

# 6

## OPEN ACCESS IN PORTUGAL

*Ricardo Saraiva, Eloy Rodrigues*

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### 6.1 INTRODUCTION/BACKGROUND

In the terms of one of the most important declarations of the open access (OA) movement, the Budapest Open Access Initiative (BOAI),

“An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds. Removing access barriers to this literature will accelerate research, enrich education (...).”<sup>16</sup>

According to BOAI, OA can be achieved by two complementary ways or means. The first one, usually called “gold OA”, is open access journals that do not use subscription or access fees and copyright to restrict access to the articles they publish. The second one, usually called “green OA”, is self-archiving a copy of journal articles in open access repositories.

In brief, open access advocates the free dissemination on the Internet of scholarly literature, allowing anyone to read, download, copy, distribute, print, search or reference the full text of documents.

<sup>16</sup> Budapest Open Access Initiative (2002). (<http://www.soros.org/openaccess/read.shtml>). [Accessed: 31/05/2010].

As in many other countries, open access initiatives in Portugal are relatively new (see section Evolution of open access in Portugal), with the first initiatives dating from 2003, but only getting general attention after 2006. On top of the factors that are common to most countries, the slow uptake of the open access agenda in Portugal can also be explained by the particular conditions and situation of portuguese research and publications.

In fact, Portugal hadn't a strong scientific tradition and infrastructure before the end of the last millennium. The number of researchers and the number of publications, especially in international peer-reviewed journals, was very small until recently. Just as an illustration, the number of Portuguese articles per year referenced on ISI databases was under 1,000 until 1990 and only after 2003 the number is bigger than 5,000 (see table 6.1).

The structural setback of the Portuguese science and the significant efforts made by Portugal to modernize its scientific system and higher education since the mid-1990s can also be confirmed by the growth rate in the number of publications since 2000, which was one of the biggest of the European Union (see figure 6.1).

*Table 6.1. Number\* of Portuguese scientific*

	1990	1991	1992	1993	1994	1995	1996	1997	1998
<b>[1] Publications in non classified journals</b>	13	12	2	4	5	4	6	1	4
Exact Sciences	343	415	427	521	575	600	713	870	925
Natural Sciences	192	205	256	286	322	401	402	552	630
Engineering & Technology Sciences	148	148	199	185	229	306	353	385	477
Ciências Médicas e da Saúde	205	214	286	315	388	494	462	558	602
Agriculture Sciences	26	20	36	33	63	73	89	94	132
Social Sciences	30	27	53	48	48	63	90	53	75
Humanities	9	23	18	18	35	18	27	22	22
<b>[2] Publications in multi-disciplinary journals</b>	5	4	1	6	5	7	10	3	17
<b>Publications Total [1] + [2]</b>	<b>970</b>	<b>1,068</b>	<b>1,277</b>	<b>1,415</b>	<b>1,669</b>	<b>1,966</b>	<b>2,152</b>	<b>2,538</b>	<b>2,883</b>

Source: GPEARI - Gabinete de Planeamento, Estratégia, Avaliação e Relações Internacionais / Ministério da Ciência, Tecnologia e Ensino Superior

\* Finding done by the method of fractional counting from: Thomson Reuters, National Citation Report for Portugal 1981/2008

