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COMMISSION STAFF WORKING DOCUMENT

**EUROPEAN RESEARCH AREA
FACTS AND FIGURES
2014**

Accompanying the document

**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE
EUROPEAN PARLIAMENT**

European Research Area Progress Report 2014

{COM(2014) 575 final}

Facts and Figures accompanying the ERA Progress Report 2014

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ACTIONS IN SUPPORT OF ERA BY THE MEMBERS OF THE STAKEHOLDER PLATFORM

The work of the Stakeholder platform has evolved since the last ERA Progress Report. The meetings with the heads or representatives of the research Stakeholders' Organisations have continued, but several ad hoc “Doers” networks were created to tackle in detail some specific issues related to ERA. The Doers groups concerned gender, communicating ERA, joint programming, monitoring, open access, and research infrastructures. Doers meetings are organised according to the needs and developments of the policy agendas.

A new partner, the Conference of European Schools for Advanced Engineering Education and Research (CESAER), joined the European Association of Research and Technology Organisations (EARTO), the European University Association (EUA), the League of European Research Universities (LERU), NordForsk and Science Europe in the Stakeholder platform in 2013.

The platform has created a new momentum for joint activities between its participants. The research Stakeholders' Organisations jointly organise events (such as two fringe sessions in the 2014 Innovation Convention) and regularly participate in each others activities when relevant to their mandate.

Besides, all participants in the platform contribute regularly to the ERA newsletter, and they also participate in its dissemination.

Each research Stakeholders' Organisations is also very active in raising ERA awareness amongst their member Organisations, including through strategic discussions around ERA priorities and policy, as well as in relation to the future direction of ERA.

In the following sections, some of the recent activities of each research Stateholders' Organisation which participate in the Stakeholder platform are presented.

3.6.1. Conference of European Schools for Advanced Engineering Education and Research (CESAER)

Launching of joint working groups with partner associations CLUSTER, EuroTech Universities, IDEA League and Nordic Five Tech on:

- “Innovative Doctoral Training” and
- “Institutional Research Strategies and Management – Professionalisation of Knowledge Transfer”.

Several task forces are in place:

- “Human Resources”, with priorities on Human Resources Strategies for Researchers (HRS4R), recruitment, career development, academic leadership, gender, and performance assessment. Papers on the different issues are in the pipeline. In print: CESAER Comment on “Open Recruitment”, “Leadership and Leadership Development in Academia”.
- “Entrepreneurship”, which is preparing a White Paper on the specialty of entrepreneurship at technical universities.

- “Responsible Research and Innovation (RRI)”, which is working towards the adoption of RRI policies by CESAER and other relevant parties. In September, the Task Force RRI will present comments and recommendations for the Horizon 2020 Work Programme 2016-2017.
- “Open Access – Open Data”, which is preparing a CESAER position on Open Access for mid-2014 and guiding material on Open Access for the end of 2014.
- “Open Education”, which is in the starting phase.

In terms of monitoring:

- Survey on gender equality at CESAER member institutions. The final report will be produced by October 2014; respondents to the survey will be convened for a workshop at Vienna University of Technology on 28-29 November 2014 for discussing the outcomes and possible follow up activities.
- Monitoring of the implementation of Charter and Code for Researchers and Human Resources Strategies for Researchers.
- Monitoring of the participation in the framework programmes and collaborative links between members with a specific focus on “Spreading of excellence and widening participation”.
- In-depth web analysis of structures and activities supporting knowledge circulation at CESAER member institutions.

Organisation of, or participation in, events:

- Set up the ERA Partnership Fringe Session in the frame of the Innovation Convention, 10 March 2014.
- Participation in the ERAC Mutual Learning Seminar “Open Recruitment and Transnational Mobility”, Brussels, 26 March 2014.
- CESAER Conference “Human Resources in Academia”, organised by the Task Force “Human Resources, TU Delft, 21-22 May 2014. Parallel session in the priority areas of the Task Force. The Conference Report is in preparation.
- Participation in the JRC Conference “Scientific Support for the Danube Region”, Vienna, 24-25 June 2014.
- Participation in the “Gender Summit 4 - Europe 2014, From Ideas to Markets”, Brussels, 30 June – 1 July 2014; Speaker: Karel Luyben, President CESAER.
- Participation in HRS4R Mutual Learning Seminar. Tarragona, Spain; 2-3 October 2014
- Workshop “Responsible Research and Innovation”, Tallinn University of Technology, 15 October 2014

- 2014 CESAER Seminar “Widening Participation”, Tallinn University of Technology, 16 October 2014.

Other activities:

- CESAER is a member of the 4th Cohort for the Human Resource Strategy for Researchers (HRS4R) and organises stimulation measures towards the implementation in CESAER member institutions.
- Main academic partner in the pilot edition of the Internship Programme of the European Institute of Technology Foundation (EITF).
- Contribution to the drafting of the 'Charter for Access to Research Infrastructures' in the ERA Monitoring Doers Configuration.
- With a mandate from CESAER, Paul Jankowitsch (Vienna University of technology) chaired the task force set up for the preparation of the Retirement Savings Vehicle for European Research Institutions (RESAVER).

3.6.2. *European Association of Research and Technology Organisations (EARTO)*

EARTO currently has 7 active working groups. Six of them discuss topics related to ERA. They concern: legal aspects (improving state aid RDI Framework, General Block Exemption Regulation (GBER) & Enhanced Programmable Communication Interface (EPCI) schemes to best achieve ERA objectives); SMEs (best practices on how to best work with SMEs and national programmes of technology transfer RTOs-SMEs); H2020 (implementation aspects, including open access and gender balance requirements in H2020 projects); Communication (how to best communicate EARTO members activities on ERA related topics); Human Resources (HR managers discussing topics such as open recruitment, careers and gender balance, pension and doctoral training, mobility of researchers) and Structural Funds (how to best achieve synergies between H2020 and EU Structural Funds).

Publications:

EARTO has published several position papers in relation to ERA objectives since January 2014:

- ERRIN & EARTO Comments to the Commission Staff Working Document "Enabling synergies between European Structural and Investment Funds, H2020 and other research, innovation and competitiveness-related Union programmes".
- The Technology Readiness Level (TRL) Scale as an R&I policy tool - EARTO recommendations.
- EARTO response to the European Commission Public Consultation on State Aid for Important Projects of Common European Interest (IPCEI).
- EARTO response to the European Commission Public Consultation on the GBER.

- EARTO response to the European Commission Public Consultation on the EU State Aid Framework for R&D&I.

Conferences:

EARTO and its members organised and participated in several events on ERA related topics. The key events are:

- EARTO Annual Conference, May 2014, in which 200 participants gathered to discuss RTO-business cooperation, focusing on the topic of 'How can RTOs support the re-industrialisation in Europe'.
- EARTO co-organised and participated in two fringe sessions on ERA topics at the European Commission Innovation Convention 2014: 'The ERA partnership as a backbone of the European innovation eco-system(s)' and 'how research partnerships are turning on the Innovation Growth Machine in Europe'.

EARTO members were also very active in the Gender Summit Europe which took place in June 2014.

3.6.3. *European University Association (EUA)*

- Organisation of the High-level conference on '*Mobilising Europe's Universities for Smart Specialisation*' convened with the S3 Platform and DG REGIO. The objective was to raise awareness about the importance of universities' contribution in the definition and implementation of RIS3. High-level consultation has been initiated by EUA to engage in the essential dialogue with DG REGIO on how the Seville Report recommendations can be taken forward in the implementation of the European Regional Development Fund and European Social Fund (300 participants).
- Publication of a joint report EUA- DG REGIO/JRC on 'The role of universities in smart specialisation' (EUA Publications, 2014) issuing recommendations to enhance the role of universities in the definition and implementation of Smart Specialisation Strategies.
- Contribution to the drafting of the Charter for Access to RIs within the framework of the MoU Doers Group on Research Infrastructures.
- Preparation with other SHOs of 'high-level' talks with major publishing houses to explore 'do-able' business models that reflect the impact of digital technological developments on the process of producing scientific publishing, as well as operational conditions for open access that meet universities' needs.
- Publication in April 2014 of a statement on the proposal for a general Data Protection Regulation, highlighting the potential threat to research.
- Active promotion of best practices of university participation in international agreements to foster peer-learning and synergy across these international

activities through the activities of EUA's Council for Doctoral Education (CDE). In particular, promotion of doctoral education/training reforms through its 'Salzburg Principles' based on best practice (2005) and revised in 2010. These principles form the core of the 'Principles of Innovative Doctoral Training' taken up by the European Commission.

- Organisation of the Annual Meeting of CDE as a stocktaking exercise of reforms in doctoral education in June 2013 (over 200 participants).
- Organisation of the upcoming 2nd EUA Funding Forum (October 2014) bringing together higher education and research stakeholders to discuss funding models and the impact of EU funds on university management.

In terms of monitoring and analysis, the following activities amongst others, can be mentioned:

- Monitoring of trends in public funding to the university sector via the EUA Public Funding Observatory (yearly release and online tool including data for more than 20 European countries).
- EUA 2013 Memorandum of Understanding (MoU) questionnaire to universities on development and implementation on policies addressing doctoral training, research careers, mobility and gender equality. This resulted in an awareness map, the implementation of human resources policy awareness and the implementation of 224 European Universities.
- EUA 2013 questionnaire to 34 National Rectors' Conferences (NRCs) on policies at national level regarding doctoral education and training, mobility and international cooperation.
- Publication of a joint report EUA- DG REGIO/JRC on 'The role of universities in Smart Specialisation' issuing recommendations to enhance the role of universities in the definition and implementation of Smart Specialisation Strategies based on the outcome of the workshop.
- Monitoring of national developments in open access, particularly regarding implementation of open access requirements for H2020 through dialogue with the EUA 34 NRCs.
- EUA has started analysing data on the gender composition of university management based on the database of EUA membership (4,250 individual university managers).
- Organisation of the Strategic Global Forum for Doctoral Education in March 2013 with 30 leaders in doctoral education from across the globe, producing a common statement on the need for a balanced global research community.

Participation in EU funded projects:

- Study on ways to enhance European universities' financial sustainability (EUDIS project: European Universities Diversifying Income Streams), awareness-raising and capacity-building activities (EUIMA-Full Costing): Sharing Innovative Practices in University Modernisation). Through the ongoing DEFINE project (Designing Strategies for Efficient Funding of Higher Education in Europe) EUA is conducting research and stock-taking exercises in order to provide recommendations to policy makers and universities to improve the efficiency of the funding to the university sector. More than 200 universities contributed to these projects.
- Study on collaborative research between universities and companies involving all stakeholders (EUIMA-Collaborative Research) to identify main factors of success to establish and sustain long-term university-business cooperation. On supporting mobility between private and public sector, the DOC-CAREERS II project (Promoting Collaborative Doctoral Education for Enhanced Career Opportunities), explores how universities work with their regional industry and authorities across Europe. More than 100 universities contributed to these projects.
- 'Cooperation on Doctoral Education between Africa, Asia, Latin America and Europe' project (CODOC; 2010-2012) and 'Framework for the Internationalisation of Doctoral Education' project (FRINDOC) which monitor developments regarding global collaborations in doctoral education through the Erasmus Mundus projects. These projects mobilised more than 100 universities.
- Further information on EUA's activities in 2013 and 2014 within the framework of the MoU can be found here:
http://www.eua.be/Libraries/Publication/2014_EUA_MoU_report.sflb.ashx.

3.6.4. *League of European Research Universities (LERU)*

Publication of several papers/statements related to ERA. Among them:

- Briefing paper for the next EU legislature entitled '[An ERA of Change](#)';
- Briefing paper '[LERU takes concrete steps towards ERA](#)';
- Advice paper entitled '[LERU roadmap for research data](#)';
- '[LERU – Open for business](#)' brochure;
- Advice paper '[Good practice elements in doctoral training](#)';
- Advice paper '[Online learning at research-intensive universities](#)';
- Support for an exception for TDM in the response to the copyright consultation and support given to the report of the TDM Expert Group. [Open letter](#) calling on Elsevier to withdraw its current TDM policy;

- Statement expressing disappointment about the EC's attempts, during the WIPO's negotiations, to block future discussions of copyright law to aid libraries and archives to fulfil their missions in the digital environment.

Organisation or participation in several meetings:

- Fringe sessions on 'How research partnerships are turning on the innovation growth machine in Europe' and 'The ERA partnership as the backbone of the European innovation ecosystem' at the EC's 2014 Innovation Convention;
- Organisation of a seminar on 'Open scholarship';
- Participation in the EUA seminar on smart specialisation;
- Participation in the focus group meeting organised by VERA (Forward Vision on the ERA project) to discuss possible future scenarios and strategies for ERA;
- Participation in the Working Group IDT Principles under the Steering Group for Human Resources and Mobility;
- Organisation of the LERU Doctoral Summer School on research integrity in Helsinki;
- Participation in the ERA SHO platform meetings, in the group developing a European Charter for access to RIs and, as an observer, in the Task Force meetings.

Contribution to the ERA Newsletter

Monitoring:

- Several surveys of LERU members. Among them, the survey on ERA priorities in 2013, a survey on the development of tenure-track systems, a survey on the classification of researchers and a survey on the impact of gender measures in 2014.

Other activities:

- Since 2013, collaboration with the EIT Foundation programme to place graduate students and recent PhDs for internships in industry since 2013;
- LERU universities were encouraged to publish their vacancies in the Euraxess Jobs Portal. Creation of a LERU Community of Vice-Rectors for Enterprise and Innovation in 2013;
- Creation of the LERU legal portal to give access to all the legal publications from LERU members which are available in open access;

3.6.5. *NordForsk*

- Launching of transnational and jointly funded research programmes in fields and topics that are highly relevant to society. These programmes are based on open calls, peer review and a common-pot principle.

- Adoption of a renewed grant agreement for Nordic Centres of Excellence (NCoE), requesting that project results are made public as soon as possible and in accordance with the projects' publication and dissemination plan. In addition, the new grant agreement emphasizes open recruitment and open advertisement of vacancies.
- Emphasis on open access to research data in its funding and support to broaden cooperation within all its programmes.

Independent evaluations:

- NordForsk's cross-border cooperation based on common-pot funding: results demonstrate the importance and added value of the NCoE funding scheme.
- The Top-level Research Initiative on Climate, Energy and the Environment (TRI): preliminary results demonstrate that a Nordic platform for successful future cooperation has been created.
- Researcher mobility: results provide a basis for understanding patterns and trends of researcher mobility across the Nordic region, different types of incentives and obstacles promoting and inhibiting such mobility.

Monitoring:

- Monitoring the progress in connection with ERA priorities by conducting a survey of the NCoEs funded by the TRI in 2013.

Facilitation activities:

- Creation of a joint research agenda on Arctic research in the Nordic countries in 2013.
- Discussion and debate at a global level on topics highly relevant to societies.
- Division of tasks and labour in the Nordic countries by executing the first call of the Joint Programming Initiative, JPI Climate, together with the French agency ANR.
- Discussions on priorities and joint Nordic actions by offering a platform for research infrastructure cooperation since 2013.
- Assessment of Nordic Universities' performance by bibliometric analysis.

3.6.6. Science Europe

- Adoption of the Science Europe Roadmap in December 2013. The roadmap sets out Science Europe's strategic priorities on a number of key ERA-related topics. The roadmap provides Science Europe with a plan and methodology to make evidence-based contributions to the strengthening of European research systems.
- Launch of nine Science Europe working groups: Cross-border Collaboration; Open Access to Research Publications; Research Data; Research Careers; Research Infrastructures; Research Integrity; Research Policy and Programme

Evaluation; Gender and Diversity; and H2020. Work plans have been, or are being, developed, and work is already underway. Priority areas for 2014 include, but are not limited to: safe havens for data; inter-sectoral mobility; post-doctoral instruments; strategic priority setting for RIs; research integrity policies and awareness raising tools. These activities are complemented by the work of the six Scientific Committees, for example work by the Medical Sciences Committee on 'big data', and the Humanities Committee Opinion Paper, 'Open Access Opportunities for the Humanities'.

