



Scholarly Publishing & Open Access in Greece

2009 Report

Hellenic Academic Libraries Link HEAL-Link

Created by:
Panos Georgiou {panos@lis.upatras.gr}
Fiori Papadatou {fiori@lis.upatras.gr}
Library & Information Service,
University of Patras

Version 01/2009
Patras, 23/10/2009

CONTENTS

1	Introduction	3
2	Scholarly Publishing in Greece	4
2.1	Book publishing	4
2.2	E-books	5
2.3	Journals.....	5
3	OA in Greece: An overview.....	8
4	Open Access Journals	9
5	OA Books: A slow train coming	13
5.1	OA e-books	13
6	Repositories & Digital Collections	15
6.1	OA Institutional Repositories	15
6.2	Digital Collections.....	18
7	Harvesters & Registries	22
7.1	Directory of Greek digital resources	22
7.2	openarchives.gr	22
7.3	Greek Digital Resources in the global perspective.....	22
8	Publishing bodies & business models	24
9	Future challenges	24
10	Conclusions	25

1 Introduction

This report deals with the current status of Scholarly Communication and Open Access in Greece and in particular focuses on e-publications and related content available in digital format on the web.

Greek scientific and research community has always been “productive” in terms of publications of all kinds of types and formats: articles, monographs, book chapters, conference papers etc. Since the establishment of the Modern Greek state, about 150 years ago, several hundreds journals and magazines have been publishing the work of the Greek authors, researchers and scientists.

However, these published works represents only a small proportion of the total research output of the country, as the majority of these works was, and still is, being published in international journals.

This landscape remained rather unchanged until the end of '90s and the beginnings of 2000, when the improved telecommunication infrastructure and the considerable EC and national funding for related projects, escalated the process: new publications, adoption of peer review processes, new e-journals, online versions of printed titles, massive digitization of journals archives etc.

Although this evolutionary process took quite a long time to shape, this report states that during the last years the progress concerning scholarly communication and Open Access in the digital environment is accelerated.

This report has facilitated data and information from:

- [Directory of Greek Digital Resources](#), which has been developed and is operated by the [Library & Information Center of the University of Patras](#) (see paragraph 7.1)
- [National Book Center of Greece \(EKEBI\)](#),
- [openarchives.gr](#) OAI harvester (see paragraph 7.2)
- [ISI Web of Knowledge](#)
- [Scopus](#)
- [Ulrich's Web](#)

2 Scholarly Publishing in Greece

Scholarly publishing in Greece, as the following data shows, deals mainly with printed formats. Apart from a few pilot projects, there is practically no activity at all concerning e-book publishing, while on the other hand we notice a significant progress in journals e-publishing initiatives.

2.1 Book publishing

According to the National Book Center of Greece (EKEBI) data (Table 1), the Greek book market is still on a complete print environment. By scientific terms and criteria it is obviously oriented to Humanities and Literature, as titles in Natural & Applied Sciences represent a small proportion of the total production and actually seem to have a declining tendency.

Subject	2002	2003	2004	2005	2006	2007
Humanities*	2.037	2.077	2.223	2.290	2.422	2.421
Greek books	1.548	1.497	1.585	1.686	1.658	1.660
Translated books	489	580	638	604	764	761
Natural & Applied Sciences **	593	676	632	619	622	587
Greek books	351	462	401	408	351	291
Translated books	242	214	231	211	271	296
Literature	1.720	1.766	1.782	1.925	2.011	2.081
Greek books	942	978	952	1.078	1.071	1.091
Translated books	778	788	830	847	940	990
Children books	1.479	1.481	1.722	1.822	2.115	1.781
Greek books	553	552	617	558	677	657
Translated books	926	929	1.105	1.264	1.438	1.124
School & educational books	907	627	611	474	803	775
Greek books	879	612	593	451	797	762
Translated books	28	15	18	23	6	13
Art	420	451	571	537	686	726
Greek books	292	272	350	326	348	367
Translated books	128	179	221	211	338	359
Other ***	737	902	998	943	985	1.192
Greek books	417	421	570	488	514	652
Translated books	320	481	428	455	471	540
Total	7.893	7.980	8.539	8.610	9.644	9.563
Greek books	4.982	4.794	5.068	4.995	5.416	5.480
Translated books	2.911	3.186	3.471	3.615	4.228	4.083

Source: National Book Center of Greece (EKEBI), 2007

* Includes law, political & economical sciences, education

** Includes medicine

*** Travel guides maps, gastronomy, practical guides etc.

2.2 E-books

Currently only the following publishers have been reported to have developed online services for access to book content:

- Sakkoulas Publications - <http://www.poinikachronika.gr/>
- eBookShop platform - <http://www.e-bookshop.gr/>
- Kastaniotis Publications - <http://www.kastaniotis.com/multimedia/ebooks/>

All other cases concern digitized old historical books as part of wider digital collections with multiple types of material (see paragraph 5.1 below).

