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This document corrects document SWD(2014) 280 final of 15.9.2014
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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

European Research Area Progress Report 2014

{COM(2014) 575 final}

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

In Austria, research and innovation (R&I) policies are the responsibility of the federal level and regional strategies, complement research, technological development and innovation (RTDI) policies and activities on national and EU levels. Coordination between the federal and regional level is done under the RTDI platform Austria ('Plattform FTI-Österreich') in the form of a semi-annual conference. The main policy makers in the public research and development (R&D) domains are: the Ministry of Science, Research and Economy (BMWFW) and the Ministry of Transport, Innovation and Technology (BMVIT). The BMWFW has been taking over the tasks of the former Ministry of Science and Research (BMWF) and the former Ministry of Economy, Family and Youth (BMWFJ) (all references adapted to the new title). The Council for Research and Technology Development (Rat für Forschung und Technologieentwicklung) is the federal government's strategic independent scientific and technological advisory body for questions related to R&D policy. It works with the ministries on recommendations for the medium-to long-term policy orientation.

The main funding agencies are the Austrian Science Fund (FWF), the Austrian Research Promotion Agency (FFG) and the Austria Business Service (AWS). The FWF covers basic research and is under the responsibility of and receives its funding from the BMWFW. The FFG (under BMVIT and BMWFW) provides funds dedicated mainly to applied research and thematic oriented R&D programmes. The FFG partners with regions to complement their funding via Structural Funds. AWS as a State-owned banking institution (under BMWFW and BMVIT) funds mainly innovation projects in companies, supports seed financing and start-ups.

The Austrian Academy of the Sciences (ÖAW) is Austria's largest non-university R&D organisation.

The Austrian Federal Government strategy for research, technology and innovation 'Becoming an Innovation Leader: Realising Potentials, Increasing Dynamics, Creating the Future' was published in March 2011. It introduces a coordinated vision and strategy across all ministries in charge of RTDI and identifies new challenges. Some thematic priorities can also be extracted: climate change, resources and quality of life and demographic change. The strategy has clear links to the European Research Area (ERA) key priorities and plans support measures under all of them. It also mentions international cooperation among Austria's priorities.

In 2011, a Task Force of senior officials was also put in place to coordinate activities from the strategic perspective and monitor the implementation of this strategy. Nine inter-ministerial working groups were established, among those one on European dimension of research agendas, one on research infrastructure, one on knowledge transfer and one on international cooperation. An 'Austrian EU Action Plan' has been developed in cooperation by BMWFW

and BMVIT. The action plan proposes more than 70 measures to optimise Austria's research, technology and innovation (RTI) system regarding Horizon 2020, ERA, the Innovation Union and the overall Europe-2020 strategy. It is formally up to the government to decide which of the proposal will be implemented.

In recent months, Austria established an ERA Observatory to bundle strategic information, advice and coordination under a common roof. A high-level advisory body on European research and innovation policies, called 'ERA Council Forum Austria' under the chair of former ERC President Helga Nowotny, started its work in March 2014. With the aim of improving coordination among ministries and stakeholders, an 'ERA Policy Forum Austria' has been created. It should increase awareness and consistency in the way Austria addresses sectoral policies with high impact on RTI, in particular from a European perspective. The Council for Research and Technology Development has the task of monitoring the progress of the strategy's implementation and reports to the Parliament (National Council) on an annual basis.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Austria represented EUR 294 per inhabitant in 2012 almost twice as much as the EU28 average (EUR 179). In 2013, GBAORD per inhabitant was EUR302. In 2012, total GBAORD corresponded to 1.6% of total government expenditures and 0.8 % of Gross Domestic Product (Eurostat).

The analysis of the evolution of GBAORD in the period during the economic crisis (2007-2012) shows that in nominal terms, the growth rate of total GBAORD in Austria has been higher than the rate of growth of total EU GBAORD. Finally, GBAORD as a share of GDP has evolved positively in Austria even when it regressed at EU28 level.