- Organisation of the sixth high-level ERA workshop, which took place in February 2014. This brought together Heads of Science Europe Member Organisations, ministerial representatives and EU institutions, as well as representatives of stakeholder partner organisations. This event provided an important platform for high-level dialogue on ERA-related topics and will continue to take place annually.
- Co-ordination, together with ANR, the French National Research Agency, of the European regional input into the 2014 meeting of the Global Research Council (GRC). This led to a state of play report on Open Access and a 'Statement of Principles for Shaping the Future: Supporting the Next Generation of Researchers', which was endorsed by the GRC.
- Publication of the 'Practical Guide to Three Approaches to Cross-border Collaboration'. This guide provides information and advice on three optional models of collaboration: MfR; Money follows Co-operation Line and Lead Agency Procedure. It is intended to support Member Organisations which wish to implement these models.
- Production, in collaboration with Elsevier's SciVal Analytics, of the report 'Comparative Benchmarking of European and US Research Collaboration and Researcher Mobility'. The report looks at the impact of international research collaboration in Europe and the US. It shows that – measured in co-authorship – cross-border research collaboration levels in Europe are comparable to collaboration levels across US state borders. It also shows that there is a big advantage to be gained for European researchers who collaborate with non-European colleagues. The report was published in September 2013 and contributes to the evidence base on the topic of cross-border collaboration.
- Invitation to Science Europe Member Organisations to sign a new 'Letter of Intent' to indicate their intention to implement MfR (a model of grant portability), if this is relevant to them. All institutions signing up to this commit to providing publicly-available information on how this is organised in their institution, thus improving the transparency and visibility of MfR.
- Facilitation of Member Organisations' input into the consultation on the EU Copyright Directive. Also, continuation of advocacy of Science Europe's position on the European Data Protection Regulation. Science Europe is also working, in collaboration with partners where appropriate, on the related topics of data and text mining, licensing and copyright and data protection. On the last of these, SE released a Position Statement in May 2013 on the proposed European Data Protection Regulation, calling on the EU to safeguard the needs of the scientific community. This was complemented by an Opinion Paper by the SE Medical

Sciences Committee: ‘The Benefits of Personal Data Processing for Medical Sciences in the Context of Protection of Patient Privacy and Safety’, which was followed up by a co-hosted roundtable event in the European Parliament in September 2013.

3.7. Actions in support of ERA by the members of EIROforum

Four of the EIROforum members reported actions in support of the implementation of the ERA actions.

3.7.1. CERN (Conseil Européen pour la Recherche Nucléaire)

During 2013 CERN contributed to the implementation of all five ERA priorities as identified in the 2012 Communication on completing the ERA:

More effective national research systems

- In May 2013 CERN Council adopted the updated European Strategy for Particle Physics, which summarises the priorities for Europe in the next decade and is being used as a reference roadmap for particle physics by national funding agencies and by ESFRI.

Optimal co-operation and effective investment and use of RIs

- Israel became the 21st full member of CERN in January 2014;
- The High-Luminosity Upgrade of the LHC is currently in the implementation phase, with contributions from USA, Russia and Japan;
- CERN provides free access to its research facilities for scientists from more than 80 nations, involved in one or more of the many experiments using the accelerator infrastructure of the Organisation.

Open labour market for researchers

- CERN is working towards obtaining and implementing the EC logo ‘HR excellence’;
- Vacancy notices for all staff positions at CERN, not just Marie Curie fellows, are published on the EURAXESS job portal;
- CERN has an open and merit based recruitment process (e.g. no national quotas) and a career development system;
- Positions for Marie-Curie fellows (ITN and CO-FUND) are open to candidates from any country in the world;
- CERN fellows with a Marie-Curie CO-FUND fellowship may spend up to one year (out of three) in a research institute, university or industrial company of their choice, which facilitates the transition to the next stage of their careers;
- CERN actively contributes to the Task Force on the establishment of a Pan-European Pension Fund for researchers.

Gender equality and gender mainstreaming in research

- The Management of CERN is encouraging institutional changes through the introduction of a diversity programme and discussions on different levels within the Organisation.

Optimal circulation, access to and transfer of scientific knowledge

- CERN plays a leading role in the ongoing implementation of open access for publications in particle physics through the SCOAP3 Open Access publishing initiative, <http://scoap3.org/>;
- CERN continued the development and transfer of digital library technology, as well as Open Access experience, through the FP7 OpenAIREPlus project, notably with the launch of the flagship Zenodo Open Access and Open Data repository. The Open Access pilot in FP7, supported by OpenAIRPlus is expected to be expanded in H2020, with CERN expected to continue to provide the baseline digital Open Access technology;
- The Organisation supports the promotion of knowledge and technology transfer, including via open source software and open hardware models.

3.7.2. *EMBL (European Molecular Biology Laboratory)*

More effective national research systems

- In 2013 the Nordic EMBL Partnership for Molecular Medicine, which had until then connected institutes of excellence in Norway, Finland and Sweden, was expanded to Denmark. Thus, the EMBL partnership network now comprises national institutes within nine countries and thereby contributes to more effective national systems in life science research;
- To strengthen research links with institutes in its Member States, in 2013 EMBL entered into several agreements envisaging scientific exchange and collaboration. Recognising the potential for synergism in the field of structural biology, EMBL formalised its scientific links with the Karolinska Institutet, Sweden. Collaboration with the Universitätsklinikum Hamburg-Eppendorf, Germany, aims to address the scientific opportunities and challenges in the application of structural biology to understand certain human diseases. Last but not least, agreement with the Fonds National de la Recherche Luxembourg will support research projects of the highest quality put forward jointly by Luxemburgish and EMBL researchers.

Optimal co-operation and effective investment and use of RIs

- EMBL is contributing towards cooperation and effective investment and use of RIs across the ERA by expanding its membership. In 2013 the EMBL Council endorsed the membership of the Czech Republic. In 2013 Malta also submitted an application to become an EMBL Member State. This will be on the agenda of the EMBL Council in summer 2014;
- In 2013 the EMBL Council adopted a policy on prospect membership to facilitate the integration of the molecular biology community in Europe. The aim of the policy is to attract countries from Central and Eastern Europe to join EMBL and thereby encourage better integration of life science research in Europe. Prospect membership of EMBL is of a transitional character and offers broad access to EMBL facilities and services with no financial cost. This policy was welcomed by several European countries

and in February 2014 the Slovak Republic became the first EMBL prospect Member State;

- In 2013 EMBL revised its associate membership scheme to further foster the development of mutually beneficial research cooperation activities with non-European states. As a result, in 2013 the EMBL Council approved an application from Argentina to become an associate Member State. Australia has been an EMBL associate Member State since 2008;
- Progress in coordinating national investment in RIs has also been noticeable in ELIXIR and Euro-BioImaging. In 2013 ELIXIR moved into its implementation phase following the entry into force of the ELIXIR Consortium Agreement, which has since been signed by nine European countries and EMBL. In 2013 Euro-BioImaging presented a MoU which is a first formal step towards establishing this RI. Thus far the Memorandum has been signed by eleven countries and EMBL.

Open labour market for researchers

- In 2013 EMBL was conferred with the EC's 'Excellence in research' logo in recognition of its progress in implementing the European Charter for Researchers and the Code of Conduct for Recruitment of Researchers. EMBL developed a strategy and an action plan, which incorporates the C&C;
- EMBL has remained committed to advertising vacancies on EURAXESS, implementing a merit based recruitment process, launching career development initiatives etc.

Gender equality and gender mainstreaming in research

- During 2013 EMBL management encouraged institutional change through actions of different working groups and discussions on gender equality at different levels within the organisation. An example of one such action was the guidelines drawn up to ensure applications from suitable female candidates during the recruitment of group leaders.

Optimal circulation, access to and transfer of scientific knowledge

- EMBL continuously implements open access (a case in point are the bioinformatics services), provides digital research services and encourages different initiatives with the industry. In addition, Europe PubMed Central, maintained at EMBL-EBI and supported by more than 20 funding organisations, provides free access to life sciences and biomedical research publication information, to enable innovation through use of literature, including text mining, and to facilitate and provide integration of related research data;
- EMBL encourages knowledge transfer via its own technology transfer company.

3.7.3. ESO (European Southern Observatory)

More effective national research systems

- Continuation of ESO's Scientific Instrumentation devolution policies based on a consortia of national institutes (often in different countries) developing advanced scientific instrumentation for ESO's observational facilities;

- Continual discussions with a number of countries in Europe and beyond with an interest in joining the organisation;
- Providing help (expertise) to non-ESO ESFRI projects;
- Establishment of an ESO Council strategy working group to elaborate ESO's role in the wider astronomy and astrophysics landscape in Europe and beyond, including structural relations with major non-ESO undertakings.

An open labour market for researchers

- Open merit based and transparent recruitment: already in place, a review of the recruitment process and tool took place to facilitate applications of PhD candidates, fellows and researchers;
- Other areas (competence framework, performance evaluation for researchers, career development and specific training) are now integrated into the ESO Fellowship programme, etc. and will be implemented in 2014.

Gender equality and gender mainstreaming in research

- Encouraging institutional change through presentations, working groups and discussions at different levels within the organisation;
- Giving priority to gender equality in the recruitment process, in particular for researchers and engineers;
- Follow-up on gender issues identified in our staff engagement survey;
- Focus on gender issues in our regular review of employment conditions (maternity leave, parental leave, Kinderkrippe/Kindergarten, part time/flexible working time, etc.).

3.7.4. *ESRF (The European Synchrotron Radiation Facility)*

More effective national research systems

The ESRF is the only international synchrotron in the world. Most of the contracting parties of the ESRF also have their own national synchrotron facilities, complementary to the ESRF, which continually benefit from the experience and expertise of the ESRF via numerous collaborations.

Optimal co-operation and effective investment and use of RIs

In May 2013, South Africa signed a medium-term arrangement with the ESRF becoming the 20th country to join the European synchrotron. In August 2013, Israel renewed its Scientific Association with the ESRF for a further 5 year period (2014-2018) with an increased level of financial contribution.

In 2013, the ESRF published a detailed report on the socio-economic impact of the ESRF – 'Impact of the ESRF and its Upgrade Programme'.¹

Phase I of the ESRF Upgrade Programme (2009-2015), representing an investment of EU 165 million, paves the way to a new generation of beam lines and the substantial improvement of the reliability, stability and brilliance of the synchrotron source and X-ray instruments. It is now close to completion and is being delivered on time and within budget. The second phase of the ESRF Upgrade Programme (UP Phase II) is currently being elaborated with users, external experts and the ESRF funding bodies. ESRF UP Phase II represents EUR 150 million of new investment during 2015-2020 centred on an enhanced X-ray source that reduces the horizontal spread or 'emittance' of the ESRF's beams to unprecedented low values. The implementation of Phase II will allow Europe to maintain leadership in synchrotron research for the foreseeable future by enabling new science and the development of new technologies to the benefit of our society.

An open labour market for researchers

The ESRF advertises its open positions widely and continues to use the EURAXESS portal for this purpose. It accepts applications from candidates of all nationalities.

Gender equality and gender mainstreaming in research

In September 2012 the ESRF Management and Unions signed an agreement on gender equality. This agreement has been fully implemented and provides, for example, and amongst others:

- the yearly production of statistics on gender balance (e.g. ensure that the proportion of male/female new recruits reflects as closely as possible the respective proportion present in the applications received);
- that at least one woman is present on recruitment panels;
- that in the case where a male candidate is preferred for a position for which there were also female candidates, a written argumentation be made in the final recruitment proposal to management, providing the reasons, based on objective and neutral criteria, for the choice of that candidate.

4. FINAL REMARKS

4.6.1. Progress in policy support is constantly observed

The Commission could identify, together with Member States, that a variety of actions have been taken since 2013. **Error! Reference source not found.** below summarises the type of overall actions in the EU.

1

http://www.esrf.fr/files/live/sites/www/files/about/upgrade/documentation/BROCHURE%20IMPACT%20OF%20ESRF%20AND%20UPGRADE_ENGLISH%20VERSION_LR.pdf

Table 1: Number of initiatives taken by Member States since last year's ERA Progress Report.

Type of initiative	Since 2013	Of which in 2014
Law	33	10
Plans (including Action Plans)	14	5
Programme (incl. funding programme)	49	19
Schemes	11	
Non-legal action	12	1
Strategies	60	25
Other type	44	6

The areas where more measures could be identified are, by order of importance 'knowledge transfer and open innovation', 'open access', 'competitive funding' and 'financial commitments for the construction and operation of ESFRI'. The number of measures identified in 2014 is still low (see Table 2).

Table 2: Number of measures adopted (or being adopted) by area of intervention

	Since 2013	Of which in 2014
Competitive funding through calls for proposals applying the core principles of international peer review	23	3
Institutional funding based on institutional assessment	18	5
Implement joint research agendas	9	8
Interoperability, mutual recognition of evaluation results and other schemes	9	5
Openness for international cooperation with third countries and regions	2	2
Financial commitments for the construction and operation of ESFRI, national, regional RIs of pan-European interest	23	5
Access to RIs of pan-European interest	4	3

Foster cultural and institutional change on gender	3	
Gender balance in decision making process	19	5
Open access to publications and data resulting from publicly funded research	24	8
Open innovation and knowledge transfer between public and private sectors	48	7
Uptake of federated electronic identities	3	1

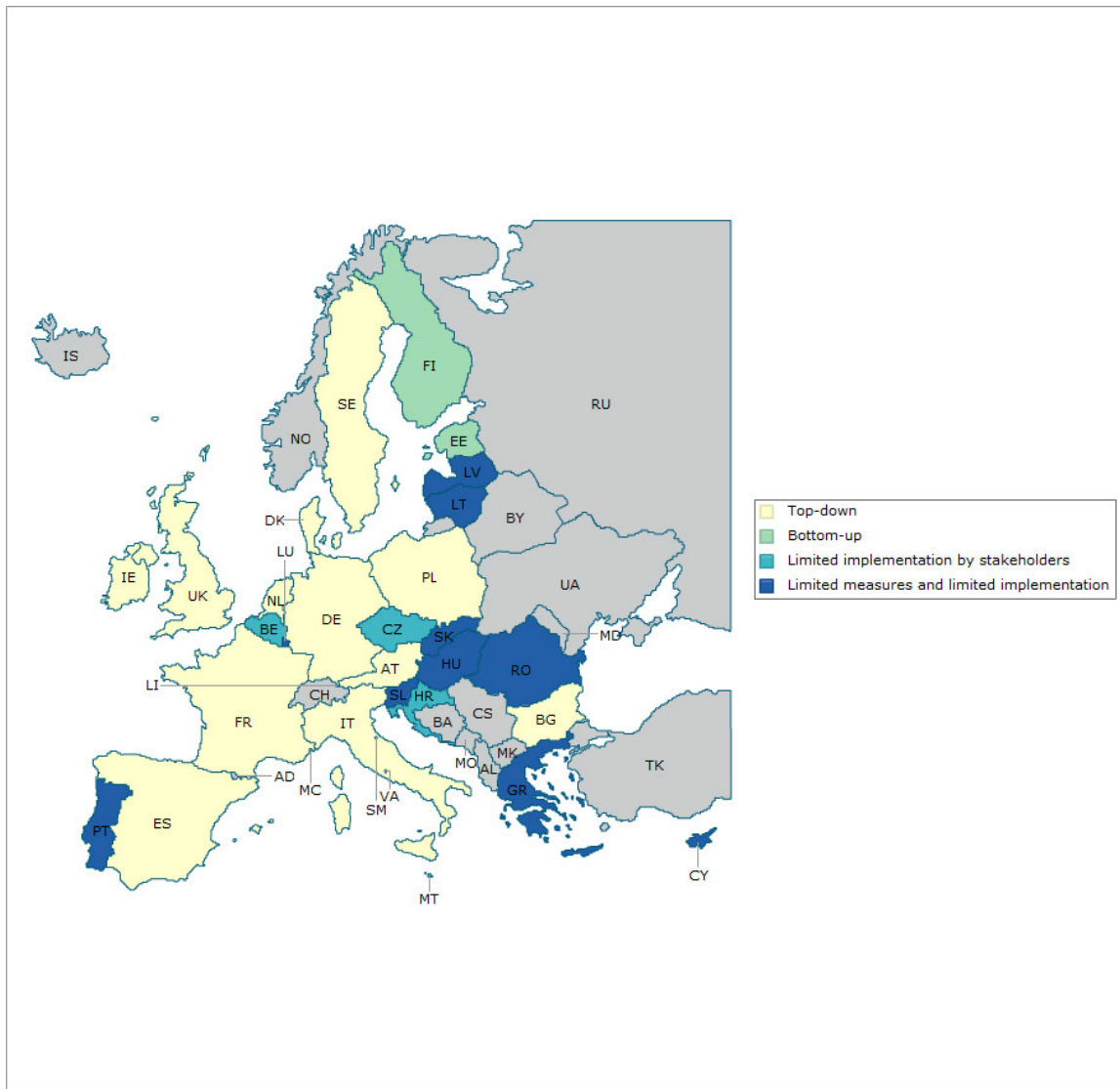
4.6.2. ERA national policies lead to ERA implementation

Some of the results² presented in this report are summarised in Map 1³. It shows that overall ERA is well implemented.

Map 1: Classification of Member States according to their policies in support of ERA and their implementation

² The results included concern only some specific aspects related to ERA (they do not include the results on the Open Labour Market for Researchers, which are presented in the corresponding section) , and no weight has been attributed to the different areas, which unbalanced the results: those countries with more actions for example on gender or knowledge transfer will score higher only due to the consideration of more areas in the analysis.

³ See annex for a description of the methodology 5.5.



Source: DG RTD

The results also suggest that there is not a single path to ERA. The implementation of ERA above the EU average is in some cases directly driven by funders and RPOs (bottom-up), whilst in some other cases by national and regional policies (top-down). In the cases where implementation is below the EU average, further efforts seem to be required by RPOs and in some cases also by national and/or regional authorities.