2.3 Journals

Taking as a starting point a past study carried out by students of the Department of Librarianship of the Technology Educational Institute of Thessaloniki, we began a deeper and more systematic study of the Greek Scholar Journals landscape. After the first systematic screening in March 2009, we concluded that a number of 250 journal titles can be considered as Scholarly titles or titles of a considerable scientific interest and importance to academics and researchers. This estimation was based upon criteria such as the content, the editorial team, the publishing body, the subject, the review policies, the publishing procedures and in some cases the history of the journal.

Getting further with our analysis since then, and after continuous monitoring, this number has currently been raised to a total of 313 journal titles. The analytical data gathered for each title helped us determine that a number of 135 journals currently adopt a clear stated peer review policy in article submission, editing and publishing processes. In Table 2 below we present an overview of these titles.

In Table 3 we present an analysis of the Publishing Body types of current peer review journals. It is obvious that the majority of journal titles are published by scientific and professional societies in the area of medicine.

The vast majority of the articles published by these titles are in Greek language, while English is the second most popular language used in some of these titles. Most of these journals are published in irregular basis, and within those which are circulated on a regular basis, the most common are semi annually and quarterly published. According to rough estimations for the last couple of years, more that 4.000 articles are published annually in these titles. To get a comparative picture, this number represents about 25-30% of the total number of articles published in international peer review journals by authors affiliated with Greek institutions, according to Web of Science and Scopus data (see Table 4 below)

Table 2. Greek "scientific" journals overview			
Subject	Total titles	Peer review titles	Titles in Digital format (full text)
Agriculture	1	-	1
Anthropology	11	2	-
Applied Sciences & Technology	11	8	5
Archaeology	6	2	-
Arts	3	-	-
Biology	9	9	7
Earth Sciences	4	4	3
Economics	12	7	7
Education	20	8	4
Environmental Sciences	6	4	3
History	13	8	5
Law	43	16	4
Librarianship	1	-	-
Literature	34	7	6
Mathematics	2	-	1
Medicine	85	59	41
Political Sciences	8	2	-
Social Sciences	28	16	9
Sports & Recreation	6	4	2
Theology	6	2	1
Veterinary Sciences	2	1	1
Total	311	159	100

Table 3. Peer review journals – Publishing bodies						
Subject	Peer review titles	Types of Publishing Bodies				
		Academic	National/ Government	Private	Research	Societies
Anthropology	2	-	-	-	1	1
Applied Sciences & Technology	8	3	1	-	-	4
Archaeology	2	-	-	-	1	1
Biology	9	2	-	1	3	3
Earth Sciences	4	2	-	-	-	2
Economics	7	5	-	1	-	1
Education	8	3	3	-	-	2
Environmental Sciences	4	1	-	2	1	-
History	8	-	-	2	4	2
Law	16	-	-	14	1	1
Literature	7	2	-	-	3	2
Medicine	59	2	1	4	1	51
Political Sciences	2	-	-	1	-	1
Social Sciences	16	2	2	4	2	6
Sports & Recreation	4	2	-	-	-	2
Theology	2	-	-	1	-	1
Veterinary Sciences	1	-	-	-	-	1
Total	159	24	7	30	17	81

Table 4. Articles by authors affiliated with Greece in International Peer Review Journals									
Source	Articles / Year								
WoS, 1/10/09	2008	2007	2006	2005	2004	2003	2002	2001	2000
Science & Technology	12.591	12.145	11.101	9.673	8.892	7.499	6.949	6293	5.847
Social Sciences	1.159	1.097	1.076	970	827	826	714	667	624
Arts & Humanities	127	117	112	77	89	94	92	101	89
TOTAL	13.877	13.359	12.289	10.720	9.808	8.419	7.755	7.061	6.560
Scopus, 1/10/09	2008	2007	2006	2005	2004	2003	2002	2001	2000
TOTAL	14.584	13.830	13.072	11.173	9.757	8.170	7.142	6.548	6.194

3 OA in Greece: An overview

As one may notice in the following paragraphs, although there is significant progress in Greece in the Open Access issues, which is mainly the result of the rapid evolution in the content management approach driven mainly by academic libraries during the last 5 years.

Nevertheless we ought to pay a tribute to pioneer digital efforts back in late '80s and early '90s, such as:

- The National Documentation Center (NDC) efforts with Journal Holdings Union Catalog , and the Online Catalogue of the National Archive of Print PhD Theses,
- The first Greek bibliographic databases ([NDC's ARGO suite of databases](#)¹, [IATROTEK](#)² κλπ)
- The first digital collection³, (practical the first Institutional Repository using Dienst Protocol) by the University of Crete back in 1997

However the most important progress of the Greek digital efforts materialized due to the EC funded National Projects for the development of new services in Greek Academic Libraries (1996-2000).