\*\* Provisional figures

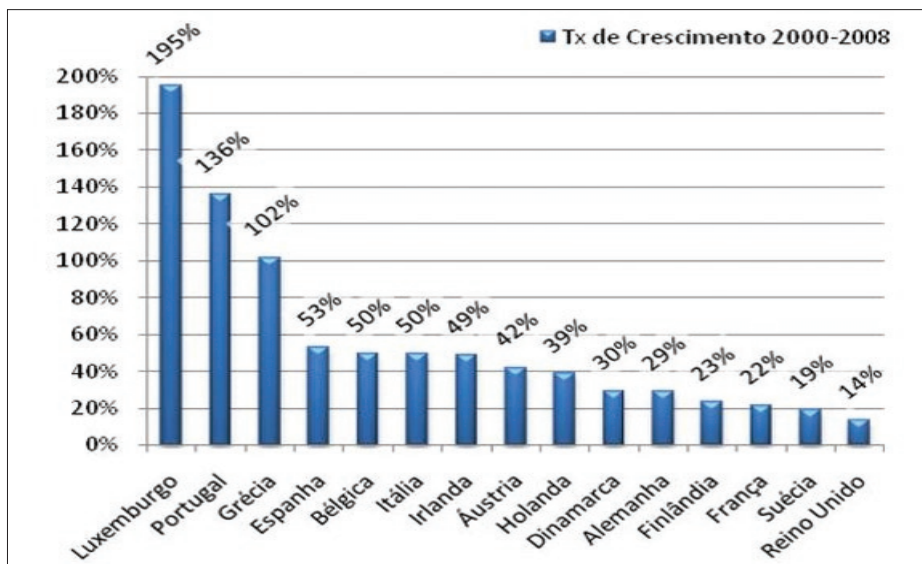


Figure 6.1. Number of publications growth rate, by European Union countries and per million of inhabitants, between 2000 and 2008 (Source GPEARI)

publications by scientific area

NCR 1981-2008										Total
1999	2000	2001	2002	2003	2004	2005	2006	2007	2008**	
9	1	1		1	2	1	1	5	1	73
1,184	1,279	1,489	1,482	1,827	1,943	2,086	2,341	2,134	2,191	23,347
725	742	900	999	1,060	1,221	1,379	1,725	1,936	1,965	15,894
547	621	638	818	775	1,115	1,013	1,403	1,158	1,250	11,767
809	782	762	1,064	1,143	1,285	1,447	1,837	2,051	2,110	16,814
122	147	167	200	222	212	236	332	367	389	2,959
86	166	122	131	148	185	227	289	326	340	2,507
40	50	33	35	29	30	33	42	56	51	588
4	5	4	21	16	12	13	32	18	34	214
3,525	3,792	4,115	4,748	5,221	6,005	6,435	8,002	8,051	8,331	74,163

On the other hand, library collections, especially journal collections, were very scarce and insufficient (the average number of subscribed journals on academic libraries was around 1,000 in 2003). The creation of the national journal subscription consortium B-on - Online Knowledge Library,<sup>17</sup> in 2004, dramatically improved the accessibility of scientific journals in Portugal, and eased the access problem to Portuguese libraries and researchers.

Finally, despite the fact that several hundred scientific related publications were published in Portugal in the last decades, there is no really strong tradition of scholarly journals. Most of the publications are connected with scientific societies, many of them have no periodicity, or have severe problems complying with announced periodicity, and some have no real peer-review process. So, if the criteria of periodicity and peer-review are strictly applied, the number of Portuguese scholarly journals published in the last two decades will be probably under 100.

All this contextual background (limited dimension of research and research output, small number of scholarly journals and increased access to scientific literature after 2004) must be taken into account on the analysis of the Portuguese situation.

## 6.2 EVOLUTION OF OPEN ACCESS IN PORTUGAL

In Portugal, the development of open access has been mostly carried out by the universities, who have taken different initiatives to further promote access to research information. The first Portuguese open access initiatives were initiated by the University of Minho with the creation of RepositóriUM,<sup>18</sup> its institutional repository which was publicly presented in November 2003. One year later, in November 2004, as a symbolic act to celebrate the university's institutional repository first anniversary, the rector of University of Minho formally signed the Berlin Declaration.<sup>19</sup>

At the same time, a world pioneering institutional self-archiving policy was established (December 2004) and was implemented in January 2005. Some months later, University of Minho organized the 1<sup>st</sup> Open Access Conference

<sup>17</sup> B-on: <http://www.b-on.pt>

<sup>18</sup> RepositóriUM: <http://repositorium.sdum.uminho.pt>

<sup>19</sup> Signatories of Berlin Declaration: <http://oa.mpg.de/openaccess-berlin/signatories.html>