5. ANNEXES

5.6. Assessment of the ERA indicators

Priority	Issue	Number	Indicator	Source	Status	Comments	Included in the overall comparison	
More effective national systems	Competitive funding through calls for proposals applying the core principles of international peer review	1	Share of national GBAORD allocated as project based funding	EUROSTAT	Partial availability	New indicator EUROSTAT, few countries reported		
		2	Share of funders' budget allocated as project based funding	RFO survey	Estimated		Yes	
		3	Share of project based research and development budget allocated through peer review	RFO survey	Not estimated	The question in the survey has to be revised		
		4	Share of institutional funding allocated based on institutional assessment and/or evaluation	RFO survey	Estimated		Yes	
	More effective national systems	Institutional funding based on institutional assessment	5	National public funding allocated to transnationally coordinated R&D as % of GBAORD	EUROSTAT	Included		
			6	Funders' funding allocated to transnationally coordinated R&D as % of total funding	RFO survey	Estimated		Yes
			7	National public funding allocated to joint research agendas [within transnationally coordinated R&D] as % of GBAORD	RFO survey	Not estimated	Survey responses reflect 34% of total GBAORD	
			8	Share of funders which can base their project based research and development funding decisions on peer reviews carried out by non-national institutions	RFO survey	Estimated		
			9	Share of project based research and development budget allocated through peer review carried out by institutions outside the country	RFO survey	Estimated		Yes
			10	Share of funder's research and development budget dedicated to joint defined research agendas with non-national organisations	RFO survey	Estimated		Yes
		Common funding principles to make national research programmes compatible, interoperable (cross-border) and simpler for researchers	11	Share of funders research and development budget allocated to transnational cooperation through schemes such as Lead-Agency, Money-Follows-Cooperation and Money-Follows-Researchers (differentiating other EU MS from non-EU countries)	RFO survey	Not estimated	The indicator gathers different modalities which are not compatible. It is suggested to identify a new indicator.	
			12	Share of cumulated GBAORD committed to the construction and operation of the ESFRI Roadmap	MS/ESFRI	Not estimated	Only one MS provided the information	
			13	Number of Member States which have adopted a detailed roadmap with planned expenditure and related financing with regard to ESFRI	ESFRI/MS	Estimated		Yes
			14	Share of non-national researchers using RI (separating other EU MS from non-EU countries)	MS	Not estimated	The questions in the survey should be modified. A specific survey of ESFRI and EIROs should be undertaken	Yes
Transnational cooperation	Mutual recognition of evaluations that conform to international peer-review standards							
Research infrastructures	Financial commitments for the construction and operation of ESFRI, national, regional Research infrastructures of pan-European interest							

Knowledge circulation	Open access for publications and data resulting from publicly funded research	33	Share of funders funding systematically open access to publications	RFO Survey	Estimated		Yes	
		34	Share of funders funding systematically open access to data	RFO Survey	Estimated		Yes	
		35	Share of research performing organisations making available on-line and free of charge [publicly funded] scientific research data systematically	RPO survey	Estimated		Yes	
	Open innovation (OI) and knowledge transfer (KT) between public and private sectors	36	Share of funders supporting systematically the implementation of knowledge transfer as part of its institutional and/or project based funding	RFO Survey	Estimated		Yes	
		37	Share of staff whose primary occupation is in the private sector (in Full Time Equivalents)	RPO survey	Estimated		Yes	
		38	Share of research and development budget financed by private sector	RPO survey	Estimated		Yes	
		39	Share of research performing organisations having or using a structure for knowledge transfer activities	RPO survey	Estimated		Yes	
		40	Share of research performing organisations having dedicated staff employed in knowledge transfer activities	RPO survey	Estimated		Yes	
		41	Share of funders R&D budget dedicated to support the development and uptake of digital research services	RFO Survey	Not estimated	The target audience has to be revisited		
		42	Share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	RPO survey	Estimated	The type of digital service may need to be revisited (select the most relevant(s))	No, difficult to identify the relevant variable	
	Harmonise policies for public e-infrastructures and associated digital research services	43	Share of funders research and development budget dedicated to support the development and uptake of federated electronic identities	RFO Survey	Not estimated	The target audience has to be revisited		
		44	Share of research performing organisations providing federated electronic identities for their researchers	RPO survey	Estimated		Yes	
		45	Share of organisation's research and development budget originating from third countries	RPO survey	Estimated		Yes	
		46	Share of research and development budget allocated to collaboration programmes carried out with third countries	RFO survey	Estimated		Yes	
	International Dimension	Openness of Member State/Associated Country (MS/AC) for international cooperation						

	Publications by researcher	SCOPUS	Included	New indicator
47	Share of scientific publications with authors from different countries (separating EU and non-EU countries)	SCOPUS	Included	Modified to Number of scientific publications with authors from different countries (separating EU and non-EU countries)
48	Share of top 10% scientific publications	SCOPUS	Not estimated	Lack of time
49	Share of [publicly funded] scientific publications in OA amongst research performing organisations	RPO survey	Estimated	
50	Share of researchers who feel that recruitment procedures are open, transparent and merit-based	MORE SURVEY	Included	
51	Share of non-national researchers (differentiating between other EU MS from non-EU countries)	RPO survey	Estimated	
52	Share of non-EU students in tertiary education	EUROSTAT	Included	
53	Share of non-EU doctoral holders	EUROSTAT	Replaced	Share of non-EU doctoral holders candidates
54	Share of female PhD graduates	EUROSTAT	Included	
55	Share of female researchers	EUROSTAT	Included	
56	Share of female senior researchers (grade A)	She Figures	Included	
57	Share of females who are head of organisation	RPO survey	Estimated	
58	Rate of growth of patents held by Research Performing Organisations	RPO survey	Not estimated	Only one observation available
59	Rate of growth of licences held by Research Performing Organisations	RPO survey	Not estimated	Only one observation available
60	Rate of growth of licence income received by Research Performing Organisations	RPO survey	Not estimated	Only one observation available
61	Rate of growth of collaborative agreements with the private sector and/or non-governmental sector	RPO survey	Not estimated	Only one observation available
	Patents by researcher	RTD analysis	Included	New indicator
62	Share of co-patents held with non-national institutions (differentiating between other EU MS from non-EU countries)	RPO survey	Not estimated	Too many missing values among the answers
63	Share of co-patents held with the private sector	RPO survey	Not estimated	Too many missing values among the answers

Outputs

5.7. Methodology for clustering the RPOs (2014 ERA survey)

This section presents the characteristics of the ERA survey and the methodology used to cluster RPOs according to their ERA compliance.

5.8. The 2014 ERA survey

The second ERA survey is the continuation of the first survey of RPOs in the ERA launched in 2012, to identify the implementation status of the different ERA priorities. Only public research organisations (universities, institutes, hospitals, research agencies, etc.) or organisations under private law with a public mission were concerned.

The 2014 questionnaire was drafted by an Expert Group taking advantage of the experience acquired in the previous exercise as well as contributions from national representatives. The resulting 2014 questionnaire is a simplified version of the previous one and mainly gathers information to estimate indicators agreed with Member States. It also introduces the possibility of answering 'not applicable' to the questions to reflect the fact that sometimes they cannot implement the ERA actions because they do not correspond to their mandate or institutional characteristics. A new organisation category, Research and Technology Organisations (RTOs), with distinctive, mission-oriented R&D objectives, was also included. The questionnaire was administered on-line through a dedicated webpage created on the European Commission ERA website. Launched on 28 February 2014, it was closed on 9 April 2014. In many cases the organisations were contacted after the closure to validate some of the information provided.

The survey addresses specific issues linked to the ERA priorities: institutional assessment for funding; RIs, open labour market for researchers; gender issues and knowledge circulation. Questions regarding transnational co-operations with EU countries were not considered in the 2014 survey in order to reduce the response burden. Therefore, a quantitative and statistical comparison with the results of the first survey cannot be carried out. However, a qualitative study based on some common items is possible.

The Commission received 1,265 responses by RPOs in 2014 (this number is not far from the 1,374 received in 2013 after removal of duplicates, incomplete, wrong and unreliable records). The representativeness of the data is estimated to be 31.6% when considering the total number of staff (headcount) of the research organisations at EU level (it was equal to 31.2% in the 2012 survey). However, only around one third (471) of the RPO responded to both surveys.

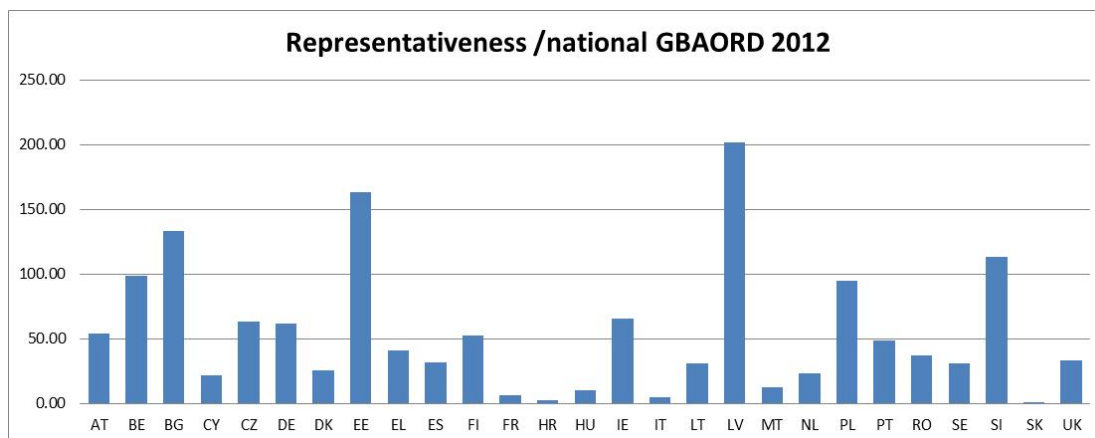
The data was collected in textual or numerical format, transformed and recoded into a numeric format to be analysed with statistical software packages.

In terms of the geographical distribution of RPO respondents in 2014, it appears that some countries participated better than in 2012 (the most notable being Germany, Austria and Estonia) while it was the opposite in the case of Poland, Belgium, Italy. However, for most of the countries, these numbers remain quite stable (although, as mentioned above, they may be not the same organisations). Among the ACs, a high number of responses were received from Turkey.

In terms of representativeness of the answers from funders, their total budget represents around 34% of total GBAORD in the EU (see Graph 1). However, the analysis by

country shows figures above 100% of GBAORD. This is explained by the fact that the figures provided also include the budgets dedicated to education.

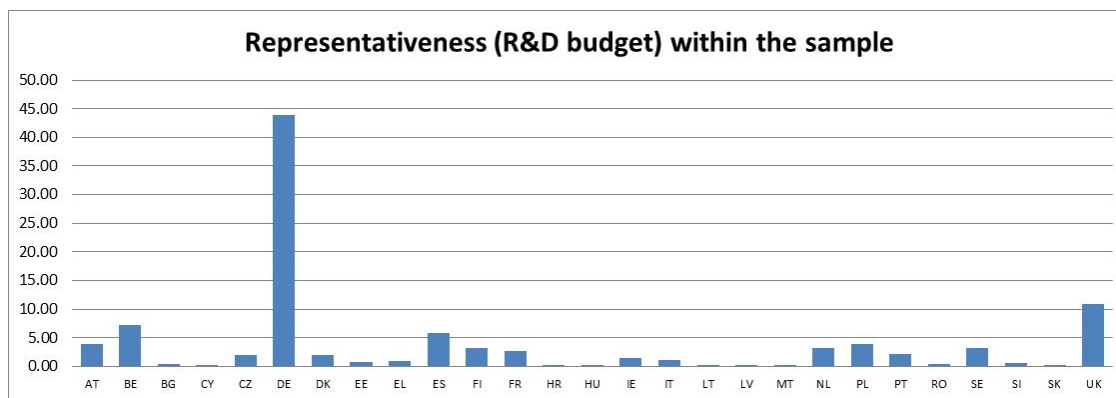
Graph 1: Representativeness of fs when compared with national GBAORD 2012.



Source: Eurostat (GBAORD) and ERA survey 2014 (Research funders budget)

The importance of funding managed by national funders among all funders who responded to the survey is shown in Graph 2. The high level of funding managed by German funders affects the estimation of EU averages. Besides, the table shows the limited participation in the total budget of the four cases which declared budgets above the 100% of GBOARD.

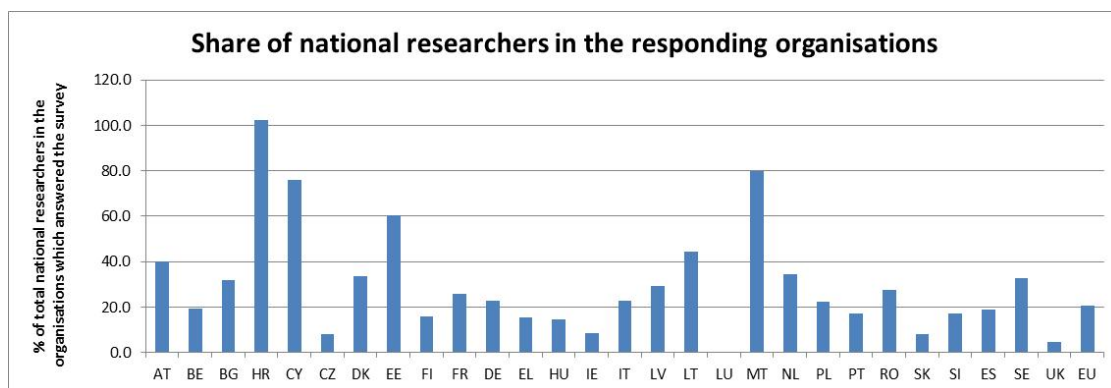
Graph 2: Share of total funding managed by responding funders, by country



It should be noted that the denominators used for the estimation of the EU averages include (very limited) amounts of funding dedicated to education.

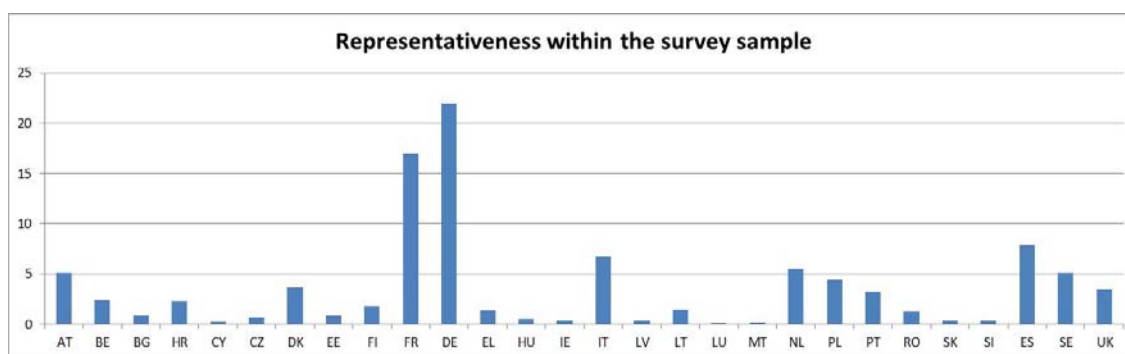
Concerning RPOs, respondents to the survey gather around 20% of the total research population in the EU. Graph 3 shows the important share of researchers in the case of France and Germany.

Graph 3: Representativeness of RPOs in terms of total researchers in the country



The representativeness of the survey in terms of share of national researchers is important in Germany, France, Spain and Italy, which affects the EU average (notably by the German institutions) (see Graph 4).

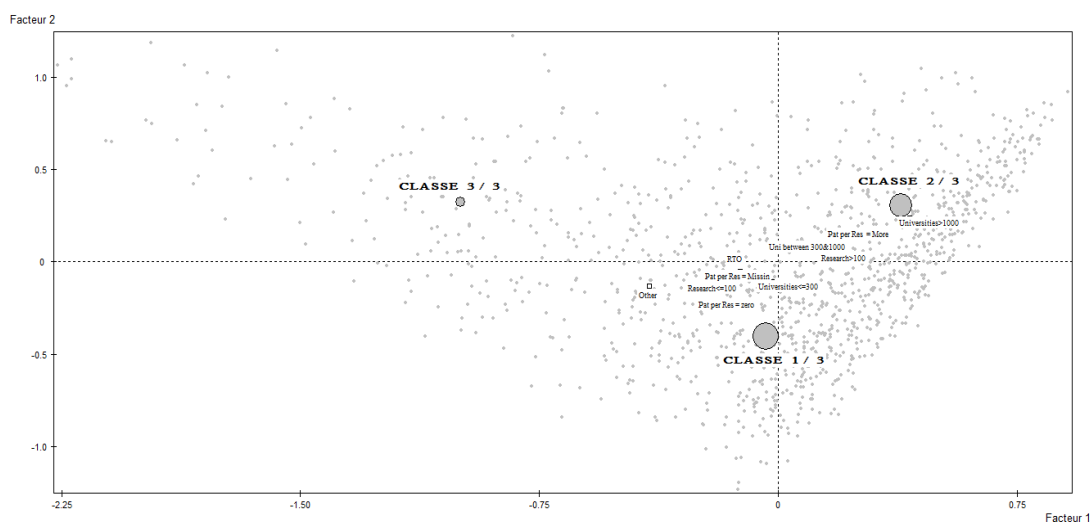
Graph 4: Share of country’s researchers among the total number of researchers in responding RPOs



5.9. Clustering RPOs according to ERA compliance

The responses to the survey can be used to group the organisations according to their different propensity towards the implementation of ERA actions. One possible methodology is to undertake a multivariate analysis. This type of statistical analysis enables the simultaneous representation of the variables and/or the cases of a dataset in order to synthesize the information (aka, the variance) of the sample (Di Franco 2001, 181). Usually, multivariate analysis requires an adequate number of variables (at least 3, but more than 4 are generally recommended) and cases (many suggest at least 20 cases per variables), otherwise results might not be statistically significant. Considering the objective of the analysis goal and the categorical and ordinal nature of the majority of the variables in the dataset, the 'French way' to conduct multivariate analysis (Benzecri, 1973; Di Franco, 2006; Greenacre & Blasius, 2006; Holmes, 2007), was adopted. The most common procedure of this approach consists of two multivariate techniques applied in sequence: first an MCA (multiple correspondence analysis, similar to a factor analysis, but applied to categorical data) to synthesize many variables into single factors; then a clustering method in order to group the cases according to MCA outcomes.

