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OPEN ACCESS IN BELGIUM

PASTEUR4OA PROJECT
FUND FOR SCIENTIFIC RESEARCH-FNRS

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The Fund for Scientific Research-FNRS

The Fund for Scientific Research-FNRS (F.R.S-FNRS) is the major research funding agency promoting and supporting basic scientific research for the French-speaking community of Belgium (Brussels-Wallonia Federation, BWF). Founded in 1928, it mainly receives public subsidies. The Fund supports individual researchers on the basis of academic excellence by offering temporary or permanent positions. The Fund also provides funding to research teams, grants and credits for international collaboration, as well as scientific prizes. The Fund fosters research in all scientific fields, following a bottom-up approach of investigator-driven research. It supports researchers in an ever growing context of internationalisation through facilitating their mobility, allowing for collaborative transnational projects and supporting a high level international working environment.

The Flemish counterpart of F.R.S.-FNRS, **the Fonds Wetenschappelijke Onderzoek (FWO)** has similar OA mandates, also inspired by the Brussels Declaration of 2012 (*cfr infra*).

Summary

The Belgian political landscape is complex and this complexity is reflected in the scientific system. Luckily, the multiple power layers did not preclude to the birth and development of open access policies. Indeed, the move towards for OA for publications started more than 10 years ago in Belgium.

It is the creation of the **Immediate Deposit and Optional Access (ID/OA) at Université de Liège (ULg)** in 2007 paved the way for Belgian OA mandates. OA policies were developed by more than 15 Belgian research organisations. Each of these research organisations may have its own mandate. However, they sometimes use common repositories. Throughout the past ten years, the move to OA policies was massive in entire Belgian territory, however, one now notices regional differences at the infrastructure level: Flanders is the only region developing a common portal for Flemish research organisations, FRIS (*cfr infra*).

Also, one of the specificities of Belgium regarding OA is the wish to develop a concerted approach on Green and Gold. The signature of the Brussels Declaration for OA in 2012 (*cfr infra*) by Belgian authorities pushes the agenda forward.

Last but not least, despite the move towards regional empowerment, coordination at the national level exists with the ***Interfederal Open Access Consultation Working Group*, the CIS-CFS Working Group on OA (CIS-CFS OA)** and the push towards a large definition of Green OA (1).

The research and scholarly communication system of the country

The scientific landscape in Belgium is complex with three levels of power (federal, regional, and community levels). The authorities for science, research and innovation are distributed between both the federal government and the regional and community governments. Therefore, it is necessary to present each research and scholarly communication entity involved in separate sections before moving to the presentation of the current OA landscape.

Federal State

The Federal state supports thematic programmes, space research, 10 Federal Scientific Institutions international organisations and infrastructures, the *Interuniversity Attraction Poles programme* (IAP) and partial exemptions of researcher's salary taxes.

The Federal Scientific Institutions are as follows:

- Cinquantenaire Museum - Royal Museums for Art and History
- MIM - Musical Instruments Museum
- Chinese Pavilion | Japanese Tower, Porte de Hal)
- Royal Museums of Fine Arts of Belgium
- Royal Institute for Cultural Heritage
- Royal Belgian Institute of Natural Sciences
- Royal Museum for Central Africa (MRA/KAM)
- State Archives
- Royal Library of Belgium (BR/KB)
- Centre for Historical Research and Documentation on War and Contemporary Society

Communities Level

Belgium is divided into three communities (French-speaking, Flemish-speaking and German-speaking) that are responsible for culture and education. Higher education is organized by the two main communities - the Flemish Community (to which the FWO belongs) and the Brussels Wallonia Federation (to which the FNRS belongs). German speakers mainly enrol in institutions in the French Community or study in Germany.

Regional Level

The support for basic research is shared by F.R.S.-FNRS in the French-speaking community and FWO in the Flemish community. Applied research is covered at the regional level by three regions - Wallonia, Brussels and Flanders - economy and employment in particular fall within their remit. With the exception of a handful of small colleges, all universities and colleges in Belgium are publicly funded. In Flanders, colleges receive subsidies based on their teaching activities (including the number of students) and universities receive subsidies based on their teaching activities and research output. In the French-speaking community, funding for research is mostly based on the number of students but the total budget allocated to universities and colleges is fixed. Universities and colleges can increase their research funding only when the number of students increases. If the number of students attending a specific institution decreases, its funding will follow the same trend.