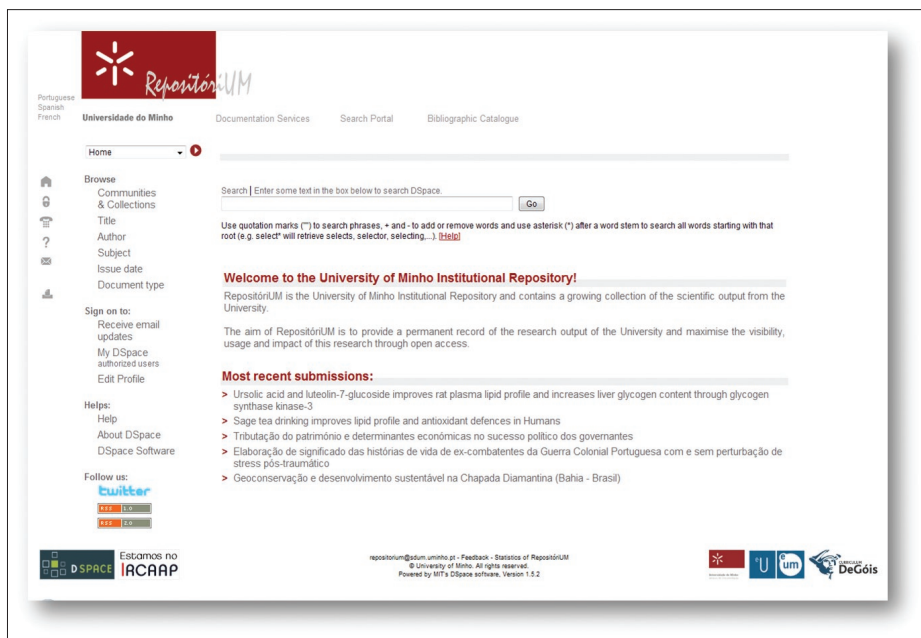


Figure 6.2. *RepositóriUM*

(May 2005) held in Portugal with the contribution of some of the most prominent protagonists and representatives of various organizations related with open access worldwide.

Also in 2005, the first Portuguese initiative concerning open access publication was set up, with the availability of the portal from the Portuguese section of the Scielo project<sup>20</sup> (March 2005). The Scientific Electronic Library Online (SciELO) is an electronic virtual library covering selected scientific journals collections from Latin America, Spain and Portugal. The library is an integral part of a project being developed by FAPESP - Fundação de Amparo à Pesquisa do Estado de São Paulo, in partnership with BIREME - The Latin American and Caribbean Center on Health Sciences Information.<sup>21</sup> The SciELO Portugal<sup>22</sup> collection results from the efforts of GPEARI - Gabinete de Planeamento, Estratégia, Avaliação e Relações Internacionais (former

<sup>20</sup> More information about the SciELO project available on the WWW at: <http://www.scielo.org>

<sup>21</sup> More information about BIREME - The Latin American and Caribbean Center on Health Sciences Information available on the WWW at: <http://www.bireme.br/bvs/l/ihome.htm>

<sup>22</sup> SciELO Portugal: <http://www.scielo.oces.mctes.pt>

OCES)<sup>23</sup> and the MCTES - Ministério da Ciência, Tecnologia e Ensino Superior<sup>24</sup> to promote quality Portuguese scientific journals and disseminate worldwide the Portuguese scientific publication.

Until the last quarter of 2006, the only two Portuguese open access initiatives remained RepositóriUM and SciELO Portugal. But the situation started to change on the last months of that year, with the emergence of new repositories, the dissemination of an open access declaration issued by CRUP - Conference of Rectors of the Portuguese Universities<sup>25</sup> (November 2006), and the organization by the University of Minho of a very successful 2<sup>nd</sup> Open Access Conference (November 2006) with the contribution of some of the most prominent protagonists and representatives of various organizations from Portugal and other countries like Brazil, Spain, United Kingdom, Hungary, Holland, Armenia, Mozambique and Japan.