The responses to the survey were used to carry out basic univariate statistics. Variables with too many missing values, too high redundancy or unbalanced distributions were excluded from the analysis. Those remaining were used for a descriptive multidimensional (i.e. multivariate) analysis using factorial and clustering methods to group the organisations according to their propensity towards the implementation of the ERA actions. The variables retained are: *Funding based on assessment by the funding*



NB: The circles represent positions of the centres of mass of the clusters. Their sizes are proportional to the cardinals of each cluster.

It should be noted that the inclusion of an organisation in a cluster does not necessarily mean that it fits the 'expected' profile of the cluster perfectly, i.e. if an organisation is included in the 'ERA compliance' cluster, it does not mean that this organisation fully implements all the ERA priorities. Its inclusion in the 'ERA compliance' cluster means that this organisation has a similar pattern of answers to other organisations which show a high propensity towards ERA. The same applies for the other clusters.

Cluster 1, labelled 'Limited compliance to ERA', gathers 565 organisations which show a limited propensity towards the implementation of ERA. Their implementation (occasionally) appears to be confined to few ERA actions. From a statistical point of view, this cluster is characterised by low percentages of organisations implementing some actions such as: occasional implementation of 'advertising on Euraxess' (6.9% of the organisations belonging to this cluster); 'C&C principles' (9.6%); 'GEP' and 'inclusion of gender dimension' (about 20% when averaging the two corresponding scores); a moderately better situation regarding 'funding based on assessment' (36.5%); 'minimum requirements in vacancy announcements' (44.2%); 'existence of a structure for knowledge transfer' (30.4%); 'provision of federated electronic identity'; 'provision of cloud services'. The proportion of 'not available' responses for 'innovative doctoral training' is high (45.3% of organisations in the cluster).

Cluster 2, called 'ERA compliance', gathers 501 organisations which appear to be more inclined to implement ERA actions. The profile of an 'ERA compliant' organisation is characterised by the implementation (often frequently) of the majority of the variables used for the cluster analysis. From a statistical point of view, this cluster can be described by: a large majority (about or more than 80%) of organisations replying 'yes' or 'frequently' to the effective implementation on 'minimal requirements for researcher's recruitment', 'structure for knowledge transfer'; a rather high percentage (about 2/3 or higher) for 'funding based on assessment', 'running/funding RIs', 'implementation of the C&C principles', 'adoption of GEP', adoption of innovative doctoral training principles'; a mixed picture for 'vacancies advertised on Euraxess' (50.7%), 'inclusion of gender dimension in research contents' (47.7%), 'provision of federated electronic identity'

(55.3%), 'provision of other digital services' (48.1%); a modest performance for 'open access for data' (27.5%) and 'provision of cloud services' (38.9%).

Cluster 3, called 'ERA not applicable', gathers 199 organisations. This cluster is the most difficult to describe because the organisations which indicated that the implementation of ERA is 'not applicable' according to their mandate. In other words, the organisations belonging to this cluster do not find an appropriate answer to the majority of the questions. The statistical analysis shows that, most often, the answer 'not applicable' represents the higher percentage of responses such as 'advertised on Euraxess', 'minimum requirements included in the vacancy announcement', 'implementation of the C&C principles', 'adoption of GEP'; however, for some questions the 'not available' percentage of responses is the highest, such as 'adoption of innovative doctoral training principles' (59.3%) and 'provision of federated electronic identity' (44.2%).

Although the cardinal (i.e. the number of organisations) of the cluster 'Limited compliance to ERA' (565) is slightly higher than the one of 'ERA compliance' (501), the latter represents 80.6% of the total number of researchers, while the former only 16.5%. The 'not applicable' cluster gathers the remaining 2.9%.

The RTOs and 'others' represent respectively 179 and 214 organisations. If the RTOs show a relatively balanced distribution in the two above clusters (keeping the same order of presentation 81 and 65), the 'other' category is mainly concentrated in the 'Limited compliance to ERA' cluster (114) and very few (26) in the 'ERA compliance' cluster. Hospitals, museums, libraries are included in the 'other' category of respondents.

The size of the organisations is an important factor regarding the extent to which they are actively engaged in adopting and implementing ERA actions; larger organisations in the sample appear to be more compliant. High ratios are observed for instance regarding the 'funding based on assessment by the funding organisation' for universities larger than 1000: 97 responding 'yes' in the cluster 'ERA compliance' out of a total of 108. For 'running and/or funding RIs', while the 'yes' is balanced between the two clusters 'Limited compliance to ERA' and 'ERA compliance' (21 and 22 respectively) for research organisations less than 100, these values are very different (respectively 20 against 76) when the size is bigger than 100. The same figures are observed for 'advertised on Euraxess': they are even more pronounced with 99 responses 'frequently' out of a total of 105 for universities larger than 1000.

It should be stressed that the three clusters do not discriminate against organisations according to 'positive' and 'negative' implementation of the ERA actions. There are always organisations that respond negatively or positively in each cluster. For instance, 44.2% of the organisations in 'Limited compliance to ERA' replied 'frequently' to the question on minimal requirements (to be compared however to the 85.6% of the 'ERA compliance' cluster). The same observation can be made for innovative doctoral training where implementation is respectively undertaken by 28.7% and 73.1% of the organisations. In terms of adoption of a gender equality plan 18.9% of the organisations in the 'Limited compliance to ERA' cluster answered 'yes' while 75.2% replied 'no' (62.1% and 30.5% respectively in the 'ERA compliance' cluster). In other words, the clusters show a trend more toward ERA implementation than a strict frontier between the two groups. This is also true for the 'not applicable' cluster, although at a much lower level.

Regarding the distribution per country, it appears that the number of organisations in the 'Limited compliance to ERA' surpass the 'ERA compliance' in the majority of countries. Half or almost half of organisations belonging to countries such as Austria, Belgium, Bulgaria, Greece, Hungary, Ireland and Slovakia are clustered in the 'Limited compliance to ERA'. The countries whose majority of organisations belong to the 'ERA compliance' cluster are, amongst others, Italy, The Netherlands, United Kingdom, Norway and Switzerland. The only country where there is a large difference is Germany: 83 organisations out of 127 are classified in the 'ERA compliance' cluster (10 being in the 'Not applicable' cluster). However, the situation changes radically when the analysis is done with respect to the number of researchers in the organisations. In this case, only four countries have a majority of organisations in the 'ERA compliance' cluster.

5.10. Matching ERA policies with ERA implementation

In order to provide a synthetic view of the previous analysis and reflect the overall ERA compliance, policy and implementation indexes were built up. In situations where policy for the ERA priority was identified, the country was given a mark of one, whereas, when policies were not identified, the country was given a mark of zero. In situations where the implementation of the ERA action is above the EU average, the country was given a mark of one, and vice versa, when the implementation was below the EU average, the country was given a mark of zero.

Table 3 presents the ERA areas which were considered in this assessment. The domains related with the open labour market for researchers are not included as the analysis is presented in the relevant section of this report.

For example, a country in which there is a strategy in place to support the implementation of a joint research agenda and the share of funding to joint research agendas is above the EU average, the country received a mark of 1 in terms of policy support and 1 in terms of implementation. In cases where there is no strategy but the share of funding is above the EU average, the country received a mark of 0 and 1, respectively.

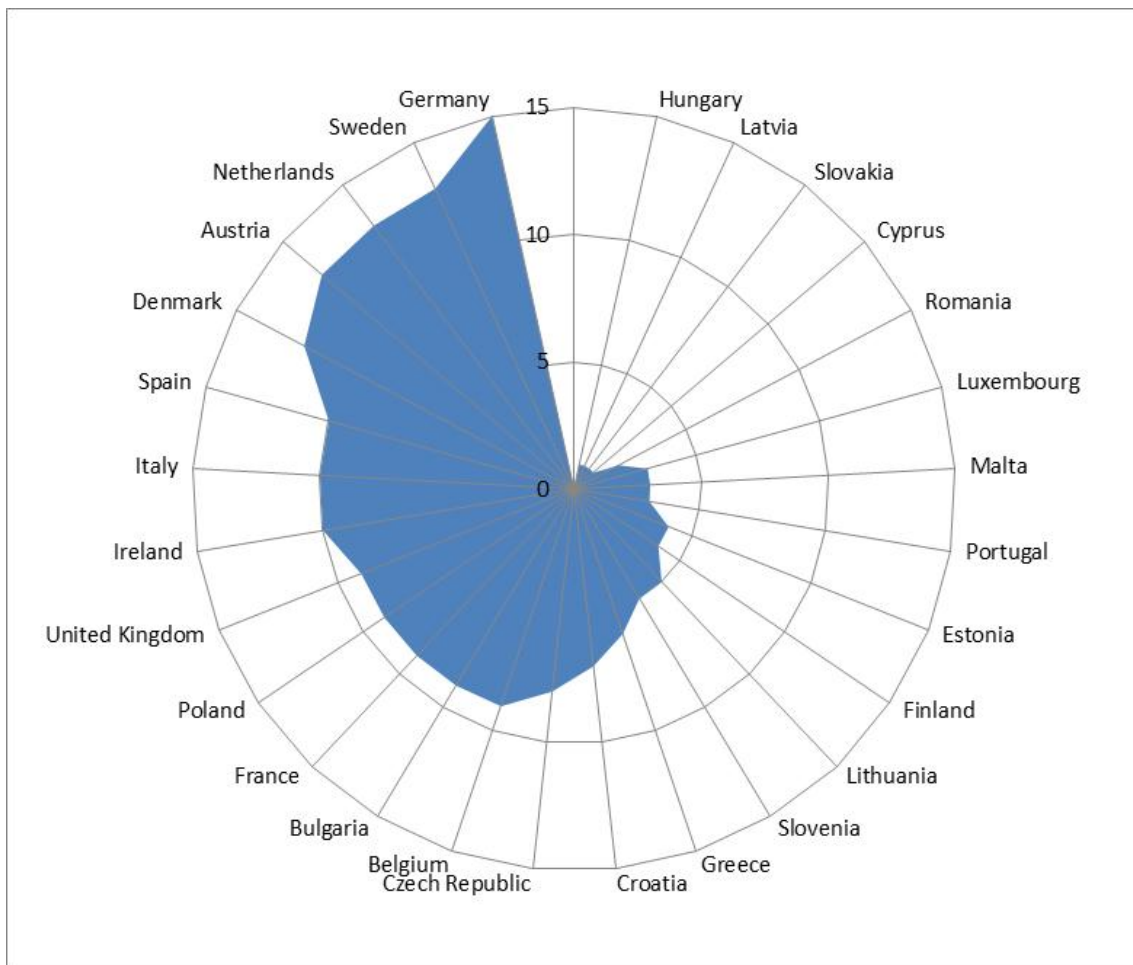
Table 3: Score given for each domain of activity to the policy support and to the implementation by funders or performers

	Policy support		Implementation by funders or	
	Identified	Not identified	Above EU average	Below EU average
Performance based funding	1	0	1	0
Institutional funding based on institutional assessment	1	0	1	0
Funding of joint research agendas	1	0	1	0
Funding of international cooperation	1	0	1	0
Implementation of Gender Action Plans by research performing organisations	1	0	1	0
Support to gender equality by funders	1	0	1	0
Share of head of RPOs which are women	1	0	1	0
Inclusion of the gender dimension in research contents by funders	1	0	1	0
Inclusion of the gender dimension in research contents by performers	1	0	1	0
Support to open access to publications by funders	1	0	1	0
Support to open access to data by funders	1	0	1	0
Provision of open access to data by RPOs	1	0	1	0
Support to knowledge transfer by funders	1	0	1	0
Presence of technology transfer offices	1	0	1	0
Provision of federated identities	1	0	1	0
Maximum score	15		15	

For each country, the total scores are added up, independently of the fact that there is a matching between policy and implementation.

The following graphs compare the situation across Member States. Eight Member States have adopted policies in more than of the 10 areas mentioned above (see Graph 7).

Graph 7: Number of areas in which policy has been adopted in the different Member States.

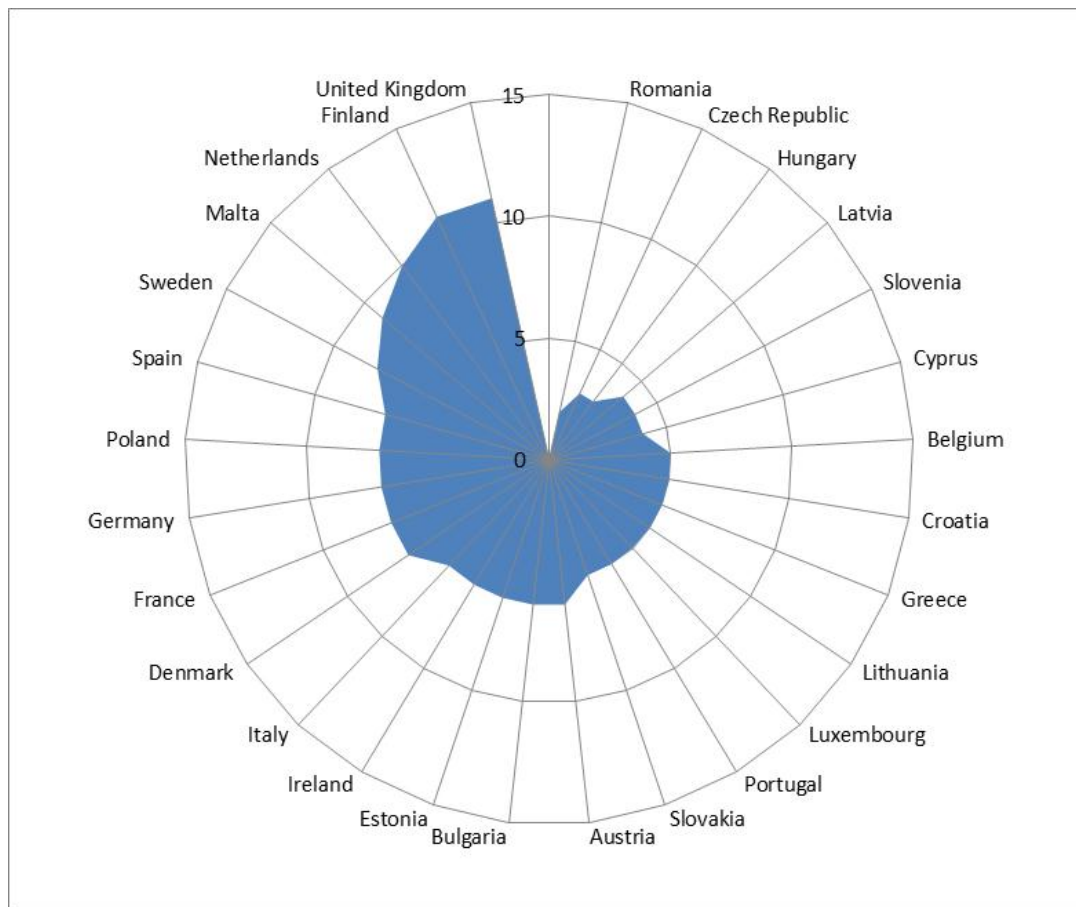


Source: DG RTD, ERA policy reforms unit

Note: Results on the open labour market for researchers are not included in this graph.

The number of areas where implementation is above the EU average is lower than in the previous case. For example, only in three countries (and they are not always the same) it can be observed an implementation above the EU average in ten 10 areas (see Graph 8).

Graph 8: Number of areas in which implementation by Member State is above the EU average.



5.11. How to analyse the results of the survey in the country fiches

Annex 5.1 presents the indicators that were agreed with Member States. Among the list, 35 are being included either in the Country snapshot or in the relevant section in the Country fiches.