Flanders has 5 universities:
- Universiteit Antwerpen (UA)
- Vrije Universiteit Brussel (VUB)
- Universiteit Gent (U Gent)
- Universiteit Hasselt (UH)
- Katholieke Universiteit Leuven (KUL)

Flanders also has 4 strategic research centres:
- IMEC – Interuniversity Micro-Electronics Centre (Heverlee)
- iMinds – Digital Research Centre (Gent)
- VIB – Institute for Life Sciences Research (Gent)
- VITO – Institute for Technological Research (Mol)

Wallonia-Brussels has 6 universities:
- UCL- Université Catholique de Louvain (Louvain-la-Neuve)
- ULB - Université Libre de Bruxelles (Brussels)
- ULg - Université de Liège (Liège)
- UNAMUR - Université de Namur (Namur
- UMONS - Université de Mons (Mons)
- USL - Université Saint-Louis Bruxelles (Brussels)

In Belgium, public investment in R&D is below the European average according to the **Innovation Score Board**. Belgium ranks seventh in the EU Member States' Innovation Performance and belongs to the upper part of the innovation followers' league table. Belgium scores high thanks to its international scientific publications and its open, excellent and attractive research systems (Table 1).

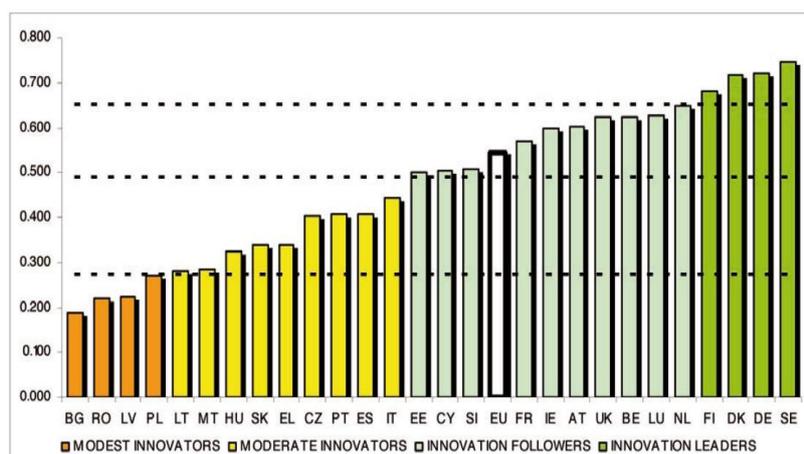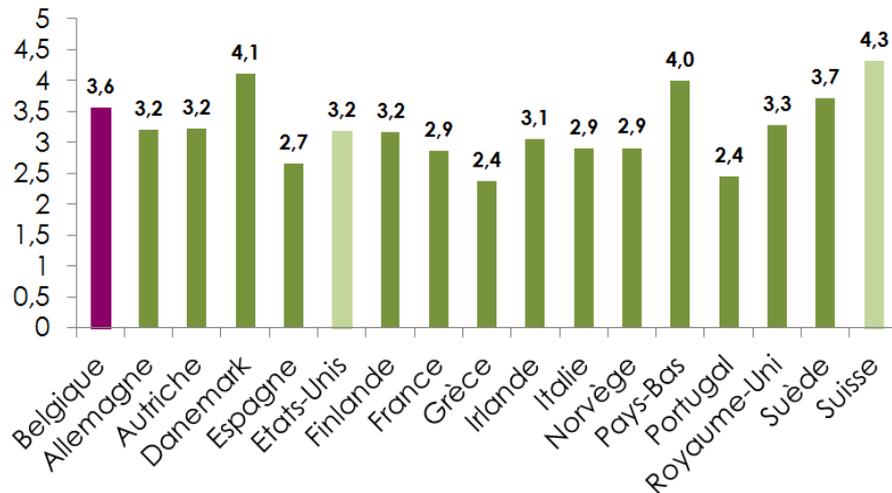**Table 1 – EU Member States' Innovation Performance (Source: EC Innovation Scoreboard 2013)**

Table 2 - Number of publications per 1000 inhabitants (2009-10) (Source: Scimago Scopus, Eurostat)

Table 3 - Number of citations/publication (2009-10) (Source: Scimago Scopus)

Belgium has an average number of publications per inhabitant (Table 2) but is better placed regarding citations/publications, being ahead of Switzerland, Denmark, the Netherlands and Sweden (Table 3). As for the number of citations/R&D investment ratio, Belgium shows major outputs, mainly from Flanders, with modest inputs.