During the 2<sup>nd</sup> Open Access Conference, as the result of the debate and contributions presented in the pre-conference Workshop: “Acesso Livre em Países Lusófonos: Iniciativas e Perspectivas”, aiming to promote open access and the creation of new repositories and within the Portuguese speaking scientific community it was produced and submitted to public subscription a commitment named: “Compromisso do Minho: Compromisso Sobre Acesso Livre à Informação Científica em Países em Lusófonos”.

In the subsequent months several other Portuguese universities started the installation and creation of open access repositories, but most of them were not publicly presented or were made available with a very small number of documents.

At that time, following its declaration endorsing open access, CRUP established a working group on open access and developed efforts to involve representatives of governmental agencies in the discussions and additionally CRUP's president signed the Berlin Declaration (January 2007). The purpose was to promote OA at each Portuguese university, helping the establishment of institutional repositories and the definition of open access self-archiving policies in all of them, as well the creation of a national aggregator for Portuguese repositories. During 2007, a CRUP representative (from Minho University) was also

<sup>23</sup> GPEARI - Gabinete de Planeamento, Estratégia, Avaliação e Relações Internacionais: <http://www.gpeari.mctes.pt>

<sup>24</sup> MCTES - Ministério da Ciência, Tecnologia e Ensino Superior: <http://www.mctes.pt>

<sup>25</sup> CRUP - Conference of Rectors of the portuguese Universities: <http://www.crup.pt>

actively involved in the European Universities Association (EUA) open access working group, contributing for the definition and final writing of EUA Open Access Recommendations.<sup>26</sup>

Earlier 2008, CRUP addressed to the Portuguese Ministry of Science, Technology and Higher Education (MCTES) by resending the CRUP's Declaration on open access and stating its support to the recommendations from the European University Association (EUA) Working Group on Open Access.

In March 2008, UMIC - Knowledge Society Agency<sup>27</sup> developed some contacts with FCCN - National Foundation for Scientific Computation<sup>28</sup> and University of Minho, setting the foundations for a project to build a national aggregator for Portuguese repositories and also promote, help and hosting the establishment of new institutional repositories. That project was named RCAAP (Repositório Científico de Acesso Aberto de Portugal = Portugal Open Access Science Repository) and started in July 2008 as an initiative promoted by the UMIC, in collaboration with the FCCN, offering an advanced service on the Portuguese Network of Science and Education (Rede de Ciência e Educação)<sup>29</sup>. The University of Minho was responsible for the scientific and technical work on the project.

The first phase of RCAAP, from July to December 2008 produced, as planned, three significant deliverables for a short period of time:

- RCAAP Portal:<sup>30</sup> aiming to collect, aggregate and index open access scientific contents from Portuguese institutional repositories, forming a single entry point for searching, discovery and recall of thousands of scientific and scholarly publications.
- SARI (ASP service for institutional repositories): allowing institutions to create and completely “brand” their repositories as desired.
- Project support website:<sup>31</sup> website with information about the RCAAP project, as well several pertinent documentation for different types of audiences (researchers, repository managers, general public).

<sup>26</sup> EUA Open Access Recommendations available on the WWW at: <http://www.eua.be/index.php?id=396>

<sup>27</sup> UMIC – Knowledge Society Agency: <http://www.infosociety.gov.pt>

<sup>28</sup> FCCN – National Foundation for Scientific Computation: <http://www.fccn.pt>

<sup>29</sup> More information about the Portuguese Network of Science and Education available on the WWW at: [http://www.english.umic.pt/index.php?option=com\\_content&task=view&id=29&Itemid=187](http://www.english.umic.pt/index.php?option=com_content&task=view&id=29&Itemid=187)

<sup>30</sup> RCAAP Portal: <http://www.rcaap.pt>

<sup>31</sup> Project support website: <http://projecto.rcaap.pt/index.php?lang=en>



Figure 6.3. RCAAP

The main component of the RCAAP project, the national aggregator for Portuguese repositories, the RCAAP Portal (<http://www.rcaap.pt>), was unveiled to the public during the 3<sup>rd</sup> Open Access Conference that took place at University of Minho on the 15<sup>th</sup> and 16<sup>th</sup> December 2008.

