profile creation, alerting services, search and citations savings, personalized news services (news, forum, RSS).

Other services such as citation parsing, statistical information on search results and access to documents, export facilities to build individual and/ or institutional web pages for presentation or assessment and to build bibliographies will be implemented in the near future.

The PLEIADI platform is composed of a two-tiered architecture. Under the visible portal layer, there is a complex infrastructure of service providers.

PLEIADI offers a federated search interface and a series of user-centred services that supplement the platform offer. It is possible to identify several functional blocks in the portal architecture:

- a *search & retrieval area*, encompassing the Z39.50 connection with the *harvester* and a sorter module for retrieved documents. This area manages search performance in the Italian archives. Two search modules have been designed, simple and advanced, the latter encompassing different search fields, filtering functionalities, search results sorting, search history savings, search savings etc.
- a *personalized area*, comprising user's front-end, multi-language support and authentication/authorization system. This area represents the personalized environment where the user creates a personal profile, activates different features from language selection, alerting services related to News, FAQ, Forum, search savings, citation savings
- an *information area*, based on News, Forum and RSS blocks, together with FAQ, useful links and document sections. This area aims at collecting and disseminating information on OA issues, at the same time keeping track of and registering all Italian open archives.

- an **e-content** *management area*, with an intuitive *content management engine,* this area handles the all the website contents and web presentations through an intuitive and simple-to-use graphic interface.
- a *log & stats area*, for useful statistical information on search activities and access to documents in open archives. This area has not yet been implemented.

PLEIADI as a service provider performs a series of back-end activities designed to discover, retrieve, access Open Access content from all Italian Open Archives. Metadata related to OA content are harvested from institutional or disciplinary repositories (data providers), where they are deposited by authors according to their affiliation or scientific interest.

Once harvesting, filtering, harmonization and indexing activities have been performed, a new collective database becomes available and searchable via HTTP and Z39.50. Its availability through the Z39.50 interface enhances the opportunity for the OA content to be exposed and searched by the various federated searching tools. The Z39.50 interface allows the integration of open-access archives, journals with other information sources, such as the library catalogue and bibliographic references from databases and commercial publishers, that constitute the traditional core of information.
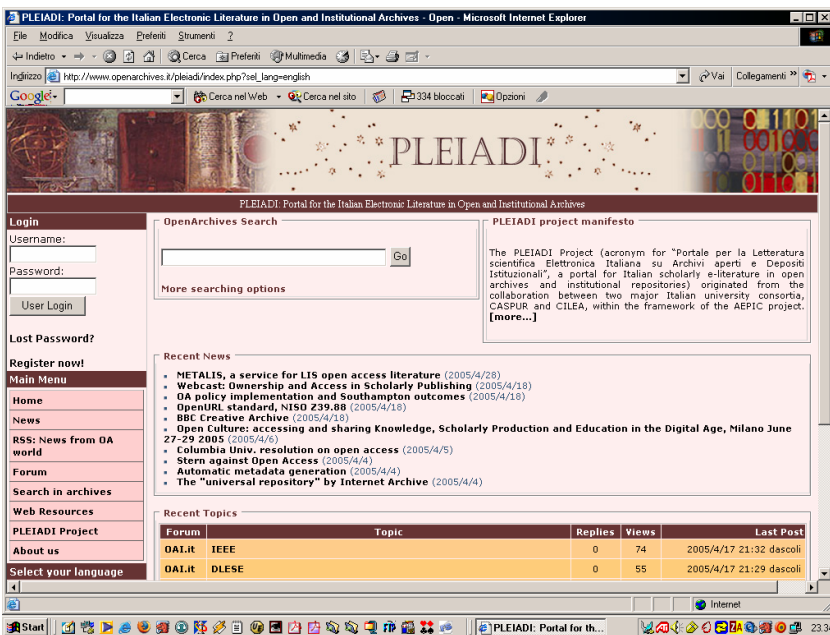

Fig.1 - PLEIADI home page

CILEA has also developed METALIS, a Service Provider for the Library and Information Science field, which collects metadata from institutions compliant to OAI-PMH standard, offering full-text papers   and   documents   about   Library   and   Information   Science.[13]
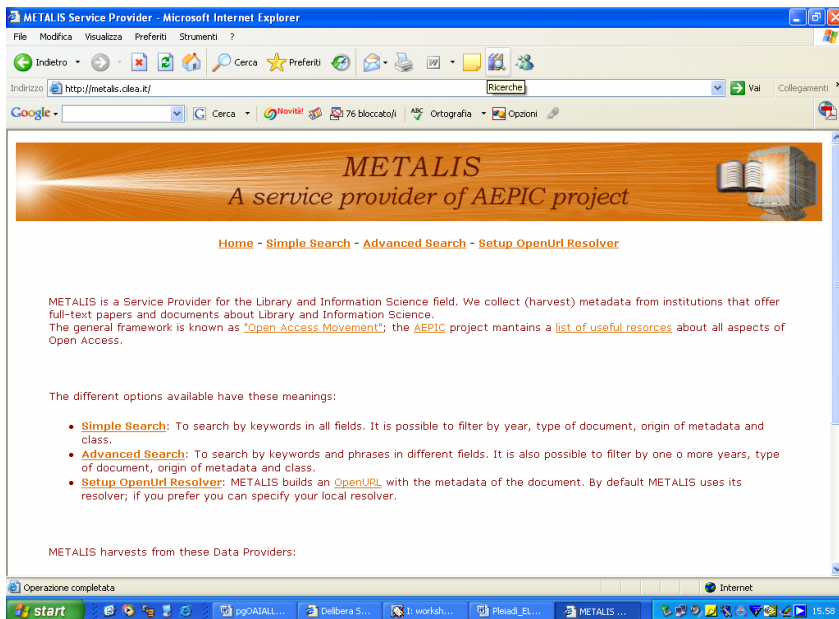
Fig. 2 Metalis home page