Current Open Access policy landscape

A brief presentation of the research and scholarly communication system of Belgium was necessary to move to the main part of this document dedicated to the OA policy landscape. This chapter starts with a short history of OA in Belgium. It then presents the national strategies and policies for OA before it develops institutional policies, followed by funders' policies. These sections are followed by a short overview of the OA policies at the federal level, the Flemish level and the Brussels-Wallonia level. Infrastructures will be briefly discussed in the last section of this chapter.

a) A Brief History of the Development of OA Policies

The roots of OA in Belgium start as early as 2001. A consortium of libraries, BICfB, launched the first common electronic repository of theses and e-prints of the universities of the BWF, making them freely accessible online in full text. Their aim was to develop and coordinate a common policy between university libraries regarding academic and scientific documentation. This opened the way for OA as the BICfB was followed by various initiatives towards OA. In 2001, ULg also initiated BICTEL, the first common electronic repository of theses (dissertations) and e-prints submitted to the universities of the BWF. In 2004, OA Day was organised at ULg. One year later, PoPuPS, portal for the publication of scientific journals, was launched.

The **DRIVER** project has been instrumental in developing OA awareness across the Belgian scientific community. UGENT, a DRIVER partner, created a Belgian repository community - **DRIVER Belgium** - which was responsible for the distribution of DRIVER's Guidelines to Belgian repository managers and the creation of a national search interface for DRIVER compliant OA-repositories.

Belgian university Rectors, the Ministers of Science of Flanders and Wallonia and the president of the Flemish Council of Schools for Higher Education signed the **Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities** from 2003. The President of the Science Policy Office signed the Declaration the following year. Also, another noteworthy point, national conference was held in February 2007, bringing together the major stakeholders in Belgium regarding research.
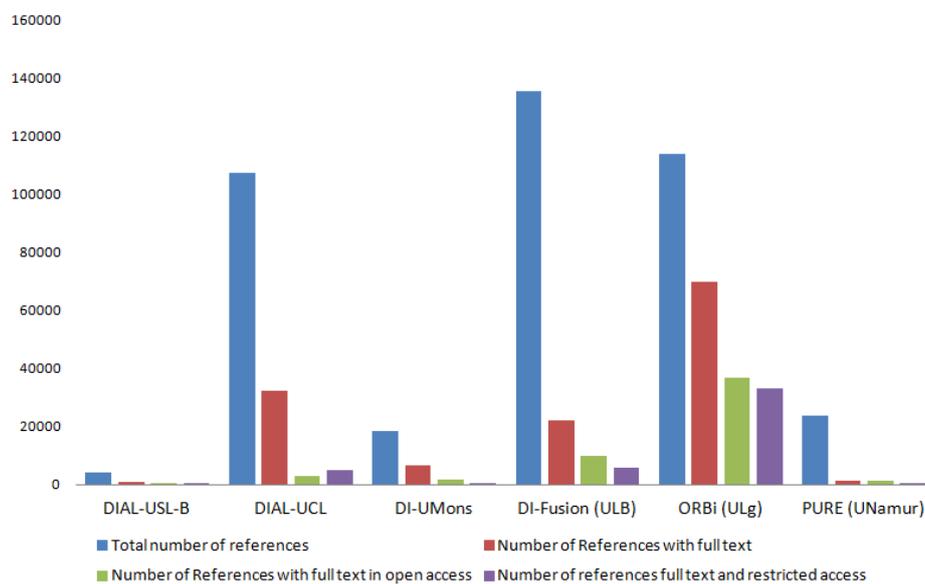
During the same year, the **ULg**'s interest in OA went further with the **'Immediate-Deposit & Optional-Access' (ID/OA)** mandate. In addition, the assessment of research performance and the evaluation of researchers within ULg is exclusively based on the research outputs that are deposited in the institutional repository (ORBI). This model is often referred to as the "Liège model" internationally.

Indeed, in 2012, Belgian public authorities signed the **Brussels Declaration on Open Access** (2). The event brought together the major stakeholders in Belgium in the field of research. The signing was at the instigation of the **Open Access Belgium** organisation, which is, among others, composed of members of the Belgian **OpenAIRE** Helpdesk. The Brussels Declaration was a commitment to maximise the free availability of publicly funded research results by supporting the creation and the maintenance of OA digital infrastructures, by actively informing researchers about the benefits of OA, and investigating the ways of covering the costs of OA publishing.