The following can be mentioned as the highlights of that period:

- the Greek libraries got the infrastructure and resources needed,
- the foundation of Hellenic Academic Libraries Link (HEAL-Link)
- the Greek Union Catalogue development
- the development of the first federated Digital Library system for Grey Literature (Artemis) using Dienst

The next boost came with the continuation of these programs for the next 8 years (2000-2008). During that period the majority of the digitization and indexing projects were carried out. Important developments of that period are:

- HEAL-Link's portal (2001)
- Zephyros, virtual Union Catalogue (2003)
- First Greek Signatory of the Berlin Declaration: National Hellenic Research Foundation (2003)
- Kosmopolis digital collection (2004), the first Greek OAI-PMH digital collection by the University of Patras
- First DSpace instance in Greece: Psepheda by the University of Macedonia (2004)
- First CDSware instance in Greece: Digital Collections of Aristotle University of Thessaloniki (2003)
- First OAI Harvester: [openarchives.gr](#)⁴
- Pilot version of the [Directory of Greek Digital Resources](#)⁵
- The University of Patras becomes the 4th Greek Signatory of the Berlin Declaration (2009) after University of Macedonia (2006) and Alexander Technological Educational Institute of Thessaloniki (2007)

¹ <http://argo.ekt.gr/>

² <http://www.iatrotek.org/>

³ <http://dlib.lib.uoc.gr/>

⁴ <http://www.openarchives.gr/>

⁵ http://www.lis.upatras.gr/Libworld/gr_resources_EL.php

4 Open Access Journals

If OA success was only a matter of raw numbers, and not also a matter of advanced services, publishing and editorial processes, and mostly a matter of compliance with open technologies and standards, the case of Greek scientific journals, would have been a success story.

In a total of 100 journal titles with online full text content, 80 of them are providing Open Access to their full text contents (see Table 5), while 70 of them are clearly stated as peer review journals. Just 6 months ago, during our last inventory, 65 titles with full text online have been reported while 55 of them OA!

The most interesting remarks from the analysis of the online and OA journal landscape in Tables 5-8 can be the following:

- Although less than a third of the total number of titles are exclusively e-publications, and all but one are Open Access journals, there is a balance between publication types since the same percentage of titles are published both in print and online. The rest 40% consists practically of Digital Archives of active journal titles.
- The majority ($\approx 40\%$) of the journals are published in the field of Medicine (mainly by related scientific Societies), with journals in the area of Natural & Applied Sciences accounting for a small number of titles.
- Overall, the various Societies seem to be more active in digital publishing, than other types of organizations, while at the same time they lead the race in pure e-journals publishing along with the academic institutions.
- Private publishing houses, although clearly they are still oriented to print & web publications, overall they hold a significant share of the total online market (23%). The most important fact is that they almost doubled their online publications (of any type) since last March (13 titles) and 8 of these titles are OA.
- Despite this ongoing progress, only 14 Greek journals are indexed in the Directory of Open Access Journals – DOAJ. A fact which brings into discussion the issue of promotion and sharing of content in a global perspective (see paragraph 7.3)

Do all the above prove that OA is a success? No doubt that there has been a huge progress, but there is still a long way to success, as there are essential aspects of OA where improvement is needed:

- still no compliance with open standards and technologies: OAI-PMH, metadata schemas, standardized software (like OJS), etc
- poor services for the users: search and retrieval, browsing by various fields, quality of the digital of digitization
- unspecified business models, which are essential for the viability of the publication
- unspecified short or long term preservation policies and practices

Table 5. Online Full Text Publication Types & Subjects

Subject	Online Full Text Titles		Publication Types														
			e-Journals				Journals in Print & Web				Journal Digital Archives						
	Total		Peer Review		Total		Peer Review		Total		Peer Review		Total		Peer Review		
	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	
Agriculture	1	0												1			
Applied Sciences & Technology	5	5	5	5	4	4	4	4						1	1	1	1
Biology	7	7	7	7	3	3	3	3	3	3	3	3	3	1	1	1	1
Earth Sciences	3	3	3	3					1	1	1	1	1	2	2	2	2
Economics	7	5	7	5	1	1	1	1	3	2	3	2	3	2	3	2	3
Education	4	4	4	4					1	1	1	1	3	3	3	3	3
Environmental Sciences	3	3	3	3	2	2	2	2					1	1	1	1	1
History	5	4	5	4	2	2	2	2	3	2	3	2					
Law	4	0	3	0					4		3						
Literature	6	6	1	1	1	1	1	1					5	5			
Mathematics	1	1											1	1			
Medicine	41	32	38	30	11	11	11	11	14	11	14	11	16	10	13	8	8
Social Sciences	9	7	7	6	2	1	1	1	2	1	1		5	5	5	5	5
Sports & Recreation	2	2	2	2	2	2	2	2									
Theology	1	1											1	1			
Veterinary Sciences	1	0	1	0					1		1						
Total	100	80	86	70	28	27	27	27	32	21	30	20	40	32	29	23	