Also during this period, the University of Coimbra, the oldest Portuguese university, presented its repository, Estudo Geral, and the University of Porto unveiled its repository, Repositório Aberto, as well its institutional self-archiving policy.

In 2009, besides the organization of the 4<sup>th</sup> Open Access Conference (November 2009), integrated in the work plan of the RCAAP project various initiatives and activities were completed:

- Creation of Repositório Comum, a common platform for researchers working at institutions without their own repository set in place.
- Interconnection with the B-on - Online Knowledge Library.
- Interconnection with the national Current Research Information System platform DeGóis.<sup>32</sup>

<sup>32</sup> DeGóis Curricula Platform: <http://www.degois.pt/index.jsp?lang=en>





Figure 6.4. Interconnection with the national Current Research Information System platform DeGóis



Figure 6.5. Interconnection with the B-on (Online Knowledge Library)

### 6.3 CURRENT SITUATION OF OPEN ACCESS JOURNALS

In Portugal the publishing of scientific journals is mainly administered by the active scientific societies within each respective research field. In most cases, journal subscription is connected to a membership and is offered as a membership benefit, mostly in printed form.

Some figures about journal publication in Portugal are shown in the tables below obtained from a search in Ulrich’s Periodicals Directory,<sup>33</sup> a commercial

<sup>33</sup> Ulrich’s Periodicals Directory: <http://www.ulrichsweb.com>

database of all types of serial publications. Academic and scholarly journals published in Portugal, or published in Portuguese language, have been also searched. The search criteria used are listed in the tables 6.2-6.3 below, as well as the results. Ulrich's designation for academic/scholarly journals has been used consistently. Journals with peer review are presented separately.

These tables show that most of the journals are still published in printed form, and that the number of open access journals in Portugal is low.

Concerning the open access journals spectrum, the Portuguese section of the SciELO project, SciELO Portugal, currently hosts 24 open access journals published by Portuguese entities. The Directory of open access journals (DOAJ),<sup>34</sup> which gathers information from 5,049 OA journals worldwide, is referring an increasing number of journals from Portugal in its database.

*Table 6.2. Number of academic/scholarly journals published in Portugal*

Academic/Scholarly, active journals published in Portugal (possibly co-published with another country)					
Total number	Online	Online and OA	JCR	JCR and online	
203	60	31	4	4	0
Peer reviewed					
30	17	7	4	4	0
Not peer reviewed					
173	43	24	0	0	0

Source: Ulrich's Periodicals Directory

*Table 6.3. Number of academic/scholarly journals from published in Portugal with material in Portuguese*

Academic/Scholarly, active journals published in Portugal with material in portuguese (may also contain material in another language)					
Total number	Online	Online and OA	JCR	JCR and online	
167	44	21	0	0	0
Peer reviewed					
21	8	4	0	0	0
Not peer reviewed					
146	36	17	0	0	0

Source: Ulrich's Periodicals Directory

<sup>34</sup> Directory of open access Journals (DOAJ): <http://www.doaj.org>

Throughout the first months of 2010, 5 new journals have been added, making a total of 44 scientific journals Portuguese open access registered in DOAJ so far.<sup>35</sup>

Finally, in Portugal there aren't many examples of institutional memberships for publishing on OA journals. The only two examples registered in recent years were University of Minho and Faculty of Medical Sciences - New University of Lisbon that had a membership with BioMed Central<sup>36</sup> currently discontinued.

#### 6.4 CURRENT SITUATION OF OPEN ACCESS REPOSITORIES

There are 16 public universities in Portugal and combined with polytechnic institutes or smaller private universities that are focused mainly on teaching activities, the number increases approximately to 40 higher education institutions. As earlier reported the Conference of Rectors of the Portuguese Universities (CRUP), consisting of the rectors of the above-mentioned 16 public universities, has signed the Berlin Declaration on open access and recommended that all universities should build an institutional repository and implement a policy for self-archiving.