1.2. Project-based funding applying the core principles of international peer review

Project-based public R&D funding is organised within thematic and open bottom-up approaches, by both the FWF and the FFG. Competitive structural and thematic R&D programmes have become increasingly important in the last years.

The FWF mainly funds academia. Its total grant portfolio was EUR195.2 million for 2011 and EUR196,4 million for 2012. In 2013, the grant budget was EUR202,6 million. The FFG supports business R&D and cooperative research. More than 60 % of competitive public research funds are performed by Austrian businesses.

In 2011, major steps were taken to simplify the implementation of programme management by Austrian public funding administrations (Ministries, agencies etc.): calls for proposals were integrated into annual schedules; common guidelines for similar types of projects have been issued and an agreement was reached to treat similar projects in the same way (by BMVIT, BMWFW and FFG).

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	49 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Austria who responded to the survey and support project-based funding is lower than the EU average.

For the two main funding agencies, FWF and FFG, overall principles for the application, evaluation and selection procedures are detailed in the FTE-Richtlinien (2007). Specific guidelines for the Austrian Research Promotion Agency are regulated in the legal base FFG-Richtlinien (2008). International peer-review principles are not mentioned as such, but results from the implementation of the guidelines by both agencies. The FWF exclusively uses international peer-review for the applications. Project selection criteria and procedures adhere to principles of excellence, impartiality, transparency, appropriateness for purpose, efficiency and speed, confidentiality, and ethical and integrity considerations. The FFG applies specifically-tailored evaluation criteria, according to the needs of the programme. The FFG-law stipulates that all FFG-funding decisions have to be taken upon the principles of transparency, impartiality, and fairness.

1.3. Institutional funding based on institutional assessment

Public funds in Austria are more often distributed via institutional than project-based modes, roughly accounting for two thirds and a third, respectively, of total funding. National public funding for the higher education sector is mostly institutional. It is regulated in the 'Universitätsgesetz 2002' and based on performance agreements at university level and less so for public research institutes. A revision of the universities financing legislation (the University Structural Funds Ordinance) in January 2013 further strengthened the trend towards institutional funding by allocating additional money to it for 2013-2015. Institutional funds destined for universities are a combination of three categories: funds for teaching, for research and for infrastructure. A two-year basis for calculation applies. Funds allocated for research are based on the number of students, a competitively-oriented research indicator (based on, for example the number of PhDs, project volume financed by the FWF, project volume financed by industry or other sources) and a strategic budget depending on the societal objectives of the universities (for example, the share of women in PhD programs, participation in outgoing mobility programs, number of foreign graduate students). Full implementation of the institutional funding model is foreseen for the performance contract

period 2019-2021, for period 2016-2018 up to 60 % of university funding will be based upon this model.

The ÖAW, which underwent structural reforms in 2012, has concluded with BMWFW a multi-annual performance agreement that comprises the period of 2012-2014, with a total budget of EUR224 million for the three-year period.

Higher Education Institutions (HEI) have to undergo external quality assurance every seven years. In March 2012, under the 'Quality Assurance Framework Law' the Agency for Quality Assurance and Accreditation Austria was established. This agency is responsible for external quality assurance for all types of universities. Later in 2012, the Platform Research & Technology Policy Evaluation (FTEVAL) published its new standards for evaluations in the field of research, technology and innovation, with impact on future institutional assessments and general evaluation practice in Austria in medium- and long-term.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	15.3 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

The share of research funders in Austria who responded to the survey and support institutional assessment for the allocation of institutional funding is lower than the EU average.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives.

Austria’s trans-national and international priorities are included in the overall Federal Government strategy for research, technology and innovation 'Becoming an Innovation Leader: Realising Potentials, Increasing Dynamics, Creating the Future'.

Austria is also interested in improving the general standards for cross-border research coordination.