All Belgian universities are now informing their researchers about OA and encouraging OA publications. Open Access mandates are progressively being adopted by the other universities of the BWF and Flanders, although with different levels of achievement. In October 2014, Belgium recorded 28 repository registrations on

OpenDoar, which is a quality-assured listing of Open Access repositories around the world. A dedicated webpage - Open Access Belgium (**http://openaccess.be**) - is maintained by UGent Library and ULg Library. It intends to promote Open Access and to deliver current information about the progress of OA in Belgium. As a result of these initiatives the total number of research results available in IR's has grown steadily since 2004 (Figure 1).

Figure 1 - Number of archived references among the repositories in the French-Speaking Community of Belgium

b) National strategies and policies for OA

As mentioned before, given the governmental structure of the country, there is no common national Open Access policy in Belgium despite the signature of the Brussels Declaration in 2012. However, in the wake of the Brussels Declaration, the **CIS-CFS Working Group on OA** was created with the objective of providing consultation on OA matters at a national level, and to ensure coherence in alignment with European reporting. Members consult on OA matters involving the Federal Authority, the Flemish Authority and the BWF. The other main regional stakeholders (such as the Walloon Region and the Brussels Capital Region) are being kept informed but are not actively involved.

The mission of the CIS-CFS WG on OA is to pursue conformity and interoperability of implemented systems. .The WG shares knowledge and best practices, informs other parties, stimulates initiatives, coordinates both promotional events and international reporting, and explores related fields. It gathers information on progress in the field of OA among stakeholders and coordinates the **ERA Roadmap on OA** for Belgium.

c) Institutional OA policies

Again, the development of institutional policies reflects the complexity of the research landscape in Belgium. In Belgium, repositories are not centralised as there is no external body to manage repositories.
Each research organisation in Belgium has its own policy/mandate. However, some repositories are common to some organisations (e.g. DIAL for UCL and USL-Brussels) for historical reasons (3).

All Belgian universities have an IR and actively promote the self-archiving of research outputs:

- Universiteit Antwerpen (UA) - IRUA
- Universiteit Gent (U Gent) – BIBLIO
- Katholieke Universiteit Leuven (KUL) – LIRIAS
- UCL – DIAL
- ULB – Di-Fusion
- ULg – ORBI
- UMONS – Di-UMONS
- UNAMUR – Pure
- SL-Brussels – DIAL

In **ROARMAP**, Belgium has 14 IR's Open Access policies, mainly from universities (3). The four most effective mandates (ID/OA) were enforced by one funding agency (F.R.S.-FNRS) and three universities (ULg, UGent, and ULB). In 2014, 12 Belgian repositories were listed in **Webometrics**, an index derived from their web presence and impact of their contents UGent, KUL and ULg repositories are in the top 30 in European rank and the top 50 worldwide (4). The difference in ranking between universities reflects the effectiveness of the mandate they have enforced. Compulsory archiving of scientific publications (whether OA or not) in an institutional repository is far more efficient than a recommendation to archive them.

d) Funders OA policies

Fund for Scientific Research-FNRS

In order to encourage researchers to make their work OA, some research funders have already developed Open Access policies and mandates. European initiatives such as the OA Pilot in FP7, the OA Guidelines for researchers funded by the ERC in 2013, and the anchoring of OA context as an underlying principle for all Horizon 2020 research have provided a springboard upon which Belgian policy can advance. In response to these guidelines the two major research funders in Belgium present OA mandates. The F.R.S.-FNRS Green Open Access Mandate, states that Recipients of F.R.S.-FNRS funding are required to deposit their final author drafts of journal articles, in their institutional repositories, immediately upon acceptance for publication. Access to these immediate deposits must be made OA straight away, or at the latest within 6 months (or 12 months for humanities and social sciences). Moreover, the F.R.S.-FNRS now supports the Gold Road to OA by enabling their funded researches to claim the costs of publication in OA journals from F.R.S.-FNRS funded projects (grants, CDR, PDR) to a limit of 500€ per article. Note that hybrids are not funded.

Fund for Scientific Research - FWO

The Research Foundation Flanders (FWO) has adopted similar rules to the Fund-FNRS rules on Green OA. Its researchers must self-archive, and make available in an OA repository, all peer-reviewed articles resulting from FWO funding, up to a maximum of one year after their publication. So, FWO is actively implementing an Open Access Policy too. Its general regulations explicitly state that in accordance with the *Berlin Declaration*, beneficiaries of FWO funding, credits and projects must deposit **publications** that result from FWO subsidies in a public OA database within one year of the date of publication. This should greatly contribute to the impact and validation of their work. Researchers are also advised to deposit their other publications in such an OA database - the so-called "Open Archives" - together with the **research data** underpinning these publications.