Prior the RCAAP project 11 repositories, in production or installation phases, were known in Portugal. During the first phase of the RCAAP project (2<sup>nd</sup> semester of 2008), five brand new repositories were created using the SARI infrastructure (University Aberta; University of Açores; Technical University of Lisbon; University of Coimbra Hospitals; University of Algarve).

In the first half of 2009, within the working plan of RCAAP project five repositories were created or installed in the SARI service. Three were new institutional repositories (University of Beira Interior, Polytechnic Institute of Leiria, Gulbenkian Institute of Science), one a renewed version of a previously existing repository (Polytechnic Institute of Bragança) and a fifth (Repositório Comum) is a common infrastructure for researchers working at institutions without their own repository (like the Depot repository<sup>37</sup> in the UK). In the

<sup>35</sup> Portuguese Journal referred on DOAJ in 2010: <http://www.doaj.org/doi?func=journalsByCountry&cId=158&year=2010>

<sup>36</sup> BioMed Central: <http://www.biomedcentral.com>

<sup>37</sup> Depot repository: <http://depot.edina.ac.uk>

last months of 2009, envisaged on a 2<sup>nd</sup> call of the RCAAP project, four new repositories were developed and installed in the SARI infrastructure (National Laboratory of Engineering and Geology; Hospital Dr. Fernando Fonseca, Institute of Applied Psychology and Polytechnic Institute of Castelo Branco).

So, at the time of writing (May 2010) there are in Portugal 25 scientific open access repositories (<http://www.rcaap.pt/directory.jsp>) in a production stage and aggregated in the national portal - RCAPP Portal. Altogether, the running IR's, currently collect more than 42,400 scientific documents (see figures 6.6 and 6.7).

In the universe of Portuguese repositories, there has been significant progress in recent years, but the degree of development has been diverse, differing from institution to institution, in general the scientific output deposited in repositories is still low (estimated less than 10% of what is actually produced within the institutions). Regarding the types of documents publicly available, there is also some diversity in the overall, about 44% of them are scientific articles, 30% doctoral thesis and dissertations, 12% papers resulting from communications to congresses and conferences and 14% other types of documents. The repositories which seem to have higher degrees of success are those with self-archiving policies implemented.