The results in the current version are presented in the form of tables with the following headings:

Indicator	Level/ cluster	Value	Year	Source
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The level/cluster column indicates the following possibilities:

- For the case of funders, there are two values: National (the result observed at national level) and EU (the result observed in the average at EU level).
- For the case of RPOs, there are up to four values: the results observed at national level, presented according to the degree of ERA compliance of RPOs (ERA compliant, Limited Compliance and ERA not applicable) and the result observed at EU level only for the cluster 'ERA compliant' (it can be recognised by the title 'ERA compliant at EU level').

In the publishable version of the report, the results will be presented in a graphic format.

For the snapshots, the following indicators were retained:

Indicator	Rationale
GBAORD	Government budget appropriations or outlays on R&D (GBAORD) are all appropriations allocated to R&D in central government or federal budgets and therefore refer to budget provisions, not to actual expenditure. Provincial or state government should be included when its contribution is significant. GBAORD measures government direct support to R&D activities.
GBAORD per capita	The indicator presents Government Budget Appropriations or Outlays on R&D normalised by population in order to allow for the comparison of spending efforts related to the population of a country.
GBAORD/GDP	The indicator GBAORD as a % of GDP shows how much priority government gives to the public funding of R&D in the economy.
GBAORD as share of total government expenditures	The indicator GBAORD as a % of total government expenditure shows how much priority government places on the public funding of R&D.

Indicator	Rationale
R&D tax incentives (as a share of GBAORD)	Tax incentives for R&D are a form of indirect support for R&D. It is a market-based tool aimed at reducing the marginal cost of R&D activities. It reflects the willingness of a government to give up revenues in the short-term in order to foster R&D in the private sector.
Share of GBAORD allocated as project funding	The indicator presents the share of GBAORD allocated to a group or an individual to perform a R&D activity limited in scope, budget and time, normally on the basis of the submission of a project proposal describing the research activities to be done.
Share of GBAORD allocated as institutional funding	The indicator presents the share of GBAORD which is allocated to institutions with no direct selection of R&D project or programmes to be performed. Under this type of funding, it is the receiving institution that has discretion over the R&D projects that are to be performed, not the funding organisation.
Share of GBAORD allocated to transnationally coordinated R&D	The indicator presents the share of GBAORD which is allocated to transnational cooperation activities. It includes the contributions to transnational public R&D performers; Europe-wide transnational public R&D programmes and bilateral or multilateral public R&D programmes established directly between Member State governments. It reflects the importance given by the government to collaboration and sharing of experiences in R&D across borders, whether national, regional or organisational, as an effective way to access new ideas, innovative approaches and new skills.
Number of researchers (headcount)	Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned. Head count data corresponds to the total number of researchers employed by the public and private sectors.
Number of researchers/1000 active population (headcount)	The indicator presents the total number of researchers as a share of active population.
Non-EU doctorate students as a percentage of all doctorate students	This indicator presents the share of non-EU doctorate students among all doctoral students measure in headcounts at a particular point in time. It reflects the openness of the education system to students from outside the EU.
Share of women researchers (headcount)	It addresses gender balance among researchers.
Share of women PhD graduates (% based on headcount)	It presents gender balance after PhD graduation. Compared with the share of women researchers, the different represents the degree of utilisation

Indicator	Rationale
	(in the country) of potential female scientists
Share of women senior researchers (% based on headcount)	This indicator addresses gender balance in senior research positions. It can be compared with the share of women researchers as a proxy for the openness of the national public research system for career progression of women researchers.
Share of women heads of institutions in the Higher Education Sector (% based on headcount)	This indicator highlights gender balance in leading positions. It can be compared with the share of women researchers as a proxy for the capacity of the national public research system to ensure career progression for women.
Publications by researcher	<p>The indicator has been estimated using the total number of publications in international publications databases and the total number of researchers in the country.</p> <p>Publications are research articles, reviews, notes and letters published in referenced journals which are included in the Scopus database of Elsevier. A full counting method was used at the country level. However, for the EU aggregate, double counts of multiple occurrences of EU Member States in the same record were excluded. Source: Scopus (Elsevier); treatments and calculations: Science Metrix.</p> <p>It measures the scientific productivity of the national research system.</p>
Co-publications within the EU by researcher	<p>EU transnational co-publications refer to international co-publications which involve at least one author from an EU country. This category includes both co-publications by authors from at least two different EU Member States (as defined by research papers containing at least two authors' addresses in different countries) and co-publications between one or several authors from the EU together with at least one author from a country outside the EU.</p> <p>It has been estimated using the total number of EU transnational co-publications and the total number of researchers in the country.</p> <p>It is a proxy to analyse the degree of openness of the national system to collaborate within Europe.</p>

Indicator	Rationale
Co-publications with researchers from outside the EU by researcher	<p>Extra-EU co-publications is a sub-category of the broader EU transnational co-publications. It refers exclusively to international co-publications involving at least one EU author and at least one non-EU author, as defined by the authors' addresses in different countries.</p> <p>The indicator has been estimated using the total number of Extra-EU co-publications and the total number of researchers in the country.</p> <p>It is a proxy to analyse the degree of openness of the national system to collaborate with researchers working in institutions located outside Europe.</p>
PCT patent applications by researcher	<p>The Patent Cooperation Treaty (PCT) is an international treaty, administered by the World Intellectual Property Organization (WIPO), signed by 133 Paris Convention countries. The PCT makes it possible to seek patent protection for an invention simultaneously in each of a large number of countries by filing a single “international” patent application instead of filing several separate national or regional applications. Indicators based on PCT applications are relatively free from the "home advantage" bias (proportionate to their inventive activity, domestic applicants tend to file more patents in their home country than non-resident applicants). The granting of patents remains under the control of the national or regional patent offices. The national distribution of patent applications is assigned according to the inventor's country of residence. If one application has more than one inventor, the application is divided equally among all of them and subsequently among their countries of residence, thus avoiding double counting.</p> <p>The indicator has been estimated using data computed by Bocconi University (Italy), based on WIPO-PCT applications and PATSTAT database for the number of patent applications and Eurostat for the number of researchers (number of patent applications per country/number of researchers in the same country).</p> <p>In general, patent applications can be filed by researchers and non-researchers. However, data is not available on the occupation of the inventor. Therefore, this proxy is presented to compare the effectiveness of national research systems in terms of PCT patent applications.</p>

5.12. Glossary

2010 European Strategy Forum on Research Infrastructure (ESFRI) Roadmap⁴: the ESFRI Roadmap identifies new RIs of pan-European interest corresponding to the long term needs of the European research communities. It covers all scientific areas, regardless of possible location.

Applied research: applied research is an original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective (Source: OECD, 2002).

Assessment or evaluation procedure (within the context of funding allocation): evaluation procedure which analyses the entire institution in terms of input, throughput (processes) and output factors. Among the latter, the assessment may include research performance and may be linked to funding allocation. Salaries and other staff costs are not included in the assessment.

Associate country to the EU Framework Programme (AC): several countries are associated with the implementation of the EU 7th Framework Programme for Research and Technological Development. These include Albania, Bosnia & Herzegovina, Faroe Islands, Iceland, Israel, Liechtenstein, Former Yugoslav Republic of Macedonia, Moldova, Montenegro, Norway, Serbia, Switzerland and Turkey.

Basic (fundamental) research: basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of underlying foundations of phenomena and observable facts, without any particular application or use in view (Source: OECD, 2002).

Cloud services: services to remotely deliver computing and storage capacity to end-users.

Collaboration programmes (within the context of international cooperation): programmes whose activities have been agreed on or arranged by the national agency and agencies of one or more third countries aimed at promoting collaboration in research between organisations or individuals from these countries.

Collaborative agreement: an agreement between two or more legal entities to co-invest in the R&D of products or processes.

Computing services: services enabling researchers to use local or remote computing resources, offered, for example, by High Performance Computers, or distributed grid- or cloud-based computing infrastructures. For example, PRACE and EGI support the development and provision of these services in the EU.

Dedicated staff employed in knowledge transfer activities: number of employed people engaged in KT activity.

⁴ http://ec.europa.eu/research/infrastructures/pdf/esfri-strategy_report_and_roadmap.pdf#view=fit&pagemode=none

Digital research services: examples of digital services include scientific repositories, computing services, cloud services (from external provider), scientific software, research collaboration platform, etc.

European Union (EU): economic and political union of 28 Member States. EU countries namely: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

EU countries: countries which are part of the EU. These include Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

EU Framework Programme for Research and Technological Development: the EU's main instrument for funding research in Europe. It provides grants to research actors in Europe and beyond, in order to co-finance research, technological development and demonstration projects. Grants are determined on the basis of calls for proposals and a peer review process.

EURAXESS portal⁵: a service which provides information and services to mobile researchers.

European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers⁶: aims to ensure that the nature of the relationship between researchers and employers or funders is conducive to successful performance in generating, transferring, sharing and disseminating knowledge and technological development, and to the career development of researchers. It outlines a set of general principles and requirements which specifies the roles, responsibilities and entitlements of researchers as well as those of employers and/or researcher funders. The Code of Conduct for the recruitment of researchers consists of a set of general principles and requirements that should be followed by employers and/or funders when appointing or recruiting researchers. The principles are complementary to those in the European Charter for Researchers.

European Research Council (ERC)⁷: the mission of the ERC is to encourage the highest quality research in Europe through competitive funding and to support investigator-initiated frontier research across all fields of research, on the basis of scientific excellence.

Evaluation: process of evaluating after completion, the outcome, results and impacts of projects, programmes and/or research agendas.

⁵ <http://ec.europa.eu/euraxess/>

⁶ http://www.upr.si/fileadmin/user_upload/RK_RS/RK_RS_angleska/am509774CEE_EN_E4.pdf

⁷ <http://erc.europa.eu/>

Federated electronic identity: federated identity allows researchers to use their own organisation user account when accessing other organisations' digital services.

Full Time Equivalent (FTE): a unit to measure employment, taking into account work load of individual persons (average number of hours worked per week). An FTE of 1 means that the person is equivalent to a full-time worker, while an FTE of 0.5 signals that the worker works only half-time.

Gender balanced committee/panel: a committee/panel is considered gender balanced when the percentage of members of the under-represented sex is at least 40%. In cases of committees/panels with only three members, these committees are considered 'gender balanced' if they are represented by both sexes.

Gender dimension in research content: making gender a dimension of research by integrating it as part of the research design and process. This entails sex and gender analysis being integrated into basic and applied research.

Gender equality (GE): also known as sex equality or sexual equality. It is the goal of equality of genders. GE entails making women's rights equal to men's, and making men's rights equal to women's.

Gender equality plan (GEP): a GEP is a consistent set of provisions and actions aiming at ensuring GE.

Grant: research specific grant, with funding associated with setting up a medium- and/or long-term research programme. The term 'grant' used in this survey does not include grants to doctorate candidates for short-term mobility.

Head of organisation: highest decision making official in the organisation (e.g. rector or equivalent in the academy, president or equivalent in non-academic research organisations).

Headcount: headcount data measures the total number of persons who are fully or partially employed by an organisation.

Human Resources (HR) Strategy for Researchers (HRS4R): it supports research institutions and funding organisations in the implementation of the Charter & Code (C&C) in their policies and practices.⁸

Innovation: the implementation of a new or significantly improved product (goods or services) in the market, or implementation of new or significantly improved processes or a new organisational or marketing method, never used before.

Institutional funding: general funding of institutions with no direct selection of R&D project or programmes. There are various formulae for the allocation of institutional funding that consider, to a lower or higher extent, the research performance. In some cases, institutional funding includes a quota related to number of staff, students etc. (Source: OECD, 2011).

⁸ <http://ec.europa.eu/euraxess/index.cfm/rights/strategy4Researcher>

International organisation: an international organisation arises from an association of states. It is established on the basis of a treaty or similar act and has an international legal personality distinct from that of its Member States. It has an international membership, scope, or presence.⁹

Joint research agendas: annual or multiannual research agendas for a joint programme between EU Member States outside the framework of the EU Framework Programme. Joint research agendas include activities such as JPIs and ERA-Net+ where the bulk of funding does not come from EU sources.

Knowledge transfer (KT): the process of transferring the rights to use and exploit knowledge from one source. It is transferred to those in a position to best exploit it in placing new products and services on the market.

Lead agency: this procedure foresees that research councils accept the results of the evaluation of international projects done by the ‘lead agency’ and fund the parts of the project that are being performed in their respective countries (e.g. DE, AT, CH).

Leading researcher: internationally recognised researcher (e.g. team leader, in management positions, full professor, etc.).

Legal status: the relative position or standing of an organisation in the eyes of the law.

Licence held: all licenses, options and assignments for all types of IP (count multiple (identical) licences with a value of less than EUR 500 as one licence).¹⁰

Licence income: total income from all types of know-how and intellectual property (patents, copyright, designs, material transfer agreements, confidentiality agreements, plant breeder rights, etc.) before disbursement to the inventor or other parties. It includes license issue fees, annual fees, option fees and milestone, termination and cash-in payments. It excludes licence income forwarded to institutions other than those served by the KT office or to companies.

Money-Follows-Cooperation Line: this scheme allows small parts of a project funded by one of the participating research councils to be conducted in a different country (overhead costs are, however, excluded).

Money-Follows-Researcher (MfR): this scheme enables researchers moving to a research institution in a different country to transfer on-going grant funding to the new institution and continue research activities according to original terms and objectives.

National identification number: a unique number allocated to organisations or individuals for the purposes of work, taxation, government benefits, health care, and other government-related functions. The equivalent of the national identification number for private organisations is the value added tax identification number.

⁹ http://ec.europa.eu/research/fp6/model-contract/pdf/fp6-public-bodies-annex5231_en.pdf

¹⁰ http://www.wipo.int/sme/en/ip_business/licensing/licensing.htm

Non-governmental sector: the non-governmental sector includes organisations which are neither a part of a government nor conventional for-profit businesses.

Open access: refers to the practice of granting free access to research outputs over the internet, most notably peer-reviewed publications and research data.

Organisation under private law with public mission: refers to a public sector body or a legal entity governed by private law with a public service mission¹¹.

Patent: an exclusive right granted by a government authority (typically a patent office) for an invention, which is a product or a process that provides a new way of doing something or offers a new technical solution to a problem. In order to be patentable, the invention must fulfil certain conditions¹².

Patent application: an application made to a government authority (typically a patent office) to have a patent granted for invention. An invention is a product or a process that provides, in general, a new way of doing something or offers a new technical solution to a problem. In order to be patentable, the invention must fulfil certain conditions¹³.

Peer review: the evaluation of research proposals by independent external experts, based on transparent evaluation criteria communicated in advance. Peer review can be based on a group of principles such as excellence, impact, quality and efficiency of the project implementation¹⁴.

Peer reviewed scientific publications: original empirical or theoretical piece of work in sciences which are subject to the scrutiny of peers. These peers are experts in the same field. The peer review process takes place before the paper is published in a journal.

PhD graduate: an individual who earned a doctoral diploma, having successfully completed a PhD programme.¹⁵

PhD candidate: an individual who attends a PhD program in order to obtain a PhD diploma.

Portability of grants: situation in which a researcher who moves to a different country may transfer an on-going grant.

Post-doc: a postdoctoral research candidate has completed doctoral studies and intends to further deepen expertise in a specialised subject.

¹¹ http://ec.europa.eu/research/fp6/model-contract/pdf/fp6-public-bodies-annex5231_en.pdf

¹² Source: http://www.wipo.int/patentscope/en/patents_faq.html#patent

¹³ Source : http://www.wipo.int/patentscope/en/patents_faq.html#patent

¹⁴ http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-h-esacrit_en.pdf

¹⁵ UNESCO, UIS (2012), International Standard Classification of Education ISCED 2011, available at: <http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>

Principles for innovative doctoral training¹⁶: the principles include research excellence, attractive institutional environment, interdisciplinary research options, exposure to industry and other relevant employment sectors, international networking, transferable skills training and quality assurance.

Private organisation without a public mission: a firm or company in the private (non-public) sector of an economy whose main aim is to generate profit, which is controlled and operated by private individuals (and not by civil servants or government-employees) and is not accountable to governmental organisations¹⁷.

Project-based funding: funding attributed on the basis of a project submission by a group or individuals for an R&D activity that is limited in scope, budget and time (Source: OECD, 2011).

Public sector: includes the government and higher education sectors but excludes public-sector corporations who are part of the business enterprise sector, as defined in the Frascati Manual. The higher education sector may include private and public corporations as well as private not-for-profit organisations as defined in the System of National Accounts (Source: OECD, 2011).

R&D personnel: persons employed directly on R&D as well as those providing direct services such as R&D managers, administrators, and clerical staff (Source: OECD, 2002).

Recruitment committee: no matter how they are designated (e.g. by nomination, election, pool), recruitment committees are set for the recruitment of one or more persons when there is an open position (at any level temporary or permanent).

Repository: electronic archive for the storage of academic publications such as peer reviewed scientific articles.

R&D budget (for RFOs): the estimation of the total amount of funds (or revenue and expenses) handled by the organisation for the purpose of funding R&D activities.

R&D budget (for RPOs): the estimation of the total amount of funds (or revenue and expenses) handled by the organisation for the purpose of performing and funding R&D activities. It should include overheads but not funding for teaching activities.