The new workprogramme of the Austrian Federal Government for 2013-2018 states under the research chapter the will to strengthen trans-national and international cooperation by establishing of RTI-Attachés and additional Offices of Science and Technology Austria (OSTA) in priority countries in and outside Europe.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	2.1 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	1.9 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Austria allocated to transnationally coordinated R&D is lower than the EU average.

The share of responding funders' research and development budget in Austria dedicated to jointly defined research agendas with other EU organisations is higher than the EU average.

Cooperation between institutions of Member States, Associated Countries and Third Countries is fostered by the Framework Programme (FP). In the seventh Framework Programme, Austria's total share of participation is 3 % and the country received 3 % of total EC contribution. FP funding represents EUR130 per inhabitant (EU average EUR72 per capita) for the period 2007-2013 and 2,9 % of the Gross Domestic Expenditures on R&D (GERD) for the period 2007-2011 (last available data) (EU average 3 % of GERD for the same period).

Concerning joint programming initiatives, the country participates in eight of the ten on-going initiatives, coordinating one of them. These initiatives are Neurodegenerative diseases (Alzheimer), Food Security, Agriculture and Climate Change (FACCE), Cultural Heritage and global change: a new challenge for Europe, Healthy Diet for Healthy Life, The Demographic change (More Years, Better Life), Connecting Climate Knowledge for Europe

(Clik'EU), Water Challenges for a Changing World and Urban Europe - Global Challenges, Local Solutions.

In the National Reform Programme 2014, Austria states that it plans to 'devote particular effort to the alignment of European and national strategies within the framework of those initiatives.'

In terms of programmes undertaken jointly by several Member States (so called Article 185 initiatives), the country was involved in five programmes. In Horizon 2020, the country is already involved in all the four existing initiatives.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country also participated in a total of 87 ERA-NETs, of which 22 are currently still running. The country also has participated in 11 ERA-NET Plus actions - of which seven are still running - in areas with high European added value and additional EU financial support topping up their joint call for proposals.

Concerning research agreements with EU Member States and/or Associated Countries, Austria has at least 12 bilateral agreements with Albania, Bulgaria, Croatia, Czech Republic, France, Hungary, Poland, Romania, Slovenia, Slovakia, Spain, FYR of Macedonia. Bilateral agreements, whether with MS/AC or third countries do not only include the federal government level, but also cooperation at university or public research organisations (for example ÖAW) levels. Programmes serve to fund bilateral collaborations in cases where the two national subprojects are so closely connected that they may only be performed in conjunction with one another.

Austria participates in the D-A-CH multilateral agreement between Germany, Austria and Switzerland.

Additionally, the country participates in the EU Strategy for the Danube Region (EUSDR), a multilateral (and macro-regional) strategy that has been developed by the Commission in cooperation with 11 countries in the Danube region (Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia and Ukraine). It comprises 11 priority areas (PA), PA 7 pertaining to the knowledge society and PA 2 dealing with sustainable energy issues.

2.2. Openness for international cooperation with third countries and regions

Concerning international cooperation with third countries and regions, Austria has recently developed the overall Federal Government strategy for research, technology and innovation titled 'Becoming an Innovation Leader: Realising Potentials, Increasing Dynamics, Creating the Future' including the sub-strategy on international cooperation dubbed 'Beyond Europe'. Based on these strategy papers, Austria will inter alia expand its cooperation with innovation front-runners such as the United States, selected Asian nations and the BRICS countries

(Brazil, Russia, India and China and South Africa), as well as continuing its collaboration with Central, Eastern and South-Eastern European countries.

Austria has concluded several intergovernmental bilateral science and technology (S&T) agreements as well as Memoranda of Understanding on S&T cooperation including Argentina, China, India, the Republic of Korea,Vietnam, the Russian Federation and Ukraine.