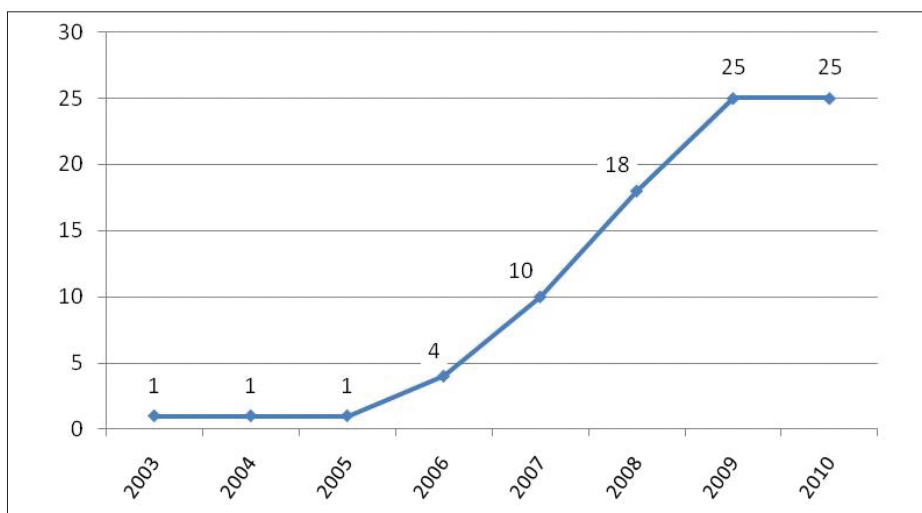


Figure 6.6. Evolution of the repositories number established in Portugal

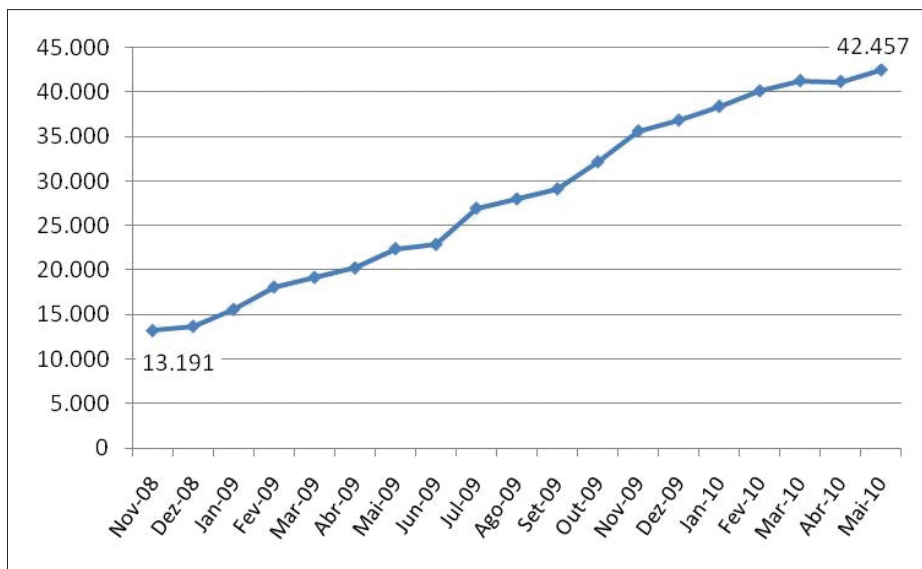


Figure 6.7. Evolution of the documents number available in the Portuguese repositories

The repositories more mature and/or with self-archiving policies associated also seem to enjoy some competitive advantage in terms of its visibility on the Web, as noted by the Ranking Web of World Repositories<sup>38</sup> (established from a universe of 1,418 repositories worldwide). Since the visibility of their repositories also contributes to the position of the Portuguese universities in Webometrics Ranking of World Universities.<sup>39</sup>

These findings were the inspiration for producing, under the RCAAP Project, a document designated: “Open Access Policies Kit”,<sup>40</sup> which gathers useful information and resources for formulating and implementing OA policies in the institutions (especially universities) and funding organizations.

The repository software presently most used in Portugal is DSpace, followed by Digitool and SinBad. But in terms of repositories platforms it has been noticed that institutions have been relying furthermore on the SARI infrastructure provided by the RCAAP project over proprietary solutions.

<sup>38</sup> Ranking Web of World Repositories available on the WWW at: <http://repositories.webometrics.info>

<sup>39</sup> Webometrics Ranking of World Universities available on the WWW at: <http://www.webometrics.info>

<sup>40</sup> Portuguese version of the “Open Access Policies Kit” available at: <http://bit.ly/6zzW6H>

In the Portuguese IR's community there has been a strong commitment to comply with the DRIVER Guidelines,<sup>41</sup> endorsed both by the University of Minho (a DRIVER partner) and by the RCAAP initiative.

The institutional teams and repositories managers have the overall responsibility for the content of the local repositories since the quality assessment of the archived data is very important. The RCAAP Portal also requires quality metadata and has therefore developed its own OAI-PMH harvester and validator tool,<sup>42</sup> which daily harvests and validates metadata accordingly to the DRIVER guidelines to ensure the quality of the local repositories. Data differing from the metadata standard are normalized by the repository managers which are contacted with suggestions for corrections. Data coming in from many different sources can then be presented uniformly to the user.

RCAAP project support website presently provides information about publishers' policies for self-archiving and refers to the Sherpa/RoMEO database.