c)Services and technology developed by research centres

Some Italian research centres are also actively involved in developing services and programs in support of the academic and research community in a open community environment. In particular the CNR- Pisa has developed several services such as:

CYCLADES - an open collaborative virtual archive service environment to support both single scholars as well as scholarly communities in carrying out their work. It provides functionality to access large, heterogeneous, multidisciplinary archives distributed over the Web and to support remote collaboration among the members of communities of interest. [14]

OPENDLIB - a software toolkit to be used to create a digital library easily, according to the requirements of a given user community, by instantiating the software appropriately and then either loading or harvesting the content to be managed. OpenDLib consists of a federation of services that implement the digital library functionality making few assumptions about the nature of the documents to be stored and disseminated. [15]

 SCHOLNET- a software to build digital library infrastructure for supporting communication and collaboration among networked scholarly communities. In addition to the provision of standard digital library capabilities for information acquisition, description, archiving, access, search, and dissemination, this infrastructure will provide support for non-textual data types, hypermedia annotation, cross-language search and retrieval, and personalised information dissemination.
Scholnet will be compliant to OAI standard in its next version and it can be considered a web based open archive software. [16]

All these projects carried out by the CNR-PISA ended in 2002 or in 2003 and were financially supported by the EU.

 SISSA (International School for Advanced Studies) in Trieste developed Torii, a web environment that allows unified access to open archives of the scientific community and provides useful services such as full-text search, cognitive and collaborative filtering, storing in a personal folder, and autonomous citation extraction. This project too ended in 2003. [17]

The CNR- Bologna has developed "Sail Eprints Service Provider" an electronic open access service provider for finding scientific or technical documents, either published or unpublished, in Chemistry, Physics, Engineering, Materials Sciences, Nanotechnologies, Microelectronics,

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Computer Sciences, Astronomy, Astrophysics, Earth Sciences, Meteorology, Oceanography, Agriculture, and related application activities. SAIL-eprints has been designed primarily to collect information on scientific documents (metadata) authored by CNR researchers and deposited as preprints or postprints in CNR institutional open access archives.[18]

d) OA Journals

The need for a solid infrastructure for producing, promoting, and disseminating Italian culture electronically is strongly perceived.

Most of the scholarly publishing in Italy is managed by medium size commercial publishers and small publishing houses, both of which are financially supported by universities; therefore moving to the electronic version or even taking a further step and embrace Open Access should not be too difficult. For various reasons the situation is at standstill, or to be more precise, is very slow to change. [19]

A project called DAFNE was carried out by the Universities of Padua, Florence, and Bologna, and the Central National Library of Florence together with Casalini Libri and other partners to build an infrastructure for e-publishing. [20] The project ended in 2002. This infrastructure is currently used by the University of Padua to test the peer reviewing process using Zope, an open source CMS software.

Few universities run e-presses (University of Florence, University of Lecce, University of Bologna, Polytechnics of Milan and a few others) and mainly do so in cooperation with commercial publishers. Some of their journals are available Open Access.

In most universities electronic publishing is not centrally coordinated. Often single departments take the initiative to publish a journal electronically and make it available on the web.

Therefore there is an ungoverned presence of scholarly journals freely accessible on the web [21] Most of these journals cannot be considered OA according to the "standard definition" as they are not   compliant with OAI-MPH standards or to any other standard, peer reviewing is not always performed, generally authors do not retain copyright, the rights being transferred to the publisher and, furthermore, the technological infrastructure and technical quality of the journals are not exceptionally high.