Table 6. Online Full Text Publication Types & Publishing Body Types

Publication Type	Publishing Body Types																				
	Academics				National – Government				Private				Research				Societies				Total
	Total		Peer Review		Total		Peer Review		Total		Peer Review		Total		Peer Review		Total		Peer Review		
	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	
e-journals	10	10	10	10	1	1	1	1	4	3	3	3	4	4	4	4	9	9	9	9	28
Print & Web	2	2	2	2	1	1	1	1	10	5	8	4	4	3	4	3	15	10	15	10	32
Archives	3	2	3	2	3	3	3	3	9	8	1	1	3	2	3	2	22	17	19	15	40
Total	15	14	15	14	5	5	5	5	23	16	12	8	11	9	11	9	46	36	43	34	100

Table 7. Online Full Text Journals Subjects & Publishing Bodies Types																					
Subject	Publishing Body Types																				Total
	Academics				National – Government				Private				Research				Societies				
	Total		Peer Review		Total		Peer Review		Total		Peer Review		Total		Peer Review		Total		Peer Review		
	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	Total	OA	
Agriculture									1												1
Appl.Sciences & Technology	3	3	3	3	1	1	1	1									1	1	1	1	5
Biology	2	2	2	2					1	1	1	1	3	3	3	3	1	1	1	1	7
Earth Sciences	1	1	1	1													2	2	2	2	3
Economics	5	4	5	4					1	1	1	1					1		1		7
Education					3	3	3	3									1	1	1	1	4
Environ, Sciences	1	1	1	1					1	1	1	1	1	1	1	1					3
History									1		1		3	3	3	3	1	1	1	1	5
Law									4		3										4
Literature									5	5			1	1	1	1					6
Mathematics																	1	1			1
Medicine	2	2	2	2					4	4	3	3	1		1		34	26	32	25	41
Social Sciences					1	1	1	1	4	3	2	2	2	1	2	1	2	2	2	2	9
Sports & Recreation	1	1	1	1													1	1	1	1	2
Theology									1	1											1
Veterinary Sciences																	1		1		1
Total	15	14	15	14	5	5	5	5	23	16	12	8	11	9	11	9	46	36	43	34	100

Table 8. Greek OA e-journals in DOAJ*		
No	Journal Title	Publishing Body
1	Biology of Exercise	University of Pelopponisos
2	Cancer Therapy	Cancer Therapy
3	e-Journal of Science & Technology, (e-JST)	Technological Educational Institute of Athens
4	e-Perimtron	Academy of Athens
5	Gastric & Breast Cancer	University of Ioannina
6	Hellenic Open University Journal of Informatics	Hellenic Open University
7	Intellectum	INTELLECTUM
8	Journal of Biological Research (JBR)	Aristotle University of Thessalonica
9	Journal of Engineering Science and Technology Review	Technological Educational Institute of Kavala
10	Mediterranean Marine Science Journal	Hellenic Marine Research Center
11	Tourismos	Aegean Unviversity
12	Inquiries in Sport & Physical Education	Hellenic Academy of Physical Education
13	To Vima tou Asklipiou	Technological Educational Institute of Athens
14	Choregia	University of Pelopponisos

* All peer review titles

5 OA Books: A slow train coming

5.1 OA e-books

As far as private bodies are concerned, only two cases are reported that provide total or partial OA to the content of their current publications:

- eBookShop platform - <http://www.e-bookshop.gr/> (partially)
- John S. Latsis Public benefit Foundation – Electronic Library <http://www.latsis-foundation.org/ldlib/books.aspx?cat=1> (totally)

Other OA books initiatives mainly concern project oriented initiatives of public, academic, research and non for profit institutions. Furthermore in most of these cases OA book content is part of a wider digital collection that often hosts other material as well. In the following table some of these cases are presented:

Table 9. OA Digital Collections with Books		
No	Collection Title	Publishing Body
1	Agioritiki Mnimi	Holly Monastery of Simonos Petras, Agio Oros
2	ATHENA – Proceedings of the Academy of Athens	National Documentation Center
3	Anacharsis	University of Crete
4	Greek Revolution Archives 1821-1832	Greek Parliament
5	Athens School of Fine Arts – Digital Library	Athens School of Fine Arts
6	National Archive of PhD Theses	National Documentation Center
7	Greek Digital Bibliography 15th-20th	University of Crete
8	Ellinomnimon	University of Athens
9	Greek Language Thesaurus	Greek Language Thesaurus
10	National Technical University of Athens – Historical Library	National Technical University of Athens
11	Historical Archive of the University of Athens	University of Athens
12	Catalogues of Manuscript Codes	National Library of Greece
13	Marcos Mousouros	University of Crete
14	Neoellinistis	University of Crete
15	Digital Collections of the Holly Metropolis of Thessalonica	Holly Metropolis of Thessalonica
16	Collections of the Foundation for Aimos Peninsula Studies	Foundation for Aimos Peninsula Studies
17	Ioannis Trikoglou Collection	Aristotelio University of Thessalonica
18	Rare Books Collection of the History & Documentation Center of Volos	Rare Books Collection of the History & Documentation Center of Volos
19	Digital Library of Greek Mathematical Society	Library of Greek Mathematical Society
20	Digital Library of the Research Laboratory of Greek Philosophy	University of Ioannina
21	Rare Books Collection of the University of Ioannina	University of Ioannina
22	Digital Archive of the Holly Metropolis of Arta	Holly Metropolis of Arta
23	Digital Archive of the Holly Metropolis of Ioannina	Holly Metropolis of Ioannina