The Belgian Federal Science Policy Office (BELSPO)

Until 2015, **BELSPO**'s management plan states its commitment to free online availability of scientific information, in particular to that of research results and collections from Federal Research Institutions in compliance with the *Berlin Declaration*. The **Scientific and Technical Information Service (STIS)** allocated € 100.000 for the creation of an IR for results of research projects funded by BELSPO in a first phase (2014-2015), and all other Federal institutions in a second phase (2016). A clause has been drafted for inclusion in research contracts which binds federal research institutions under BELSPO tutelage. It invites researchers to publish results in OA publications or repositories. The State will, in any case, publish the mandatory research report in OA, providing all safety and privacy requirements are met. This clause has already been included in the prestigious Inter University Attraction Centres' program (IUAP) as well as in the Belgian Research Action through Interdisciplinary Networks (BRAIN). A more compelling definitive mandate is expected in 2015.

To go further, the **Federal Open Access Strategy Working Group** was setup to discuss the shaping of a common OA policy for the 10 Belgian federal institutions (*cfr supra*). It targets resolutions with regard to, business mandates, property rights, licenses, promotional campaigns metadata and indicators etc. The WG has established collaboration with the Royal Library, and more specifically with its Legal Deposit and its electronic interface. It is currently conducting a poll about requirements and use of OA among its researchers and research institutions. BELSPO and its ten research institutions (*cfr supra*) have been involved in the development of OA policies in order to help shape common policies and develop joint infrastructures since the early 2000s (5). Same with 3 institutes related to the **Health Care Knowledge Centre (KCE)**.

The 3 KCE institutes have different policies towards OA but all of them are committed to the advancement of OA. The KCE strongly supports Green OA, although journal articles are not its core business. Its Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) compliant repository is mostly composed of medical and health reports. Adding journal articles is planned within the next 2 years. The institute intends to replace its internal database with a new one in order to implement the Current Research Information Systems (CRIS) concept. KCE has allowed the use of some of its research budget to be used to fund for Gold OA publication fees.

The aim of the use of OA Green repositories to disseminate a large variety of scientific communications and publications that goes beyond the dissemination of articles from scientific journals.

e) OA Infrastructures in Belgium

The development of OA Infrastructures started to gain importance after the endorsement of the *Berlin Declaration* and has seen an increasing number of institutions and funders implementing institutional repositories in support of institutional mandates.

In Flanders, the situation differs from its French-speaking counterpart as a platform has been set up. The department of Economy, Science and Innovation (EWI) of the Flemish Government organises an annual stakeholders and expert meeting (EWI FOCUS "Open Access") to which the federal and BWF experts are also invited. In 2007, EWI created the **FRIS programme (Flanders Research Information Space)** thanks to EWI. EWI considered that an information platform for all stakeholders in the policy domain of economy, science and innovation was needed. Therefore, the research portal FRIS was created to ensure the transparent and automatic flow of research information (**http://www.researchportal.be**). The portal is accessible to all who

wish to search for relevant research information within approximately 25,000 Flemish projects and about the same number of researchers. This portal for Flemish research has had over 2 million unique visitors since it went online in 2008 It is possible to browse through the database by using several search options: by research projects, organisations or persons, but also by publications.

RILOD (Research Information Linked Open Data), a pilot project is another achievement connected to FRIS. This project puts an emphasis on "open". Structured research information of the FRIS research portal was combined with unstructured data on the www (full texts of publications, websites of organizations and people). Through an intelligent search engine this unstructured data was classified. In this way more than 600,000 Flemish publications were made available as open data.

In the BW, despite some local initiatives such as PoPuPS, there is no dedicated OA infrastructure that covers the whole spectrum of the publication activities yet.

Discussions have been taking place at the Fund for Scientific Research-FNRS to explore the feasibility of the setting up of an infrastructure for FWB repositories. A feasibility study has already been conducted in order to evaluate the possibility of integrating the Social Sciences and Humanities research projects that are financed by the WBF (other than through the funding of universities or the research funding agency) into a single OA portal.

Also, at BELSPO, the **Orphan Open Access Repository (ORFEO)** is currently at its pilot phase stage and will be fully operational at the end of 2015. SCK-CEN has been registering documents in an internal database since 2010. A quality control evaluation of the deposited items is performed by a librarian. A possible integration with Orfeo is now being studied but the migration of archives are expected to take up to 4 years.