Additionally, the Commission for Development Research (KEF) at the Austrian Agency for International Cooperation in Education and Research (OeAD) supports numerous research partnerships between Austrian researchers and researchers from developing countries as well as participating in the EU-funded ERAfrica Project. Africa, Asia and Latin America.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	0.2 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0.7 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	Limited compliance to ERA cluster (national level)	0.4 %	2013	ERA survey 2014

The share of responding funders' research and development budget in Austria allocated to collaboration programmes carried out with third countries is lower than the EU average.

Within the ERA-compliant cluster in Austria, the share of organisations' research and development budget originating from third countries is lower than the EU ERA-compliant cluster.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

Mutual recognition of evaluations that conform to international peer-review standards is supported within the D-A-CH multilateral agreement between Germany, Austria and Switzerland, the German Research Foundation (DFG), the Austrian Science Fund (FWF) and the Swiss National Science Foundation (SNSF). These agencies have agreed to apply the so called 'Lead agency' procedure, which foresees that funding authorities 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 (for research projects with participants of at least two of the three countries). It also allows researchers to move to one of those countries following a money-follows-cooperation-line scheme, a scheme which allows small parts of a project funded by one of the participating research councils to be conducted in a different country. Negotiations are on-going to include similar funding agencies from the Netherlands or the UK. Funding agencies do not implement the money-follows researchers scheme.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	48.7 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	4.4 %	2013	ERA survey 2014
Share of responding funders' project-based research and development	EU level	0.8 %	2013	ERA survey 2014

budget allocated through peer review carried out by institutions outside the country				

The share of research funders in Austria who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is higher than the EU average.

The share of responding funders' project-based research and development budget in Austria allocated through peer review carried out by institutions outside the country is higher than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Austria participates in the following large international research infrastructures (RI): European Space Agency (ESA), Conseil Européen pour la Recherche Nucléaire (CERN), European Fusion Development Agreement (EFDA), the European Molecular Biology Laboratory (EMBL), the European Southern Observatory (ESO), the European Synchrotron Radiation Facility (ESRF) and the Institut Laue-Langevin (ILL). In 2012, the country contributed 1.2 % of GBAORD to the activities carried out by CERN, EMBL, ESO, ESRF, ILL and the European Commission's Joint Research Centre (JRC) (Eurostat).

With regards to participating in the European Research Infrastructure Consortia, Austria is involved in four of the seven consortia that adopted the legal framework designed by the Commission to facilitate the establishment and operation of RI of European interest involving several European countries. Austria is hosting BBMRI-ERIC and is member of SHARE-ERIC, CLARIN ERIC and ESS ERIC.

In terms of support for developing and implementating RIs, one important policy priority outlined in the national RTDI strategy is the improvement of national RI as well as Austria's integration and commitments to international infrastructures (e.g. ESFRI). Thus, this is the focus of one of the inter-ministerial working groups of the Task Force established for its implementation. A tentative national roadmap on research infrastructures, partly depending on future budget availability, is part of the recent Task Force report. In February 2014, the Austrian government released a document called 'Austrian Research Infrastructure – Action Plan 2014-2020'. It outlines the ESFRI infrastructures that are of central importance to the Austrian research environment and the major benefits of participating in these projects for the Austrian research sector which are strengthening competitiveness by ensuring complementarity of national infrastructures, access to equipment, knowledge and technology transfer and the structural improvement (defragmentation) of the humanities and social sciences research landscape.

3.2. Access to research infrastructures of pan-European interest

In terms of access to RIs, at the end of 2011, the Austrian Council for research, technology and development (RTD) has published specific recommendations regarding the further improvement of national infrastructures, which includes among other measures the establishment of a national repository for Austria Ris. A national repository of RI was established and measures were taken to allow its continuous improvement.