Research and experimental development (R&D): research and experimental development comprise creative work undertaken on a systematic basis in order to increase both the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications (Source: OECD, 2002).

¹⁶ http://ec.europa.eu/euraxess/pdf/research_policies/Principles_for_Innovative_Doctoral_Training.pdf

¹⁷ Source: BusinessDictionary

Research and Technology Organisations (RTOs): mission-oriented providers of innovation services to governments and firms, dedicated to improving quality of life and building economic competitiveness.¹⁸

Research collaboration platform: a collaboration platform which gathers scientific resources, tools, data and work management facilities to enable remote collaboration and exchanges between researchers on a specific research topic or working as a research team.

Research data (within the context of open access to research data): data collected, observed or created for the purpose of analysis to produce original research results.¹⁹

Research evaluation committees: these are responsible for the evaluation of research projects and programmes as well as performance at the institutional or individual level. The outcome of the evaluation may be linked to the allocation of research funding and/or other resources.

Research infrastructures (RIs): an RI comprises facilities, resources and related services used by the scientific community to conduct top-level research in their respective fields. Examples include singular large-scale research installations, collections, special habitats, libraries, databases, biological archives, integrated arrays of small research installations, high-capacity/high speed communication networks, highly distributed capacity and capability computing facilities, data infrastructure, etc.

Researcher: a professional engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in project management. Postgraduate students at the PhD level engaged in R&D should be considered as researchers (OECD, 2002).

Scientific software: software for specific scientific tasks, such as modelling and visualisation of data, or operating specific virtual laboratory experiments. This kind of software can be installed in one institution and also accessed remotely by researchers from other institutions.

Structure for KT activities: a structure in place which facilitates or incentivises KT. This could be a formal Knowledge/Technology Transfer Office or dedicated staff.

Structured innovative doctoral training programmes: these apply all the principles for innovative doctoral training. The principles include research excellence, attractive institutional environment, interdisciplinary research options, exposure to industry and other relevant employment sectors, international networking, transferable skills training and quality assurance²⁰.

Total number of staff: the total number of employees in an organisation.

¹⁸ Source: EARTO

¹⁹ <http://www.bu.edu/datamanagement/background/whatisdata/>

²⁰ http://ec.europa.eu/euraxess/pdf/research_policies/Principles_for_Innovative_Doctoral_Training.pdf

Young researcher: a researcher who is at the beginning of his/her career. This includes first stage researchers (up to the point of PhD), post-docs and junior researchers.

SOURCES

OECD (2011): OECD Science, Technology and Industry Scoreboard 2011: Innovation and Growth in Knowledge Economies²¹

OECD (2005): Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition²²

OECD (2002): Proposed Standard Practice for Surveys on Research and Experimental Development, Frascati Manual 2002²³

World Intellectual Property Organisation

²¹<http://www.oecd.org/sti/oeecdsciencetechnologyandindustryscoreboard2011innovationandgrowthinknowledgeeconomies.htm>

²²<http://www.oecd.org/innovation/innovationinsciencetechnologyandindustry/oslomanualguidelinesforcollectingandinterpretinginnovationdata3rdedition.htm>

²³http://www.uis.unesco.org/Library/Documents/OECDFrascatiManual02_en.pdf

5.13. Concepts used in the analysis of national policy context in support of ERA

PROJECT-BASED FUNDING IN THE COUNTRY

The allocation of public research funding is typically done via two mechanisms: allocation of funding through open calls for proposals (also known as project-based funding) and institutional funding. Project-based funding is attributed on the basis of a project submission by a group or individuals for an R&D activity that is limited in scope, budget and time. One example is the EU Framework Programme which allocates public funding via open calls for proposals.

USE OF CORE PRINCIPLES OF INTERNATIONAL PEER REVIEW

When evaluating open calls for proposals, a rigorous peer review process using the international principles should be in place. The evaluation of research proposals should be carried out by independent external experts based on transparent and evaluation criteria communicated in advance. The problem is that there is no consensus on the core principles of international peer review. In agreement with the Julia in the survey we indicated that: Peer review can be based on a group of principles such as excellence, impact, quality and efficiency of the project implementation. This reflects the criteria used at EU level in the Framework Programme.

INSTITUTIONAL FUNDING BASED ON INSTITUTIONAL ASSESSMENT

Institutional funding refers to general funding of research institutions (incl. universities) with no direct selection of R&D projects or programmes. It can be bulk funding based on past figures (e.g. number of staff/PhD candidates, past funding budgets). In other cases, funding allocation can be based on research performance. Performance-based institutional funding means that the quality of research-performing organisations, their teams and their output is assessed and constitutes the basis for institutional funding decisions. In some case, a 'formula' is used for calculating the funding (for example, in some countries a mix between number of PhD candidates, disciplines and publications is used). For the purpose of the survey, the following definition was used: Assessment or evaluation procedure: evaluation procedure which analyses the entire institution in terms of input, throughput (processes) and output factors. Among the latter, the assessment may include research performance and may be linked to funding allocation. Salaries and other staff costs are not included in the assessment.

JOINT PROGRAMMING INITIATIVES (JPIs)

Research efforts can be essential to address major societal challenges. In some cases these are so great that national research programmes cannot tackle them effectively on their own. Yet, the vast bulk of research programmes in Europe are run in isolation, leading to unwanted fragmentation or ineffectiveness. Joint programming aims to remedy this situation.

The overall aim of the joint programming process is to pool national research efforts in order to make better use of Europe's precious public R&D resources and to tackle common European challenges more effectively in a few key areas.

It is a structured and strategic process whereby Member States agree, on a voluntary basis and in a partnership approach, on common visions and Strategic Research Agendas

(SRA) to address major societal challenges. On a variable geometry basis, Member States commit to JPIs where they implement together joint SRAs.

What is of utmost importance is that MSs express how they participate in JPI activities. Only presenting the funding volume allocated to a joint call or in RIs is not enough. Ideally, they should indicate how the participation in JPIs is reflected in their national programming landscape (alignment).

The JPI is a vehicle to increase common funding principles, mutual peer review recognition, international joint peer review etc. That is why there are less important criteria for the assessment, and hierarchically the JPI participation of a MS should be assessed first.

Pour mémoire, there are 10 JPIs: Neurodegenerative diseases (JPND); Agriculture, Food Security and Climate Change (FACCE); Healthy diet for a healthy life (Diet and Health JPI); Cultural Heritage and global change: a new challenge for Europe; Healthy Ageing – More Years, Better Lives (Demographic Change); Anti-Microbial resistance; Water Challenges for a Changing World; Healthy and Productive Seas and Oceans; JPI Climate and Urban Europe.

Alignment can be characterised as:

The strategic approach taken by Member States' programming authorities to modify their national programmes and activities as a consequence of the adoption of joint priorities at EU level Public-public partnerships (for example the Strategic Research Agendas of JPIs).

Alignment is gradual and very hard to detect and the assessment to what extent a MS aligns its national programmes towards a JPI should at this stage remain at the level of what strategies/programmes/action plans are in place for participation in a JPI.

Joint strategic research agendas: annual or multiannual research agendas for a joint programme between EU Member States outside the framework of the EU Framework Programme. Joint strategic research agendas are the basis of JPIs, ERA-Nets or other joint programmes where the bulk of funding does not come from EU sources.

ARTICLE 185 INITIATIVES

Article 185 TFEU (ex Article 169 TEC) states that: 'In implementing the multiannual framework programme, the Union may make provision, in agreement with the Member States concerned, for participation in R&D programmes undertaken by several Member States, including participation in the structures created for the execution of those programmes.'

In practical terms, Article 185 TFEU foresees the participation of the EU in the joint implementation of (parts of) R&D national programmes. The participating EU Member States integrate their research efforts by defining and committing themselves to a joint research programme, based on the voluntary integration of scientific, managerial and financial aspects. The EU provides financial support to the joint implementation of the (parts of the) national research programmes involved, based on a joint programme and the setting-up of a dedicated implementation structure.

ERA-NETS

ERA-Nets are an FP instrument for the coordination of national and regional research programmes through joint activities such as joint calls for trans-national proposals. Under FP7, ERA-NET Plus provided additional EU financial support to facilitate joint calls for proposals between national and/or regional programmes.

H2020 essentially merged the ERA-NET and ERA-NET Plus instrument into a single new instrument called ERA-NET Co-fund.

OTHER JOINT RESEARCH AGENDAS

These concern bi- or multilateral agreements or programmes in place among EU-MS and AC.

MUTUAL RECOGNITION OF EVALUATIONS THAT CONFORM TO INTERNATIONAL PEER-REVIEW STANDARDS

Mutual recognition or (Lead Agency Procedure) of each other's peer review implies that the national funding agencies have signed an agreement or MoU that regulates this procedure. If a national funding agency cedes the right to nationally evaluate its project proposals to another agency, it recognises the peer review of the other agency and bases its funding decision on it. This can sometimes be a one way process only and this is not mutual recognition. Mutual recognition will be easier if funding agencies apply similar peer review standards, e.g. international peer review.

COMMON FUNDING PRINCIPLES TO MAKE NATIONAL RESEARCH PROGRAMMES COMPATIBLE, INTEROPERABLE (CROSS-BORDER) AND SIMPLER FOR RESEARCHERS

This goes more into the technicalities of what measures and procedures funding agencies have put into place to implement cross-border activities. We are not interested in cross-border activities that are based on EC-co-funded activities (ERA-Net, Article 185) because there the Commission requires them anyway in order to harmonise their rules.

By common funding principles we mean:

- Definition of priorities (calls, programmes);
- Eligibility criteria;
- Standards for proposal evaluation;
- Selection decisions;
- Definition of eligible costs;
- Funding rates;
- Reporting requirements;
- Intellectual property rights issues.

PARTICIPATION IN THE DEVELOPMENT AND OPERATION OF RESEARCH INFRASTRUCTURES INCLUDED IN THE ESFRI ROADMAP

ESFRI, the European Strategy Forum on Research Infrastructures, is a strategic instrument to develop the scientific integration of Europe and to strengthen its international outreach. The competitive and open access to high quality RIs supports and benchmarks the quality of European scientists' activities and attracts the best researchers from around the world.

The mission of ESFRI is to support a coherent and strategy-led approach to policy-making on RI in Europe; and to facilitate multilateral initiatives leading to the better use and development of RIs, at EU and international level.

The ESFRI Roadmap identifies new RIs of pan-European interest corresponding to the long term needs of the European research communities, covering all scientific areas, regardless of possible location.

Potential new RI (or major upgrade) identified are likely to be realised in the next 10 to 20 years. Therefore, they may have different degrees of maturity but it should be noted that they are supported by a relevant European partnership or intergovernmental research organisation. A growing number of countries have prepared national roadmaps that establish the prioritisation of national and pan-European RIs, using the ESFRI Roadmap as a reference. This helps to define national budgets, facilitates political support and enables long-term financial commitment.

PARTICIPATION IN ERICS

The Community legal framework for a European Research Infrastructure Consortium (ERIC) entered into force on 28 August 2009. This specific legal form is designed to facilitate the joint establishment and operation of RIs of European interest. On 2 December 2013, the Council adopted the Council Regulation EU n° 1261/2013 amending the Regulation EC 723-2009 concerning the ERIC. The participation of countries associated to the EU research framework programmes in ERICs is now on the same footing as EU Member States. Their contributions to ERICs will be fully reflected in terms of membership and voting rights. The regulation entered into force on 26 December 2013.

NATIONAL ROADMAPS LINKED TO ESFRI

RIs play an increasingly important role in the advancement of knowledge and technology. They are a key instrument in bringing together a wide diversity of stakeholders to look for solutions to many of the problems that society is facing today. RIs offer unique research services to users from different countries, attract young people to science and help to shape scientific communities.

Types of RIs: The term 'research infrastructures' refers to facilities, resources and related services used by the scientific community to conduct top-level research in their respective fields, ranging from social sciences to astronomy and genomics to nanotechnologies. Examples include singular large-scale research installations, collections, special habitats, libraries, databases, biological archives, clean rooms, integrated arrays of small research installations, high-capacity/high speed communication networks, highly distributed capacity and capability computing facilities, data infrastructure, research vessels, satellite and aircraft observation facilities, coastal observatories, telescopes, synchrotrons and accelerators, networks of computing facilities, as well as infrastructural centres of competence which provide a service for the wider research community based on an assembly of techniques and know-how. RIs may

be 'single-sited' (a single resource at a single location), 'distributed' (a network of distributed resources), or 'virtual' (the service is provided electronically).

These key infrastructures have not only been responsible for some of the greatest scientific discoveries and technological developments, but are also influential in attracting the best researchers from around the world and in building bridges between national and research communities and scientific disciplines.

The list of available national roadmaps can be found at:

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-national-roadmaps

ACCESS TO RESEARCH INFRASTRUCTURES OF PAN-EUROPEAN INTEREST

Member States may have taken actions to ensure access to their national RIs.

The Commission has also been supporting access to effective RIs for researchers all over Europe for more than a decade. This action has been instrumental in enhancing European researchers' access to the infrastructures they require to conduct their research, irrespective of the location of the facility.

It is now possible to see on an interactive map the location of RIS that open their doors to all researchers in Europe. This map

(http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri)

shows the location of the RIs funded under the Seventh Framework Programme that provide transnational access to researchers. These infrastructures form part of networks supported through Integrating Activity projects with a view to making the most of existing facilities by optimising their use for the benefit of the scientific communities.

GENDER

All MSs comply with the EU directives on equal opportunities and equal treatment. In general MSs transpose the EU legislation in the general national legislation related to the labour market, according to their national legal system, (it might be an Equality Act, a Gender Equality Law or another type of legislation).

In terms of implementation of EU legal provisions, employers of researchers, as with any other employer, must comply with the EU legislation on equal opportunities and equal treatment. The main directive (2006/54) covers the implementation of these principles in employment and occupation, including equal pay for equal work or work of equal value, vocational training, promotion and working conditions, occupational social security schemes, returning after maternity leave and paternity leave. It also provides for positive action. Furthermore, the Council Directive (96/34/EC) lays down minimum requirements on parental leave designed to facilitate the reconciliation of parental and professional responsibilities for working parents for all workers, men and women, who have an employment contract or employment relationship as defined by the law, collective agreements or practices in force in each MS.

The aim of the present analysis is to focus on public research thereby giving a picture of national provisions and initiatives relating to GE in this sector, including related indicators. This is done by assessing three groups of actions at national level:

- Specific actions (SAs) for the implementation of the EU directives in the specific sector of public research;

- Positive actions (PAs) providing specific advantages in order to make it easier for the under-represented sex to pursue a vocational activity or to prevent or compensate for disadvantages in professional careers within the public research sector;
- Additional actions (AAs) to achieve GE in R&D. These actions are not covered by the EU directives on GE in the labour market. They address institutional changes in the public research sector in order to correct gender inequalities and ensure GE. They also cover actions relating to the integration of the gender dimension in research content/programmes.

FOSTER CULTURAL AND INSTITUTIONAL CHANGE ON GENDER

In terms of policy at the national level, we need to pay attention if MSs have the following additional actions:

- Specific laws/acts regulating GE in public research, for instance as those in AT, ES, NO, FR (since 2013) and BE (Walloon region);
- Acts/incentives stimulating or obliging RPOs to explicitly set up GEPs; for instance the laws on GE in ES, AT and NO, performance agreements in AT, Athena Swan in the UK, the Finnish Equality Act covering educational institutions such as universities;
- Strategies (i.e. guidelines, charters/codes, awards, etc.) at the national/ministerial or at the regional level for GE in RPOs. For instance the UK Athena Swan award, the AT performance agreements and the NO GE Award.

CAREERS –WORKING CONDITIONS IN PUBLIC RESEARCH

Concerning researchers' careers and their working conditions, the possibilities could be:

- SAs implementing or facilitating the implementation in public research of the EU directives covering maternity leave (2006/54) and parental leave (96/34) and support given to researchers' careers to cope with career breaks and facilitate re-entry;
- Access to funding is a key element of researchers' career. In almost all countries statistical evidence exists of higher success rates for men in access to research funding than for women. Therefore, the analysis could look at the existence of provisions to ensure a balanced participation of women and men in research programmes/projects at national or regional level, or at the level of RFOs, such as NordForsk;
- Positive Actions targeting women, such as incentives given to RPOs for the recruitment and promotion of female researchers (i.e. 'Excellentia programme' in AT, Federal Programme for Female Professors in DE, additional chairs awarded if a certain benchmark is reached in DK, BALANSE Programme in NO, ASPASIA Programme in NL) and actions to support women researchers individually (i.e. awards such as the L'Oreal Prize, fellowships). It's important to check if these incentives are provided at the national/regional, level or by RFOs and other funders.

GENDER BALANCE IN PUBLIC RESEARCH DECISION MAKING

Several measures can help to address gender imbalances in decision making processes. In particular they concern the setting up of quotas and targets in decision making bodies of RPOs by national or regional authorities:

- Quotas in decision making bodies of RPOs;
- Targets in decision making bodies of RPOs.