6 Repositories & Digital Collections

6.1 OA Institutional Repositories

Usually an Institutional Repository (IR), is defined as such, by content criteria. A pure IR, if we could say so, would host, manage, preserve and provide access to the whole research output of the institution, namely: PhD and related postgraduate theses and dissertations, reports, data sets, and most important specific versions of institution's staff publications.

Since the software platforms widely used for these purposes (Dspace, CDS Invenio, Fedora, Eprints etc), could also handle more types of content, it is more common these days for an IR to host different kinds of collections with different types of content. In most cases these collections consist of journals archives, the institution's historical archives, and all kinds of special collections that the institution may have in its possession. Taking all these into account you can hardly distinguish a pure IR anymore.

This is also the case for the Greek IRs. In most of the cases the IR platforms are being used to host and handle multiple types of collections: grey literature, archives, journal archives, multimedia collections etc. Although this is not an essential issue, is certainly an issue when it comes to specific search and retrieval needs of the end user: along with the research output of the institution's faculty on e.g. water treatment, one might get also a picture of the Minister of Environmental affairs visiting the waste water treatment plant of the institution!

In any case formal OAI IRs are growing rapidly among Academic Institutions as 15 out of a total of 16 IRS are in operation in the country. In other words 15 out of the total 33 Academic Institutions run their own OAI IRs while 2 more run a non OAI-PMH compliant IR, based on custom/commercial applications and finally 2 more keep operating their "IR" on an obsolete Dienst platform. Concerning the rest of the Academic Institutions, some are already in a transition phase to a new OAI IR, some are rather newly established institutions and they hardly have any data/content at all, and some are very small ones with limited resources to develop and maintain such a service.

Another significant issue is the absence of Research Centers IRs in the relevant list where only **Helios**, the IR of the National Hellenic Research Foundation is listed. Out of a total of another 14 Research Centers nationally, there is no reported activity on management and preservation of their research output.

Table 10. Greek Institutional Repositories

No	Title	Organization	Content	Software	Items*
1	Bibliotheca	Technological Educational Institute of Crete	Grey Literature	-	3000
2	E-Locus	University of Crete	Grey Literature, Archives	Keystone	3000
3	EPRINTS server of the Computational Systems & Software Engineering Laboratory	University of Macedonia	Grey Literature	Eprints	43
4	Anaktisi	Technological Educational Institute of Western Macedonia	Grey Literature	Eprints	43
5	Grey Literature of the Aegean University	Aegean University	Grey Literature	Custom/ Commercial	..**
6	Σφάλμα! Η αναφορά της υπερ-σύνδεσης δεν είναι έγκυρη.	Technological Educational Institute of Serres	Grey Literature	Dienst	..**
7	AUTH Digital Collections	Aristotle University of Thessaloniki	Grey Literature, Archives, Special Collections	CDS Invenio	111227
8	Estia - Digital Repository of Harokopio University	Harokopio University of Athens	Grey Literature	Dspace	817
9	Eureka!	Technological Educational Institute of Thessaloniki	Grey Literature, Archives, Journals Articles	Dspace	1049
10	Helios: Repository of the National Hellenic Research Foundation	National Hellenic Research Foundation	Grey Literature	Dspace	3825
11	Psepheda	University of Macedonia	Grey Literature, Archives, Journals Articles, Special Collections	Dspace	11460
12	DSpace at NTUA	National Technical University of Athens	Grey Literature, Archives, Journals Articles, Special Collections	Dspace	2729
13	Dpt of Electrical & Computer Engineering: Repository	Aristotle University of Thessaloniki	Grey Literature	Eprints	392
14	Ktisis - Institutional Repository	Technological University of Cyprus	Grey Literature	Dspace	1523
15	Nemertes - Institutional Repository	University of Patras	Grey Literature	Dspace	1694
16	Pandemos	Panteion University of Athens	Grey Literature, Archives, Journals Articles	Dspace	1126
17	Grey Literature of Democritus University of Thrace	Democritus University of Thrace	Grey Literature	Dienst	..**
18	Grey Literature of Technical University of Crete	Technical University of Crete	Grey Literature	Dienst	..**
19	Digital Library of the University of Piraeus	University of Piraeus	Grey Literature, Archives, Journals Articles	Dspace	2804
20	Digital Library of the University of Ioannina	University of Ioannina	Grey Literature, Archives, Journals Articles	Dspace	3902
21	Pergamos Digital Library	University of Athens	Grey Literature, Archives, Special Collections	Fedora / Pergamos	116303
Total Items					264937