Among the research infrastructures coordinated by Austria, access to five of them has been funded by the European Commission.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Austria in the Researchers' Report 2014
[http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Austria_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 37,114 full time equivalent (FTE) researchers in Austria in 2011. This represents 8.6 researchers per 1000 labour force compared with 7.6 among the Innovation Union reference group (Innovation Followers) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 76.0 in Austria compared to 72.3 among the Innovation Union reference group and an EU average of 43.7.

In 2012, 55 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

Following an amendment to the Universities Act, Austrian Universities must advertise research job vacancies (for scientific and research staff) internationally, at least EU-wide. University institutions decide autonomously on the instrument for advertising vacancies internationally. The Ministry of Science, Research and Economy actively promotes the EURAXESS Jobs portal via brochures, flyers, and newspaper advertisements in order to raise awareness of the European job database among universities and public research organisations. The Job Exchange is a service provided by the Ministry of Transport, Innovation and Technology and the Austrian Research Promotion Agency, and is available online. As part of the Talents programme, it offers a range of jobs in research and development and innovation

in Austria – from internships and PhD positions to senior posts (some 5 500 job offers in 2013). Information is available at: http://www.ffg.at/jobboerse.

4.3. Attractive careers

The promotion of the 'Charter & Code' and broad implementation of their principles at Austrian universities was part of the 2010-12 and 2013-2015 performance agreements with universities. In Austria, 18 universities have signed the 'Charter & Code', as have three funding organisations, three umbrella organisations, four research organisations, three universities of applied sciences, one private university, one representative of industry and the former Austrian Federal Ministry of Science and Research. The implementation of the 'Charter & Code' is part of the National Action Plan for Researchers. The Medical University of Graz was the first Austrian university to receive Human Resources Strategy for Researchers (HRS4R) acknowledgement from the European Commission. It has been followed by the FWF, the University of Natural Resources and Life Sciences (BOKU) and the University of Salzburg.

By May 2014, five Austrian organisations were involved in the Commission's Human Resources Strategy for Researchers of which four had received the 'HR Excellence in Research' logo for their progress in implementing the Charter & Code.

The Austrian database for scholarships and research grants (www.grants.at), Austria's most comprehensive database for scholarships and research grants (in English and German), offers an overview of approximately 1 200 funding opportunities for incoming and outgoing researchers, graduates and students. The Austrian Science Fund runs seminars to explain its funding procedures and thus for researchers to present their own ideas to the reviewers of the FWF programmes. The Austrian Research Promotion Agency (FFG) provides proposal-writing seminars to enhance post-doc student writing skills. The Austrian Agency for International Cooperation in Education and Research (OeAD) provides guidelines, recommendations, and seminars for drafting grant proposals.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged 25-34 was 2.2 in 2011 compared with 1.6 among the Innovation Union reference group and an EU average of 1.7.

In order to increase the number of doctoral graduates in science, technology, engineering and mathematics (STEM), a number of Austrian universities are establishing new organisational structures for doctoral training (and in particular supervision), e.g. doctoral schools or doctoral centres. In addition, some universities are developing new structural doctoral programmes aimed at supplementing and broadening doctoral training. Following an amendment to the Universities Act, doctoral training was extended to three years as of the 2009-10 winter term in order to improve the quality of doctoral training. In addition, universities have established new doctoral curricula and have introduced additional measures to improve quality, skills and supervision of doctoral training. The Doctoral Programme, a joint initiative led by internationally-recognised scientists, facilitates work experience abroad

for researchers and offers training in support of transferable skill development. In addition to measures aimed at improving researchers' research proposal writing skills, the Austrian Economic Service (Austria Wirtschaftsservice - awsg) offers services to increase researchers' awareness of intellectual property rights.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU27 Member State was 18.5 % in Austria compared to 18.4 % among the Innovation Union reference group and an EU average of 7.7 %. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 8.6 % in Austria compared with 16.9 % among the Innovation Union reference group and an EU average of 24.2 %.