Challenges, ongoing developments and conclusions

In Belgium, the move towards started more than ten years ago but it is the birth of the ID/OA at ULg in 2007 that paved the way for Belgian OA mandates. More than 15 Belgian research organisations have now OA mandates and have their own IR or share an IR. The development of OA in Belgium has been remarkable. However, one now notices regional differences regarding infrastructures: Flanders has its own portal (FRIS), BFW will create its own soon and federal scientific institutions will benefit from the creation of their own portal (Orfeo). It is clear that interoperability of the portals will soon be under close scrutiny by the CIS-CFS WG on OA.

The signature of the *Brussels Declaration* for OA in 2012 shows that the country is willing to develop a concerted approach on Green and Gold. Despite the move towards regional empowerment, coordination at the national level is happening thanks the **CIS-CFS WG on OA**.

The relatively good level of policy development should not hide the lack of a concerted policy at the national level. Indeed, the country suffers from a pervasive lack of resources for basic research that thwarts the potential developments of OA.   However, OA strategy exists at the regional and community levels.

Also, the Fund for Scientific Research-FNRS and FWO are members of Science Europe and participate actively in the writing of recommendations on OA-related topics, such as OA to publications and OA to research data. The Federal Authority is also associated to Science Europe as it represents Belgium at the EC Network of OA Points of Reference.

The development of a strategy on OA to research data is gaining interest throughout Europe. Another noteworthy point would be that the Green and Gold models coexist in Belgium. Providing the Gold model evolves in a fair and reasonable way, there will be no political wish to privilege one model over the other as they appear to be complementary, provided Author Publication Charges (APC) are proportional to the editor service provided.

Another avenue to explore is the potential to explore new models of OA scientific communication (OA to data and OA to books) along with a harvesting system that would allow for access to all indexed publications contained in institutional repositories. Again, the CIS-CFS WG on OA should be beneficial to these developments as member of the ERAC taskforce on Open Data. Thanks to ULg, Belgium came to the fore. However, OA is a never-ending process and relentless efforts must be made to keep up with the progress in the expanding field of OA.

Useful links

» **FNRS Rules for OA** (http://www.fnrs.be/index.php/open-access)
» **FWO Rules for OA** (http://www.fwo.be/nl/algemeen-reglement)
» **Open Access website** (http://openaccess.be)

Annex 1 – Overview of the research funding landscape in Belgium

1 CIS stands for Commission Coopération Internationale (International Cooperation Committee) and CFS for Commission Coopération fédérale (Federal Cooperation Committee). These permanent committees are attended by high civil servants from the federal community and regional authorities who cooperate on international and internal matters. The CIS-CFS WG on OA gathers experts from administrations and ad hoc experts.   The WG considers that Green OA covers more than scientific articles, e.g. grey literature, reports etc.

2http://openaccess.be/2012/11/29/brussels-declaration-on-open-access-signed-by-ministers-nollet-magnette-and-lieten/signedbrussels-declaration-on-open-access/

3 In the 2000s, it was decided to create 3 Academies in BWF and that each one would have its OA repository. DIAL was the institutional repository for University Academy Louvain that contained UCL and USL-Brussels, ORBI was the IR for Wallonia-Europe Academy that contained ULg and Di-Fusion became the repository for ULB, UMONS and UNAMUR. The system of Academies collapsed but OA IR connections between universities remained.

4 Webometrics (Oct 16, 2014). The repositories are : University of Ghent Institutional Archive, Katholieke Universiteit Leuven Lirias Repository, ULg Open Repository and Bibliography ORBi, Document Server@Uhasselt, Dépôt Institutionnel Académie Universitaire Louvain, Serveur institutionnel des thèses de doctorat ULg, Lessius Hogeschool LIRIAS, Hogeschool Universiteit Brussel LIRIAS, Institute of Tropical Medicine Tropmed Central, Hogeschool West Vlaanderen Institutional Repository, Di-fusion Dépôt institutionnel de ULB, Katholieke Hogeschool Zuid West Vlaanderen Doks, Katholieke Hogeschool Kempen Doks, Xios Hogeschool Limburg Doks

5 The three institutes are:) , the Nuclear Research Centre (SCK), the Scientific Institute of Public Health (ISP) and the National Institute for Criminalistics and Criminology (NICC)