* Statistics Source: openarchives.gr (October 2009)

** Not possible to gather data on time for the purposes of this report – Not OAI-PMH sources

6.2 Digital Collections

Along with online journals and IRs there was significant progress during the last years concerning the overall digital resources development in Greece, mainly thanks to EU and National funding projects. According to current data of the Directory of Greek Digital Resources (see paragraph 7.1) there are more than 200 active resources, including e-journals, journals archives and IRs.

Taking into consideration the previous argument on the IR definition (see paragraph 6.1), among these registered resources there is a significant number of OAI compliant digital collections (Table 11) with about 180.000 additional documents. Thus the total number of documents in all OAI digital collections rises up to 444.000.

Furthermore the Directory of Greek Digital Resources records a considerable number of non OAI-PMH compliant Digital Collections, with unfortunately no current data on number of documents of each collection. A comprehensive list of these resources is presented on Table 12.

Table 11. OAI-PMH compliant Digital Collections

No	Title	Organization	Content	Software	Items*
1	Review of Economic Sciences	Technological Educational Institute of Epirus	Journal Archive	Dspace	130
2	Archives of the American Farm School of Thessaloniki	American Farm School of Thessaloniki	Archives	Dspace	100
3	Pandektis: Digital Thesaurus of Primary Sources for Greek History & Culture	National Hellenic Research Foundation	Archives	Dspace	35228
4	Spoudai	University of Piraeus	Journal Archive	Dspace	630
5	SCHERIA Digital Library	Technical Chamber of Greece-Corfu Dpt.	Repository	Dspace	92
6	Annals of Gastroenterology	Hellenic Society of Gastroenterology	E-Journal	OJS	240
7	Hellenic Open University Journal of Informatics	Hellenic Open University	E-Journal	OJS	11
8	Historical Review, The	Institute for Neohellenic Research	E-Journal	OJS	69
9	Byzantina Symmeikta	Institute for Byzantine Research	E-Journal	OJS	271
10	Dexameni	University of Patras	Journals Archive	OJS	488
11	Journals Articles Index	Technological Educational Institute of Serres	Database	OJS	2302
12	Theofrastos Digital Library	Aristotle University of Thessaloniki	Journals Archive	OJS	3333
13	Kosmopolis	University of Patras	Journals Archive	OJS	50576
14	Pleias	University of Patras	Journals Archive	OJS	66346
15	Tekmeria	Institute of Greek and Roman Antiquity	E-Journal	OJS	107
16	Research Notebooks	Institute for Neohellenic Research	E-Journal	OJS	69
17	Daniilida	University of Patras	Bibliographies, Archives, Books, Journal Articles	OJS	2951
18	Anemi Digital Library of Modern Greek Studies	University of Crete	Ψηφιακές συλλογές	Keystone	15061
19	Argolikos Archival Library of History and Culture	Argolikos Archival Library of History and Culture	Archives	WordPress	1061
Total items					179065

* Statistics Source: openarchives.gr (October 2009)

Table 12. Non OAI-PMH Digital Collections*		
No	Title	Organization
1	e-Alexandria	Compupress S.A.
2	e-phemeris: Newspapers and Magazines	National Library of Greece
3	STUDIO - parallel circuit: Digital Colelctions	STUDIO - parallel circuit
4	Athos Memory	Holy Monastery of Simonos Petras
5	ATHENA – Proceedings of the Academy of Athens	National Documentation Center
6	Anna Komnene	European Center of Byzantine and Post-Byzantine Monuments
7	Archives of Anatomic Pathology	Hellenic Society of Anatomic Pathology
8	Archives of the Greek Revolutation	Greek Parliament
9	Rare Books Collection of the History & Documentation Center of Volos	Rare Books Collection of the History & Documentation Center of Volos
10	Kavafis Archive	Center for Neo-Hellenic Studies
11	Council of Historical Memory of the Liberation Struggle of EOKA 1955-1959 (SIMAE)	University of Cyprus
12	Digital Library of Athens School of Fine Arts	Athens School of Fine Arts
13	ikelea Municipal Library	Bikelea Municipal Library
14	National Gallery of Greece	National Gallery of Greece
15	Hellenic Ph.D. Dissertations Thesis	National Documentation Center
16	Ellinomnimon	University of Athens
17	Proceedings of the Philosophical Schools of the University of Athens and the University of Thessaloniki 1925-1997	National Library of Greece
18	Digital Library of the John S. Latsis Public Benefit Foundation	John S. Latsis Public Benefit Foundation
19	Greek Language Thesaurus	Greek Language Thesaurus
20	Thrace, the land of Orpheus	Democritus University Of Thrace
21	The Historical and Palaeographical Archive	Cultural Foundation of the National Bank of Greece
22	Catalogues of Manuscript Codes	National Library of Greece
23	Refugees' Ark	Cultural Center of Thrace
24	Koitida	Municipal of Nafplion
25	Critics of Theatre & Music	Society of Greek Theatre and Music Critics
26	Press Museum of Patras	Association of Peloponnisos, Epirus and Ionian Islands Newspaper Editors
27	Audiovisual Archive of the Greek Radio-Television	Greek Radio-Television (ERT)
28	Proceedings of the Hellenic Academic Libraries Conferences	University of Cyprus
29	Gallery of Athens School of Fine Arts	Athens School of Fine Arts
30	E. Averof Gallery	E. Averof-Tositsa Foundation
31	Digital Collections of the Holly Metropolis of Thessalinica	Holly Metropolis of Thessalonica
32	Culrtural Deposit of the State Conservatory of Thessaloniki	State Conservatory of Thessaloniki
33	Collections of the Foundation for Aimos Peninsula Studies	Foundation for Aimos Peninsula Studies
34	Digital Collections of Center for Greek Theater Research and Studies	Center for Greek Theater Research and Studies