GENDER DIMENSION IN RESEARCH CONTENT/PROGRAMMES

This entails the integration of sex and/or gender analysis in research content:

- Gender dimension (GD) is integrated in research content/programmes. If yes, it's important to check at which level GD is integrated. For example, in 2013 NordForsk adopted a new funding policy requiring GD to be explicitly mentioned (hence evaluated) in the research proposals where relevant; the Irish Research Council in 2013;
- There are dedicated budgets/programmes for women/gender studies.

OPEN ACCESS TO PUBLICATIONS AND DATA RESULTING FROM PUBLICLY FUNDED RESEARCH

Open access can be defined as the practice of providing on-line access to scientific information (please note that term 'scientific' refers to all scholarly disciplines) that is free of charge to the user and is re-usable. In the context of R&D, 'scientific information' can refer to (i) peer-reviewed scientific research articles (published in scholarly journals) or (ii) research data (data underlying publications, curated data and/or raw data). The general guideline is that the Commission mandates open access (OA) for publications and encourages OA to data, although it is not prescriptive in how the Member States achieve OA, e.g. via the green or the gold route for publication or via hard or soft law.

(i) OA to scientific publications refers to free of charge online access for any user. Legally binding definitions of 'open access' and 'access' in this context do not exist, but authoritative definitions of OA can be found in key political declarations on this subject (Budapest Declaration (2002), Berlin Declaration (2003)). There are two main routes towards OA to publications:

A. Self-archiving (also referred to as 'green' OA) means that the published article or the final peer-reviewed manuscript is archived (deposited) by the author - or a representative - in an online repository before, alongside or after its publication. Repository software usually allows authors to delay access to the article ('embargo period').

B. OA publishing (also referred to as 'gold' OA) means that an article is immediately provided in OA mode as published. In this model, the payment of publication costs shifts away from readers, paying access via subscriptions. The business model most often encountered is based on one-off payments by authors. These costs (often referred to as Author Processing Charges, (APCs)) can usually be borne by the university or research institute to which the researcher is affiliated, or to the funding agency supporting the research. In other cases, the costs of OA publishing are covered by subsidies or other funding models.

(ii) OA to research data refers to the right to access and re-use digital research data under the terms and conditions set out as a formal obligation. Openly accessible research data can typically be accessed, mined, exploited, reproduced and disseminated free of charge to the user. Please note that 'Research data' refers to information, in particular facts or numbers, collected to be examined and considered as a basis for reasoning, discussion or

calculation. In a research context, examples of data include statistics, results of experiments, measurements, observations resulting from fieldwork, survey results, interview recordings and images. The focus is on research data that is available in digital form.

KNOWLEDGE TRANSFER AND OPEN INNOVATION

OI is the emerging paradigm for innovation, involving business models that use partnering, licensing and venturing to combine internal and external sources of ideas and technologies (DG Enterprise). In its truest sense it is the open circulation of knowledge between companies and research organisations. It helps to create and share knowledge. The central idea behind OI is that, in a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, but should instead buy patented processes or other inventions from other companies. In addition, internal inventions not being used in a firm's business should be taken outside the company (e.g. through licensing, joint ventures or spin-offs).

KT: involves the processes for capturing, collecting and sharing explicit and tacit knowledge, including skills and competence. It includes both commercial and non-commercial activities such as research collaborations, consultancy, licensing, spin-off creation, researcher mobility, publication, etc. While the emphasis is on scientific and technological knowledge, other forms such as technology-enabled business processes are also concerned (DG Enterprise). In the ERA survey the following definition was used: KT is the process of transferring the rights to use and exploit knowledge from one source. It is transferred to those in a position to best exploit it in placing new products and services on the market.

KT as a 3rd pillar: The OI/KT expert group report (2014) refers to the triple helix concept which puts entrepreneurial universities at the heart of the innovation ecosystem. It describes how the potential of innovation and economic development in a knowledge society lies in a more prominent role for universities and the hybridisation of elements from university, industry and government to generate new institutional and social formats for the production, transfer and application of knowledge. KT can be specific as a 3rd pillar in the policies/strategies or KT can form part of an innovation strategy.

POLICIES FOR PUBLIC E-INFRASTRUCTURES AND ASSOCIATED DIGITAL RESEARCH SERVICES

Public e-infrastructure

E-Infrastructure is a technical infrastructure that makes digital research services possible, such as:

- High-speed network infrastructure (GEANT) (check whether the country has a research and education network at <http://www.geant.net/About/partners/Pages/Home.aspx>);
- Computational infrastructures (high-performance, grid and cloud computing);
- Grid computing: which applies the resources of many computers in a network to a single problem;

- Cloud computing, and cloud services in particular, offer the research and education (R&E) sector huge opportunities to both maximise effectiveness and reduce the capital investment and development time for projects. They offer the R&E community a number of key benefits: •Reduced capital costs; •Reduced support costs; •The ability to leverage purchasing power across the community; •Easier remote access for collaborative projects and users; •Scalability. By utilising shared and off-the-shelf services for commodity activities, the R&E community can refocus its design, development and support resources into those fields that cannot be easily provided by the commercial sector. However, together with these benefits there are risks associated with security, data integrity and reliability which need to be addressed when selecting and purchasing cloud services;
- Data infrastructures (data repositories, data services, authentication and authorisation infrastructure, digital authors identification, data object identifiers).

DIGITAL RESEARCH SERVICES

Digital research services make reference to computing services, cloud services, scientific software (e.g. for simulation and visualisation), research collaboration platforms, virtual laboratories and remote instrumentation.

- Collaboration support: this includes network collaboration tools, such as Voice over IP and group collaboration services; provision of networked e-Science resources, including cloud resources; e-learning; interaction with NREN clients and relatively new areas of broker services and software development;
- Cloud services: see above (collaboration support);
- Research collaboration platforms: if you are interested in the topic, check <http://www.terena.org/publications/files/TERENA-Compendium-2013.pdf> pages 67-85;
- Premium service means consultancy and security audits, but not NREN service implementation support.

FEDERATED ELECTRONIC IDENTITIES

Cross-organisational researcher identity (federated identity): Digital authentication and authorisation in a cross-organisational manner, i.e. the possibility to use the user account in one (home) organisation to access services in another organisation.

Identity Management System: (IdM), a system that combines technologies and policies to allow institutions to store users' personal information and keep it up to date. An IdM is the first step to providing authentication and authorisation infrastructure - a term used for systems supporting the process of determining both (1) whether users are who they declare themselves to be (authentication) and (2) that they have the appropriate rights or privileges necessary to access a resource (authorisation) - for a local or federated environment.

eduGAIN is intended to simplify the movement of people and data between federations, providing all the resources that researchers need. NRENs will offer a greater range of services to their users, delivered by multiple federations in a truly collaborative environment; and service providers will offer their services to users in different federations.

5.14. Sources of information

Official sources:

Eurostat

- Total GBAORD by NABS 2007 socio-economic objectives:

<http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do;jsessionid=9ea7d07d30dee944cfc4811346f498c4da83635b2550.e34OaN8PchaTby0Lc3aNchuNa3qOe0>

Extracted on 14.03.14

- Total GBAORD as a % of total general government expenditure [gba_nabste]

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=ts_c00007&plugin=1

Extracted on 23.04.14

- Total GBAORD by funding mode

http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gba_fundmod&lang=en

Extracted on 14.05.14

- National public funding to transnationally coordinated R&D

http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gba_tncoor&lang=en

Extracted on 23.04.14

- Share of women researchers, by sectors of performance

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=ts_c00005&plugin=1

- Graduations in ISCED 3 to 6 by field of education and sex

http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_grad5&lang=en

Extracted on 19.06.14

- Population on 1 January by age and sex [demo_pjan]

Extracted on 23.04.14

Other sources

Mathieu Doussineau, Elisabetta Marinelli, Mariana Chioncel, Karel Haegeman, Gérard Carat, Mark Boden, ERA Communication Synthesis Report, European Commission JRC-IPTS, 2013

Researcher's Report 2014

She figures, 2012

http://ec.europa.eu/research/science-society/document_library/pdf_06/she-figures-2012_en.pdf

Bibliometrics

European Commission - Analysis and monitoring of national research policies Unit, based on information provided by Science-Metrix (Scopus).

Patents

European Commission - Analysis and monitoring of national research policies Unit, based on information provided by University Bocconi.

5.15. Results of the survey by country

	ERA compliant	Limited compliance to ERA	ERA not applicable
Share of organisations which implement open access for data	27.5	29.6	35.7
Share of organisations which implement cloud services	38.9	17.9	11.6
Share of organisations which consider the gender dimension in research content	47.7	21.8	27.6
Share of organisation which advertise their research vacancies on Euraxess	50.7	6.9	3.5
Share of organisations which provide federated electronic identity to their researchers	55.3	33.8	22.1
Share of organisations which have adopted Gender Equality Plans	62.1	18.9	16.1
Share of organisations which have adopted the Charter and Code principles	62.3	9.6	13.6
Share of organisations whose institutional funding is based on performance assessment by the funding organisation	64.3	36.6	25.6
Share of organisation which implement innovative doctoral training	73.1	28.7	15.1
Share of organisations which have a structure to promote knowledge transfer	79.8	30.4	20.6
Share of organisations which include minimum requirements when publishing research vacancies	85.6	44.2	24.6

	Project Based funding	Institutional funding based on institutional assessment	Institutional funding not based on institutional assessment
AL	70.0	0.0	30.0
AT	49.0	15.3	0.4
BA	67.0	0.0	33.0
BE	45.9	46.2	6.9
BG	80.0	0.0	20.0
CH	98.7	0.0	1.3
CY	100.0	0.0	0.0
CZ	53.2	45.4	1.2
DE	56.9	42.2	0.0
DK	77.1	22.6	0.2
EE	89.4	5.5	0.0
EL	75.5	0.0	24.5
ES	64.6	0.4	33.5
FI	91.5	0.0	8.4
FO	100.0	0.0	0.0
FR	89.2	1.6	9.1
HR	100.0	0.0	0.0
HU	82.4	0.0	17.6
IE	78.8	1.6	12.1
IL	99.0	0.0	0.0
IS	99.7	0.0	0.0
IT	51.4	35.7	12.9
LT	47.1	25.2	27.7
LU	100.0	0.0	0.0
LV	81.4	18.5	0.0
ME	100.0	0.0	0.0
MT	100.0	0.0	0.0
NL	89.2	7.8	2.9
NO	81.4	13.3	5.3
PL	92.0	6.8	0.0
PT	79.7	8.9	0.0
RO	97.9	0.0	0.0
SE	81.4	15.2	2.5
SI	24.9	7.9	33.8
SK	100.0	0.0	0.0
UK	80.0	20.0	0.0

	Share of funding allocated to joint research agendas (RFO)
AL	0.0
AT	1.9
BA	0.0
BE	2.6
BG	0.0
CH	0.0
CY	0.7
CZ	0.6
DE	0.8
DK	16.3
EE	0.1
EL	0.9
ES	0.1
FI	5.3
FO	0.0
FP	0.0
FR	5.3
HR	0.0
HU	0.0
IE	0.3
IL	0.0
IS	2.0
IT	1.9
LI	0.0
LT	0.1
LU	10.0
LV	0.9
MD	0.0
ME	0.0
MK	0.0
MT	28.5
NL	9.2
NO	1.0
PL	2.0
PT	3.8
RO	3.0
RS	0.0
SE	2.8
SI	0.7
SK	0.0
TR	0.0
UK	0.9

	Share of funding allocated to international cooperation (%)
AL	0.0
AT	0.2
BA	0.0
BE	0.2
BG	0.0
CH	1.7
CY	0.0
CZ	1.1
DE	4.3
DK	2.0
EE	0.0
EL	1.0
ES	0.5
FI	1.6
FO	0.0
FR	2.6
HR	0.0
HU	0.0
IE	0.0
IL	0.0
IS	0.0
IT	0.4
LT	0.5
LU	0.0
LV	0.9
ME	0.0
MT	0.0
NL	2.1
NO	2.7
PL	1.4
PT	2.5
RO	0.8
SE	1.1
SI	0.7
SK	0.0
UK	1.9

	Share of funding received from abroad by RPOs
AL	0.08
AT	1.08
BA	0.00
BE	0.02
BG	3.95
CH	0.85
CY	3.37
CZ	0.01
DE	1.22
DK	1.36
EE	0.00
EL	1.98
ES	1.08
FI	0.65
FO	0.00
FP	0.00
FR	0.20
HR	0.66
HU	8.44
IE	4.02
IL	0.00
IS	0.68
IT	0.25
LI	0.00
LT	0.55
LU	0.00
LV	0.88
MD	0.00
ME	0.00
MK	0.00
MT	0.00
NL	0.52
NO	1.48
PL	0.40
PT	0.09
RO	0.14
RS	1.94
SE	1.57
SI	0.00
SK	0.54
TR	0.30
UK	3.01

	Funding support to the implementation of gender balance (%)			
	Frequently	Occasionally	None	Not applicable
AL	0.0	0.0	0.0	0.0
AT	60.2	35.4	0.0	4.0
BA	0.0	0.0	0.0	100.0
BE	78.5	6.7	12.4	2.4
BG	0.1	0.0	0.0	0.0
CH	93.6	2.7	0.0	3.6
CY	26.3	0.0	73.7	0.0
CZ	0.2	57.3	30.5	9.5
DE	100.0	0.0	0.0	0.0
DK	22.4	0.0	21.1	56.5
EE	0.0	0.0	39.3	60.7
EL	0.0	0.0	98.1	1.9
ES	76.0	0.9	13.4	9.6
FI	36.7	0.0	8.9	54.4
FO	0.0	0.0	100.0	0.0
FP	0.0	0.0	0.0	0.0
FR	2.8	0.0	80.8	16.4
HR	0.0	0.0	0.0	100.0
HU	0.0	0.0	100.0	0.0
IE	45.3	0.0	25.9	4.6
IL	0.0	0.0	0.0	0.0
IS	99.7	0.0	0.3	0.0
IT	94.0	0.0	3.3	2.7
LI	0.0	0.0	0.0	0.0
LT	0.0	44.1	55.9	0.0
LU	0.0	0.0	0.0	100.0
LV	7.1	0.0	0.0	0.5
MD	0.0	0.0	0.0	0.0
ME	100.0	0.0	0.0	0.0
MK	0.0	0.0	0.0	0.0
MT	95.0	0.0	0.0	5.0
NL	95.3	3.6	0.0	0.6
NO	88.4	0.0	0.0	11.6
PL	61.4	0.0	38.6	0.0
PT	3.6	33.0	62.9	0.5
RO	0.0	0.0	0.1	99.9
RS	0.0	0.0	0.0	0.0
SE	75.7	3.8	17.1	3.3
SI	100.0	0.0	0.0	0.0
SK	0.0	0.0	100.0	0.0
TR	0.0	0.0	0.0	0.0
UK	99.3	0.0	0.2	0.3

	Gender Equality Plans adopted by RPO (%)		
	Adopted	Not adopted	Not applicable
AL	98.5	0.0	0.0
AT	89.8	8.7	0.7
BA	0.0	31.8	54.0
BE	58.2	13.5	2.6
BG	11.4	42.5	15.9
CH	96.4	1.3	0.0
CY	9.0	89.1	1.2
CZ	26.3	23.3	9.1
DE	95.7	2.0	0.1
DK	45.2	4.5	0.4
EE	0.0	84.8	2.4
EL	27.4	57.9	9.6
ES	61.4	30.4	2.4
FI	90.4	6.7	0.0
FO	0.0	100.0	0.0
FP	0.0	0.0	0.0
FR	91.7	4.5	2.9
HR	4.1	17.0	4.4
HU	39.1	54.3	3.0
IE	28.7	50.4	0.0
IL	94.3	5.6	0.0
IS	97.0	0.0	0.0
IT	47.4	34.9	2.1
LI	0.0	0.0	0.0
LT	16.8	11.3	31.3
LU	4.0	96.0	0.0
LV	2.5	29.5	10.8
MD	0.0	0.0	0.0
ME	0.0	100.0	0.0
MK	0.0	0.0	0.0
MT	99.6	0.0	0.4
NL	83.0	3.0	0.1
NO	71.6	8.5	8.8
PL	19.4	50.9	2.7
PT	4.4	79.2	10.3
RO	19.0	27.3	48.8
RS	12.1	55.1	1.8
SE	99.0	0.8	0.1
SI	10.8	31.3	1.6
SK	2.0	67.1	17.1
TR	10.0	51.5	18.3
UK	89.8	1.4	1.5

	Implementation of recruitment and promotion practices by RPO (% RPO weighted)
AL	100.0
AT	78.6
BA	0.0
BE	56.5
BG	6.3
CH	91.0
CY	22.2
CZ	46.2
DE	89.9
DK	34.3
EE	15.0
EL	30.1
ES	30.3
FI	74.9
FO	0.0
FP	0.0
FR	57.3
HR	12.2
HU	78.7
IE	49.0
IL	99.9
IS	92.1
IT	24.3
LI	0.0
LT	19.8
LU	4.0
LV	63.3
MD	0.0
ME	0.0
MK	0.0
MT	100.0
NL	92.7
NO	83.1
PL	34.1
PT	14.3
RO	38.1
RS	9.3
SE	78.8
SI	55.3
SK	9.2
TR	11.3
UK	86.6