The APART Programme awards fellowships to national and international students in support of a post-doctoral thesis, or the continuation of a scientific project. Third-country applicants must carry out their research project at an Austrian research institution. The percentage of foreign researchers among APART fellows in 2010-2012 was 18 %. In the DOC Programme PhD studies can be conducted at universities or research institutions both in Austria and abroad. In 2011 and 2012, 15 % of the fellows conducted research at universities or research institutions abroad. Similarly, the DOC-team Programme supports teams working on trans-disciplinary research projects in humanities, cultural studies and social sciences. Each team member must spend at least half a year at a research institution abroad. As the largest post-doctoral programme for outbound mobility for basic research in Austria, the Schroedinger Programme aims to enable young scientists normally based in Austria to work abroad at leading research institutions and on leading research programmes in order to gain research experience abroad during their post-doctorat. With the possibility of also applying for a reintegration phase, the programme aims to facilitate the return phase for the researchers in order to reverse the brain drain from Austria.

The BRIDGE Programme focuses specifically on the funding of industrial research-cooperation projects. Funded projects are those expected to build on the basic research of scientific institutes and take them closer to potential commercialisation through collaborative research with businesses. The projects carried out as part of concrete research collaborations are intended to enable an effective exchange of research results and expertise. Another aim is to foster communication between science and industry, opening up new prospects for both partners. The funding of collaborative projects is designed to facilitate mutual access to each other's expertise and help companies overcome their apprehension about (basic) research. The COMET Competence Centre Programme aims to develop international research excellence and expertise, and support the technological leadership of companies to strengthen Austria as a top destination for research. The research carried out in competence centres ranges from medium to long term and meets high standards of quality. The programme's priorities are the applied orientation of top-level research and its actual implementation in the industry sector. COMET is sponsored by the Ministry of Transport, Innovation and Technology (BMVIT) and the Ministry of Science, Research and Economy (BMWFW). It follows on the success of their previous competence centre programmes. The provinces also support COMET with additional

funding. The Austrian Research Promotion Agency is responsible for managing COMET. There are currently (Status 31 December 2013) 21 COMET K-Centres (five K2 Centres and 16 K1 Centres) as well as 24 K-Projects running with federal funding of approximately EUR50 million per year.

5. GENDER

5.1. Foster cultural and institutional change on gender

Austria has set up specific laws and actions to implement gender equality in research.

Tackling discrimination is high on the government agenda. The new Austrian Federal Government workprogramme for 2013-2018, under chapter 03 'Education, science, art and culture, women' considers women careers in research (Science sub-chapter) but also gender pay gap and other general measures (Women sub-chapter). Austria plans to advocate 'an active equality policy at European level with regard to economic gender equality and reconciling of work and family life'.

In the course of the new reform of budget laws, gender budgeting and gender equality were laid down in the Federal Constitutional Act (BV-G) and Federal Budget Act (BHG). The latter provides for a balanced representation in academic leadership positions and boards. On the basis of these laws a gender equality objective was developed by all ministries.

Several acts are in place to ensure gender equality: the Charter on the Compatibility of Family and Career, the National Action Plan (NAP) for Gender Equality in the Labour Market, the Care Allowance Reform Act 2012 and the Care Allowance Act.

Since 2009, objectives to attain gender balance in leadership positions and decision-making bodies in public research organisations and higher education institutions were gradually put in place by the University Act. Concerning gender balance in decision making, the country has set up a female quota for the participation of under-represented sex in decision-making bodies of Research Performing Organisations. The 2009 amendment of the Universities Act stipulates a women quota of 40 % in university committees and boards. Gender specific measures are included in the performance agreements with universities (for example the 40 % mandatory representation of women). Austrian Universities provide statements and figures on gender (and budget) and how they progress on gender equality. BMWFW evaluates progress on an annual basis using performance indicators, including gender indicators.