35	Digital Collections of State Museum of Modern Art	State Museum of Modern Art
36	Digital Collection of Macedonian Museum of Modern Art	Macedonian Museum of Modern Art
37	Collection of Museum of Cycladic Art	Museum of Cycladic Art
38	Collections of Benaki Museum	Benaki Museum
39	Collections of Museum of the City of Athens	Museum of the City of Athens
40	Collection of Giannis Tsarouxis Foundation	Giannis Tsarouxis Foundation
41	Collection of Arts Life -ELIA	Hellenic Literature & Historical Archive (ELIA)
42	Card Postal Collection - ELIA	Hellenic Literature & Historical Archive (ELIA)
43	Press Collection - ELIA	Hellenic Literature & Historical Archive (ELIA)
44	Photographic Archive - ELIA	Hellenic Literature & Historical Archive (ELIA)
45	Photographic Archive of ASKI	Archives of Temporary Social History (ASKI)
46	Digital Library of the Greek Mathematical Society	Greek Mathematical Society
47	Digital Library of the Research Laboratory of Greek Philosophy	University of Ioannina
48	Historical Manuscripts Digital Library	Vikelea Municipal Library of Herakleion
49	Digital Library of the Technical Chambers of Greece Library	Technical Chambers of Greece
50	Digital Crete: Archaeological Atlas of Crete	Foundation for Research and Technology
51	Digital Crete: Venecian Period - Sculpture A	Foundation for Research and Technology (ITE)
52	Digital Crete: Venecian Period - Sculpture B	Foundation for Research and Technology (ITE)
53	Digital Library of Glinos Institution	Glinos Institution
54	Digital Collection of Photography Museum of Thessaloniki	Photography Museum of Thessaloniki
55	Digital Maps	University of the Aegean
56	Digital Deposit of the Greek Cinemateque and Cinema Museum	Greek Film Archive Foundation
57	Digital Archive of the Greek democratic Army: the Greek Civil War (1946-1949)	Archives of Temporary Social History (ASKI)
58	Digital Archive of National Opera of Greece	National Opera of Greece
59	Eleftherios Venizelos Digital Archive	National Research Center Eleftherios Venizelos
60	Digital Archive of the Holly Metropolis of Arta	Holly Metropolis of Arta
61	Digital Archive of the Holly Metropolis of Ioannina	Holly Metropolis of Ioannina
62	Digital Archive of Michalis Papagiannakis	Archives of Temporary Social History (ASKI)
63	Digital Archives of ASKI	Archives of Temporary Social History (ASKI)
64	Digital Archive of Greek Music	Association of "Friends of Music"
65	Digital Byzantine Music - Konstantinos Prigos Archive	Church of Greece

* Source: Directory of Greek Digital Resources (October 2009)

7 Harvesters & Registries

7.1 *Directory of Greek digital resources*

The Directory is an initiative of the Library & Information Center of the University of Patras, and runs in a pilot version since February 2008 at: http://www.lis.upatras.gr/Libworld/gr_resources_EL.php

The directory aims to be the unique access point of useful information to all scholarly and related Greek digital resources available on the web

- by continuous monitoring and record of all resources: content, access policies etc
- by recording and analysing all basic functional information and parameters for each resource: services, technologies, standards, protocols, business models etc

The directory collects data from the following types of resource:

- Bibliographical databases
 - o Library catalogs, Bibliographies, Journal articles
- Digital Collections
 - o journals archives, books, texts & articles collections, images & multimedia collections
- Institutional Repositories
 - o Grey Literature, Publications, Educational material, Archives
- E-journals (fully e-published)
- Experimental & Research data collections

7.2 *openarchives.gr*

openarchives.gr is a "private" OAI Harvester. It is the first and currently the only Greek harvester, collecting data from 38 resources in Greece and Cyprus.