It has been a libraries' task to produce instructions, guidelines and templates for agreements regarding self-archiving, yet the available information about Portuguese journals/editors spectrum is scarce or inexistent; many Portuguese journals don't have formal policies or have it only for the printed version. For this reason, in the context of RCAAP, a project lead by Faculty of Sciences and Technology - New University of Lisbon was engaged with the collaboration of other Portuguese institutions to foster the identification and provide wider information about Portuguese publishers' policies towards open access.

For what has been seen until now, the main driving factor for engaging with the development and maintenance of IR's in Portugal has been the increasing awareness of the open access movement and the need to showcase the institutional research outputs. On the contrary, the main inhibitors are the low level of awareness on open access in some scientific areas and institutions and the doubts or fears with regard to the copyright situation for published research output.

<sup>41</sup> Portuguese version of the DRIVER Guidelines available at: [http://www.driver-support.eu/documents/DRIV22ER\\_Guidelines\\_v2\\_Final\\_PT.pdf](http://www.driver-support.eu/documents/DRIV22ER_Guidelines_v2_Final_PT.pdf)

<sup>42</sup> RCAAP validator tool URL: <http://validador.rcaap.pt>

## 6.5 CONCLUSIONS AND RECOMMENDATIONS

The universe of Portuguese scientific publication is relatively small, but has been growing consistently in the last two decades. Although there isn't any comprehensive and reliable data on the Portuguese scientific output, we estimate that the number of journal articles published yearly by Portuguese researchers is around 20,000. From those, more than 1/3 are published in ISI referenced international journals and less than 2/3 in other non-ISI referenced international journals or Portuguese journals.

As revealed in this study, the number of Portuguese scientific journals is low, many are still published in printed form, and consequently the number of OA journals is also low. Most of Portuguese journals are from social sciences and humanities, and on some of those areas Portuguese journals and conference proceedings are the main venue for publishing research results. On the contrary, in most of science and technology areas (and even in some social sciences like economy), a big percentage of the Portuguese scientific output is published in international journals. Anyway, in almost all the areas (from humanities to science), there is a growing trend for internationalization of research and research publication.

Concerning institutional repositories, there was a significant progress on the last years. Since 2007 several institutional repositories were created in Portugal. After CRUP's declaration on open access, and the creation of CRUP's OA working group, the leaderships on most of the Portuguese universities have taken action on this matter. At present time almost all Portuguese universities with significant research output have already or are creating their own institutional repository.

The development of Portuguese repositories has been very diverse, from institution to institution. In general, the percentage of the institutional research output archived in those repositories is still relatively small (less than 10%). The most successful repositories, like RepositóriUM, from Minho University, are associated with institutional self-archiving policies, requiring, encouraging and/or rewarding deposition of publications.

From the information collected in this report, there is a clear conclusion that open access developments in Portugal have been done mainly by institutional repositories and self-archiving (green OA), with open access publishing (gold OA) being also important but less significant. Taking into consideration

the dimension and weaknesses of Portuguese journals, the growing proportion of research output published in international journals and the limited financial resources of universities and other research institutions for supporting publication fees, it's natural that in the near future the focus for open access progress in Portugal remains repositories and self-archiving.

From these conclusions, some recommendations can be suggested for the development of open access in Portugal within RCAAP project:

1. Continue to provide support for the establishment of repositories in research institutions (universities and research centers) where they don't exist yet.
2. Provide guidance and help to the definition and implementation of OA mandates in universities and other research institutions.
3. Provide guidance and help to the definition and implementation of OA mandates for research funding organizations (public and also private), including the possibility to fund gold OA publication for funded research.
4. Reinforce dissemination and advocacy activities for open access repositories and RCAAP portal.
5. Influence B-on negotiations, to include clauses for OA publishing (when that option is available) in the journals subscribed by the consortium, at no extra cost for authors, researchers funders or the consortium itself.
6. Study, analyze and define possible scenarios for RCAAP intervention and collaboration on OA publishing (relation with SciELO, offering OA journal hosting service, etc.).

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