However, there are some signs of change and new OA journals, compliant to OAI-MPH and to the BOAI definition of open access have begun to emerge in the last two years. [23]

Furthermore, recently the Dipartimento di Scienza della Politica/Department of Political Science of the University of Pisa has developed in collaboration with public and private sponsors an open source sw which handles the complete journal publishing process and it is fully compliant to OAI-MPH. This software is called "Hyperjournal". [24]

d) Promotion & Advocacy

To promote the OA movement in Italy, several conferences and workshops have been organized throughout the country since 2002 by CNR- Pisa, by CILEA, and numerous universities including Bologna, Parma, Florence, Rome La Sapienza and Milan . The milestone occasion was the Conference on Open Access (November 4-5 2004) organized by CRUI (The Council of the Italian Rectors), together with the University of Messina, which boosted a major interest in Open Archives.[25]

Important international documents on OA issues or initiatives are regularly translated into Italian, such as the SPARC publication, *Create a Change*, the Declaration of Berlin, the JISC Report on OA, etc.

 In some universities questionnaires were carried out to evaluate researchers' and professors' attitudes towards OA.

All the presentations delivered at conferences and articles published on OA issues, on SPARC, etc. in the Italian professional literature are deposited in the OA archive E-Lis. [26]

Several librarians and some researchers/professors are strongly involved in supporting and promoting OA in their own universities.

Conclusions

The Open Access movement in Italy is quite active on different fronts: from the implementation of institutional repositories to software and services development, from promotion and advocacy to publishing OA journals.

Definitively the support and the commitment made at the Conference of the Italian Rectors to implement open archives and to promote OA journals has given a major impetus to the movement. CRUI's next action should be to link the research assessment process to institutional archive deposition. This would persuade authors to deposit their referred pre-prints or post-prints in the archives.

We look forward to the success of OA in Italy as well as in the rest of the world as it is our opinion that it will contribute to the wider dissemination of scholarly content and to the progress of scientific knowledge worldwide.

Notes

[1] Budapest Open Access Initiative (BOAI), http://www.soros.org/openaccess, August 29th 2005

[2] Open Archive Initiative (OAI), http://www.openarchives.org/, August 29thl 2005

[3] OAI- PMH, http://www.openarchives.org/OAI/openarchivesprotocol, August 29th 2005

[4] Berlin Declaration on Open Access to Knowledge in Sciences and Humanities, http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html, August 29th 2005; Scottish Declaration on Open Access, http://scurl.ac.uk/WG/OATS/declaration.htm, August 29th 2005; Messina Declaration , http://www.aepic.it/conf/viewappendix.php?id=49&ap=1&cf=1

[5] Fiorello Cortiana a member of the Italian Parliament – Senate Committee on Public Education and Cultural Assets- is actively involved in supporting Open Source and Open Access Movement http://web.fiorellocortiana.it/html/ August 29th 2005

[6] Gli Atenei italiani per l'Open Access: verso l'accesso aperto alla letteratura di ricerca, Workshop, 4-5 November 2004, Università di Messina http://www.aepic.it/conf/index.php?cf=1, August 29th 2005

[7] List of Berlin Declaration Signatories http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html, August 29th 2005

[8] Berlin 3 Open Access: Progress in Implementing the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. Feb 28th - Mar 1st, 2005, University of Southampton, UK http://www.eprints.org/events/berlin3/outcomes.html

[9] The complete list of Italian open archives, http://www.openarchives.it/, August 29th 2005

[10] E-prints in Library and Information Science , http://eprints.rclis.org/ August 29th 2005

[11] Aepic- Academic Electronic Publishing Infrastructure CILEA - http://www.aepic.it/, August 29th 2005

[12] PLEIADI, http://www.openarchives.it/pleiadi , August 29th 2005

[13] METALIS, http://metalis.cilea.it/,August 29th 2005,

[14] CYCLADES , http://www.ercim.org/cyclades/, August 29th, 2005

[15] OPENDLIB, http://www.opendlib.com/area1/project.html, August 29th 2005,

[16] SCHOLNET, http://www.ercim.org/scholnet/, August 29th 2005,

[17] Torii, http://torii.sissa.it/, August 29th 2005,

[18] Sail Eprints Service Provider, http://eprints.bo.cnr.it/, August 29th 2005,

[19] Giuseppe Vitiello. "Il mercato delle riviste in Scienze umane e sociali in Italia " Biblioteche Oggi, 23, 1 (2005) 1 < http://www.bibliotecheoggi.it/2005/20050105601.pdf,> August 29th

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[20] DAFNE- http://www.bncf.net/dafne/, August 29th 2005,

[21] Osservatorio sull'Editoria Elettronica Italiana by Casalini, is trying to trace back all the e-journals published in Italy http://digital.casalini.it/osservatorio/, August 29th 2005,

 [22] List of OA journals, http://www.openarchives.it/pleiadi/modules/mylinks/viewcat.php?cid=28

 [23] Hyperjournal, http://www.hjournal.org/ August 29th, 2005

[24] List of events held in Italy. The list is currently updated http://www.openarchives.it/pleiadi/modules/mylinks/viewcat.php?cid=22, August 29th 2005,

[25] Bibliografia sulla comunicazione scientifica e sui periodici elettronici, editoria universitaria (Italian Bibliography on Scholarly Communication, Electronic Journals, Electronic Publishing) edited by Paola Gargiulo, http://www.uniciber.it/index.php?id=139, August 29th (in Italian)