7.3 *Greek Digital Resources in the global perspective*

Like many others around the world, we strongly believe that one of the key issues for the success of the various OA initiatives is to get the full benefits that OA offers from a political as well as from a technological point of view.

In simple words we think that every OA collection, especially in the case of small countries like Greece, "ought" to take advantage of the unique promotion and data search & retrieval opportunities that the various OA registries, OAI Harvesters and aggregators offer now days.

The increase of access and use of the 'OA collections' from a global target group is a critical issue for the viability of each collection.

Taking this into account, one of our team's tasks is the continuous monitoring of the most important Registries and Harvesters worldwide, for registered Greek resources in order to get a view about the publicity and possible impact the Greek resources have in the global community. Such data from the most famous international registries and harvesters is presented in the following Table 13.

No	Collection	OAIster	BASE	Scientific Commons	ROAR	Open DOAR	Europeana	DRIVER
1	Anaktisi Institutional Repository of TEI of Western Macedonia		x	x	x			
2	Anemi Digital Library of Modern Greek Studies				x			
3	Aristotle University of Thessaloniki Document Server	x	x	x	x	x		x
4	Aristotle University of Thessaloniki, Department of Electrical and Computer Engineering: Repository		x					
5	Bulletin of the Geological Society of Greece	x						
6	Computational Systems and Software Engineering Laboratory - University of Macedonia				x			
7	Dexameni - University of Patras		x		x			
8	DSpace at NTUA				x	x		
9	Educational Repository at the University of Patras	x	x		x	x		
10	Elocus - Institutional Repository of the University of Crete Library			x				
11	ESTIA - Harokopio University of Athens				x	x		
12	Eureka! Technological Educational Institute of Thessaloniki	x	x	x	x	x		
13	Helios (National Hellenic Research Foundation)		x		x	x		x
14	Kosmopolis - University of Patras	x	x		x	x	x	
15	Nemertes - University of Patras	x	x	x				
16	Pandektis - Major digital collections of Greek history and culture				x			
17	Pandemos				x			
18	Pleias - University of Patras	x	x		x			
19	Psepheda - Digital Library & Institutional Repository University of Macedonia	x	x	x	x	x		
20	University of Piraeus Library				x			
21	Ktisis - Institutional Repository of the Technological University of Cyprus							x

8 Publishing bodies & business models

The major players in OA publishing are currently the various scientific and professional societies with the academic and research institutions following in distance.

Private & traditional publishers are not yet strong players in e-publishing and even less in OA publications. Still it seems that they are falling into pace day after day. Important issues for that can be considered:

- Lack of cost analysis efforts and tools to compare e-publishing vs. traditional publishing models. Apart the Medical and Law fields, scientific publications, either books or journals, account for a small income to publishing companies in general.
- a series of psychological (fear for the unknown and not to lose the few subscribers and the subsequent small income), technological and funding barriers

Regarding OA publishing by private bodies and publishers, it is rather early to reach any secure conclusion for the future, as the Greek market is not really a significant one and further studies must be carried out in the near future on the OA business models than might be adopted by the Greek Publishers.

Public funding and sponsoring are the main funding sources while membership and advertisements are also sources of income in the case of Societies journals. On the other hand subscriptions, where applicable in OA journals, concern obviously the print version of the journal and they are not a considerable source of income

9 Future challenges

What is it expected in the near future in Greece can be summarized as follows:

- Spin off cases from previous projects
- New opportunities from new projects:
 - "Digital convergence" EC and national funding
 - o Digitization, Indexing and Digital Storage of old and current Greek journals
 - o More academic e-publishing initiatives. We expect to see important collaboration schemes between the academics and the private publishers and/or information services providers.
 - o OA e-books projects initiated mainly by academic institutions
 - Libraries' specific projects focused on University Press OA Publications, National OAI Harvester, CRIS tools, New Federated Search and Retrieval Tools, Web 2.0 applications etc.
- More e-publications from publishers mainly in the area of e-books. Adoption of new (to Greek situation/tradition) access and business models.

10 Conclusions

Today 20 out of the 33 academic institutions in Greece operate an IR. The academic institutions that do not have an IR are either very small or recently established.

Most IRs host not only the scientific publications of the academic institutions but also journal archives, digitized special collections of the institution etc.

There are 28 e-journals most of them published either by academic institutions or by societies and in their majority the journals are OA. Another 32 journals are published societies in both print and electronic format by societies, where the electronic version is OA. There are further 40 digital journal archives and again most of them are OA.

For all the progress of the last few years in OA publishing in Greece, there is still a long way to go in improving the provided services, the sustainability and preservation of the content and the cooperation of public and private sector. The small involvement of the private sector in these activities is due to the very small market and pilot projects and studies should be carried out in the future.