	Support to the inclusion of gender contents in research agendas by funders (%)				
	Frequently	Occasionally	None	Not applicable	No answer
AL	0.0	100.0	0.0	0.0	0.0
AT	40.2	53.5	1.9	4.0	0.4
BA	0.0	0.0	0.0	100.0	0.0
BE	0.0	45.9	44.7	9.0	0.3
BG	0.1	0.0	0.0	0.0	99.9
CH	9.3	0.0	3.7	87.1	0.0
CY	0.0	0.0	73.7	26.3	0.0
CZ	0.0	0.0	87.8	3.8	8.4
DE	24.6	74.6	0.0	0.7	0.0
DK	0.0	0.0	67.1	32.9	0.0
EE	0.0	0.0	42.4	57.6	0.0
EL	0.0	0.0	0.0	100.0	0.0
ES	1.7	0.2	83.5	9.7	5.0
FI	31.1	0.0	8.9	54.4	5.6
FO	0.0	0.0	100.0	0.0	0.0
FP	0.0	0.0	0.0	0.0	100.0
FR	0.0	5.9	93.8	0.2	0.0
HR	0.0	0.0	100.0	0.0	0.0
HU	0.0	0.0	100.0	0.0	0.0
IE	7.3	0.0	63.9	4.6	24.2
IL	0.0	0.0	100.0	0.0	0.0
IS	0.0	0.0	100.0	0.0	0.0
IT	94.0	0.0	6.0	0.0	0.0
LI	0.0	0.0	0.0	0.0	100.0
LT	0.0	0.0	100.0	0.0	0.0
LU	0.0	0.0	0.0	100.0	0.0
LV	0.0	92.4	7.6	0.0	0.0
MD	0.0	0.0	0.0	0.0	100.0
ME	100.0	0.0	0.0	0.0	0.0
MK	0.0	0.0	0.0	0.0	100.0
MT	0.0	0.0	95.0	5.0	0.0
NL	20.0	4.3	75.2	0.0	0.6
NO	88.4	0.0	0.0	11.6	0.0
PL	0.0	0.0	100.0	0.0	0.0
PT	0.0	0.0	63.4	33.0	3.6
RO	0.0	0.0	100.0	0.0	0.0
RS	0.0	0.0	0.0	0.0	100.0
SE	16.8	17.5	61.4	4.2	0.0
SI	0.0	0.0	100.0	0.0	0.0
SK	0.0	0.0	100.0	0.0	0.0
TR	0.0	0.0	0.0	0.0	100.0
UK	0.0	0.1	3.7	2.6	93.6

	Inclusion of the gender dimension in research contents (% RPO)			
	Yes	No	Not known	Not applicable
AL	100.0	0.0	0.0	0.0
AT	69.9	10.0	7.7	12.4
BA	19.3	0.0	27.5	53.2
BE	57.8	15.6	25.9	0.7
BG	23.0	45.0	14.1	17.8
CH	76.8	5.8	17.2	0.2
CY	1.3	1.3	85.1	12.3
CZ	35.2	9.4	36.1	19.4
DE	62.9	9.5	14.3	13.2
DK	61.1	31.6	7.1	0.1
EE	75.2	21.5	0.0	3.2
EL	4.2	59.2	3.8	32.8
ES	28.1	41.4	27.7	2.8
FI	37.8	22.9	34.1	5.1
FO	0.0	100.0	0.0	0.0
FP	0.0	0.0	0.0	0.0
FR	50.8	27.3	6.5	15.4
HR	15.6	9.6	66.3	8.4
HU	11.4	66.8	10.3	11.5
IE	45.7	49.7	3.9	0.7
IL	94.3	0.0	0.0	5.7
IS	75.0	22.0	3.0	0.0
IT	24.5	50.0	20.3	5.2
LI	0.0	0.0	0.0	0.0
LT	59.0	1.5	39.5	0.0
LU	51.0	49.0	0.0	0.0
LV	69.9	20.5	9.0	0.6
MD	0.0	0.0	0.0	0.0
ME	0.0	100.0	0.0	0.0
MK	0.0	0.0	0.0	0.0
MT	0.4	99.3	0.0	0.3
NL	47.1	10.8	42.0	0.1
NO	44.8	12.4	19.6	23.2
PL	25.1	35.1	27.4	12.4
PT	65.3	28.1	1.6	4.9
RO	49.1	26.2	8.1	16.5
RS	56.3	18.3	24.2	1.3
SE	52.9	18.2	4.1	24.8
SI	47.0	18.1	20.6	14.4
SK	15.1	15.3	44.9	24.7
TR	31.5	29.4	1.5	37.5
UK	21.2	20.0	57.2	1.6

	Support to open access to publications (% RFO)			
	Frequently	Occasionally	None	Not applicable
AL	0.0	100.0	0.0	0.0
AT	64.5	0.0	30.6	4.8
BA	0.0	100.0	0.0	0.0
BE	59.5	33.8	0.0	6.7
BG	0.1	0.0	0.0	99.9
CH	92.4	0.0	4.0	0.0
CY	0.0	0.0	73.7	26.3
CZ	0.0	64.5	14.1	15.6
DE	18.3	0.0	0.0	81.7
DK	88.9	0.0	0.0	10.8
EE	53.2	43.7	0.0	3.1
EL	0.0	0.0	0.0	1.9
ES	74.6	0.0	0.0	23.7
FI	46.1	0.0	0.0	53.8
FO	0.0	0.0	0.0	0.0
FP	0.0	0.0	0.0	0.0
FR	78.1	2.4	13.0	3.0
HR	0.0	0.0	0.0	100.0
HU	0.0	77.1	0.0	22.9
IE	59.9	0.0	36.3	3.8
IL	100.0	0.0	0.0	0.0
IS	100.0	0.0	0.0	0.0
IT	25.7	43.8	28.9	1.6
LI	0.0	0.0	0.0	0.0
LT	0.0	99.0	0.0	1.0
LU	0.0	100.0	0.0	0.0
LV	92.4	7.1	0.0	0.5
MD	0.0	0.0	0.0	0.0
ME	0.0	100.0	0.0	0.0
MK	0.0	0.0	0.0	0.0
MT	95.0	0.0	0.0	5.0
NL	75.8	20.0	3.6	0.0
NO	88.4	0.0	0.0	11.6
PL	73.0	0.0	27.0	0.0
PT	0.0	33.0	62.9	0.5
RO	0.0	0.0	99.9	0.1
RS	0.0	0.0	0.0	0.0
SE	16.1	6.6	0.0	64.4
SI	32.8	0.0	0.0	67.2
SK	0.0	0.0	100.0	0.0
TR	0.0	0.0	0.0	0.0
UK	99.5	0.3	0.2	0.0

	Support to open access to data (% RFO)			
	Frequently	Occasionally	None	Not applicable
AL	0.0	100.0	0.0	0.0
AT	17.1	1.5	66.0	4.8
BA	0.0	100.0	0.0	0.0
BE	46.1	4.7	42.2	6.7
BG	0.0	0.1	0.0	99.9
CH	8.1	0.0	87.3	0.0
CY	0.0	0.0	73.7	26.3
CZ	5.8	7.3	14.1	15.6
DE	18.3	0.0	0.0	81.7
DK	45.3	44.2	0.0	0.6
EE	0.0	43.7	53.2	3.1
EL	0.0	1.9	0.0	0.0
ES	5.6	0.0	82.5	10.3
FI	46.1	53.6	0.0	0.2
FO	0.0	0.0	0.0	0.0
FP	0.0	0.0	0.0	0.0
FR	9.3	3.2	71.1	6.7
HR	0.0	0.0	0.0	100.0
HU	0.0	77.1	0.0	22.9
IE	14.6	7.3	50.1	28.0
IL	100.0	0.0	0.0	0.0
IS	0.3	0.0	99.7	0.0
IT	23.0	71.0	1.6	1.6
LI	0.0	0.0	0.0	0.0
LT	0.0	100.0	0.0	0.0
LU	0.0	100.0	0.0	0.0
LV	0.0	0.0	92.4	7.6
MD	0.0	0.0	0.0	0.0
ME	0.0	100.0	0.0	0.0
MK	0.0	0.0	0.0	0.0
MT	0.0	0.0	95.0	5.0
NL	21.6	0.6	66.2	11.5
NO	0.0	88.4	0.0	11.6
PL	61.4	11.6	27.0	0.0
PT	0.0	33.0	62.9	0.5
RO	99.9	0.0	0.1	0.0
RS	0.0	0.0	0.0	0.0
SE	42.3	0.0	46.5	8.2
SI	0.0	0.0	32.8	67.2
SK	0.0	0.0	100.0	0.0
TR	0.0	0.0	0.0	0.0
UK	96.7	0.2	2.7	0.2

	Support to the implementation of KT and OI (% RFO)				
	Frequently	Occasionally	None	Not applicable	No answer
AL	0.0	0.0	0.0	0.0	100.0
AT	43.6	38.8	15.1	2.5	0.0
BA	0.0	100.0	0.0	0.0	0.0
BE	4.9	64.7	23.7	6.7	0.0
BG	100.0	0.0	0.0	0.0	0.0
CH	14.0	83.3	0.0	2.7	0.0
CY	0.0	100.0	0.0	0.0	0.0
CZ	5.8	69.2	18.5	3.7	2.8
DE	74.6	4.3	0.0	21.0	0.0
DK	63.4	0.0	24.3	12.0	0.4
EE	0.0	83.0	13.9	1.4	1.7
EL	0.0	98.1	0.0	0.0	1.9
ES	96.8	3.1	0.0	0.0	0.0
FI	46.1	53.7	0.0	0.2	0.0
FO	0.0	0.0	100.0	0.0	0.0
FP	0.0	0.0	0.0	0.0	100.0
FR	16.3	3.5	68.4	11.6	0.3
HR	100.0	0.0	0.0	0.0	0.0
HU	0.0	22.9	77.1	0.0	0.0
IE	76.9	7.1	12.1	3.8	0.0
IL	100.0	0.0	0.0	0.0	0.0
IS	0.3	99.7	0.0	0.0	0.0
IT	25.7	74.3	0.0	0.0	0.0
LI	0.0	0.0	0.0	0.0	100.0
LT	1.0	99.0	0.0	0.0	0.0
LU	0.0	100.0	0.0	0.0	0.0
LV	0.0	92.4	7.1	0.5	0.0
MD	0.0	0.0	0.0	0.0	100.0
ME	0.0	100.0	0.0	0.0	0.0
MK	0.0	0.0	0.0	0.0	100.0
MT	95.0	5.0	0.0	0.0	0.0
NL	99.4	0.6	0.0	0.0	0.0
NO	1.0	0.0	0.0	10.6	88.4
PL	61.4	0.0	11.6	27.0	0.0
PT	62.9	37.1	0.0	0.0	0.0
RO	0.0	100.0	0.0	0.0	0.0
RS	0.0	0.0	0.0	0.0	100.0
SE	41.6	13.5	41.4	0.0	3.6
SI	32.8	67.2	0.0	0.0	0.0
SK	0.0	0.0	100.0	0.0	0.0
TR	0.0	0.0	0.0	0.0	100.0
UK	99.1	0.4	0.1	0.1	0.3

	Presence of TTOs in RPO (% RPO)				
	Have TTO	Use TTO	Does not have	Does not know	TTO not applicable
AL	98.5	0.0	0.0	0.0	1.5
AT	67.3	21.0	8.0	0.9	1.3
BA	0.0	0.0	0.0	41.7	0.8
BE	90.1	4.0	3.0	0.7	0.1
BG	24.4	11.9	21.4	21.4	3.3
CH	95.8	1.6	2.4	0.0	0.0
CY	0.0	0.0	98.3	0.0	1.6
CZ	49.5	15.0	19.6	3.3	5.7
DE	72.6	10.9	11.8	0.0	0.2
DK	86.5	4.9	5.8	0.9	0.5
EE	89.3	0.0	8.6	0.0	0.0
EL	63.9	0.7	10.8	0.0	0.1
ES	88.7	1.9	7.4	0.2	0.5
FI	77.5	0.0	21.7	0.0	0.3
FO	0.0	0.0	100.0	0.0	0.0
FP	0.0	0.0	0.0	0.0	0.0
FR	89.0	6.8	1.9	0.0	0.3
HR	74.2	11.9	8.9	1.3	0.5
HU	68.8	1.6	18.8	1.4	0.2
IE	96.7	0.9	1.7	0.0	0.7
IL	10.2	0.0	0.1	0.0	5.6
IS	82.0	10.1	7.9	0.0	0.0
IT	87.5	0.9	5.6	0.2	0.1
LI	0.0	0.0	0.0	0.0	0.0
LT	79.7	6.8	2.9	0.0	10.6
LU	94.8	0.0	5.2	0.0	0.0
LV	67.8	11.1	14.5	2.3	0.0
MD	0.0	0.0	0.0	0.0	0.0
ME	0.0	6.7	0.0	93.3	0.0
MK	0.0	0.0	0.0	0.0	0.0
MT	99.3	0.0	0.3	0.0	0.4
NL	96.0	1.9	1.6	0.4	0.1
NO	62.4	12.4	6.7	3.0	4.8
PL	81.9	0.6	8.5	5.2	1.1
PT	63.2	13.7	20.6	0.1	1.6
RO	72.3	4.8	15.1	2.5	4.4
RS	68.0	10.3	8.9	2.9	0.0
SE	87.9	1.9	8.1	0.8	0.1
SI	55.4	0.0	16.2	18.4	4.2
SK	49.0	16.9	19.8	1.2	6.9
TR	68.9	10.0	19.9	0.0	1.2
UK	90.9	1.5	3.2	0.5	0.0

	Share of RPO according to the number of digital services provided (% RPO)							
	Seven	Six	Five	Four	Three	Two	One	None
AL	0.0	0.0	0.0	0.0	98.5	0.0	1.5	0.0
AT	3.9	26.0	11.5	9.6	37.2	8.9	0.1	2.8
BA	0.0	0.0	0.0	0.0	14.2	0.0	0.0	85.8
BE	10.2	55.2	1.9	4.8	1.4	0.6	0.0	26.0
BG	0.0	3.3	19.4	18.0	34.3	5.3	8.3	11.4
CH	63.1	0.5	3.3	15.0	8.7	2.6	2.9	4.0
CY	8.0	0.0	0.0	10.6	22.2	58.1	0.0	1.1
CZ	2.1	8.3	31.8	1.3	21.0	16.6	2.8	16.2
DE	32.8	22.7	23.5	8.4	3.1	1.5	0.3	7.7
DK	0.3	10.1	45.1	15.9	2.6	20.5	4.9	0.6
EE	2.4	0.0	1.1	78.7	1.3	0.8	0.0	15.8
EL	17.8	0.0	0.3	10.4	38.8	2.6	3.1	26.8
ES	19.8	16.4	18.4	26.0	9.9	3.6	1.7	4.2
FI	3.7	65.2	12.9	0.0	5.3	12.0	0.2	0.7
FO	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FR	1.3	16.5	10.8	4.8	2.4	0.7	52.4	11.2
HR	0.0	59.2	4.4	2.3	7.4	10.2	0.7	15.7
HU	4.1	0.0	0.6	6.8	67.1	2.7	6.0	12.6
IE	68.5	0.9	26.8	0.0	2.0	1.2	0.5	0.0
IL	0.0	0.0	0.1	0.0	15.8	0.0	0.0	84.0
IS	0.0	77.7	0.0	1.1	18.2	0.0	3.0	0.0
IT	23.3	14.6	12.8	21.5	9.5	12.1	1.2	5.1
LI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	31.0	36.7	6.8	24.4	0.3	0.8	0.0	0.0
LU	0.0	0.0	51.0	0.0	0.0	4.0	0.0	45.0
LV	0.0	9.0	0.7	0.0	63.3	19.8	0.0	7.2
MD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ME	0.0	0.0	0.0	0.0	0.0	0.0	93.3	6.7
MK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.0	0.0	0.0	0.0	99.3	0.3	0.4	0.0
NL	7.8	58.6	22.5	7.7	0.0	0.8	1.3	1.2
NO	1.3	40.5	28.8	12.3	1.0	2.9	1.5	11.8
PL	24.9	13.5	5.2	24.8	2.8	7.9	3.2	17.7
PT	5.0	11.5	69.0	4.4	9.2	0.2	0.2	0.6
RO	10.6	9.2	49.9	8.7	5.4	5.4	7.1	3.6
RS	0.0	4.8	39.8	20.8	18.4	1.3	4.1	10.8
SE	5.2	33.8	1.9	38.5	3.4	15.4	0.0	1.8
SI	3.1	7.8	23.2	1.9	0.0	17.7	0.0	46.4
SK	23.1	0.0	9.2	0.0	13.9	7.1	15.2	31.4
TR	11.5	5.7	7.7	33.8	34.4	5.7	1.2	0.0
UK	0.0	14.8	13.7	6.9	38.5	9.4	11.6	5.3