The Universities Act also contains references to establishing an organisational unit responsible for coordinating activities relating to gender equality and the so-called 'Affirmative Action Plans'. Performance agreements with universities include financial incentives for gender-specific issues and among other things universities commit themselves to support work-life balance by offering childcare facilities, parental leave and flexible working hours.

Additionally, the 2014 National Reform Programme underlines that 'Strategic gender equality targets have also been defined in the universities' performance agreements', and that it will continue to support campaigns for attracting women in scientific careers.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	National level	95.7 %	2013	ERA survey 2014
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	81.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	5.7 %	2013	ERA survey 2014

The share of research funders in Austria who responded to the survey and support national policies on gender equality in public research is higher than the EU average.

Within the ERA compliant cluster in Austria, the share of research-performing organisations that have adopted Gender Equality Plans is higher than within the EU ERA compliant cluster.

General laws require equal treatment for women and several provisions are included to ensure that: maternity leave is not a discriminating factor; pregnancy automatically freezes temporary contracts; women have the right to return to an equal position to the one held before their maternity leave and to have a part-time position when they end their maternity leave.

The country has measures that support returning to work after parental leave. FWF and ÖAW fellowship programmes allow for interruptions and extensions in case of maternity leave.

Austria has provisions for a balanced participation of women and men in research programmes and/or projects. All FWF programmes provide for a quota of 30 % women scientists/scholars and this target has been achieved.

The country provides incentives for recruiting female researchers and promoting access of female researchers to senior positions in research-performing organisations. The Universities Act provides for the implementation of gender monitoring with respect to recruitment and targeted recruitment in public research organisations and universities.

It has set up awards, fellowships and/or other similar mechanisms to specifically support female researchers. Since 2002, several support schemes have been put in place to support recruitment, retention and career progression of female researchers: under the umbrella of the inter-ministerial action programme 'Women in Research and Technology', fForte: the Excellentia Programme launched in 2005 to support women full professors; the fForte Coaching Programme supports women in writing successful grant proposals; the 'Laura Bassi Centres of Excellence' encourage women to apply for top positions; the FEMtech programme seeks to increase female participation in industry innovation and applied sciences at PROs. The FWF career programmes support women at the start of their careers and to apply for full professors.

The Working Group on Gender and Diversity Management within the BMWFW aims to implement diversity measures as cultural and institutional change initiatives. In this regard, a study that focuses on how to achieve cultural and structural change within the scientific and research community has been commissioned by the BMWFW.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	69.2 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national	6.9 %	2013	ERA survey 2014

	level)			

Within the ERA compliant cluster in Austria, the share of research-performing organisations implementing recruitment and promotion policies for female researchers is higher than within the EU ERA compliant cluster.

The Country has set up provisions to integrate the gender dimension in research programmes and/or projects. FFG and FWF have included gender in research content considerations in grant application and reporting guidelines of specific funding instruments. In 2012 the Gender Studies Association Austria was established to develop gender studies at universities as well as higher education institutions.

Certain FEMtech R&D grants target gender-specific innovation since 2010, e.g. accounts for gender differences and its implications for product design.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the inclusion of gender dimension in research content	National level	93.7 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	63.3 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	Limited compliance to ERA cluster (national level)	4.3 %	2013	ERA survey 2014

The share of research funders in Austria who responded to the survey and support gender dimension in research content/programmes is higher than the EU average.

Within the ERA compliant cluster in Austria, the share of research-performing organisations that include the gender dimension in research content is higher than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

Within the ERA compliant cluster in Austria, the share of gender-balanced recruitment committees for leading researchers in research-performing organisations is lower than within the EU ERA compliant cluster.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Austria is lower than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

Austria supports open access in the frame of the performance agreements with universities. Activities concerning open access policies are up to individual research-performing organisations (RPOs) and research funding institutions. In January 2010 the Austrian Rector's Conference (UNIKO) published its recommendations to enhance open access policies in Austria. In 2012, under the organisational umbrella of the Austrian Science Fund (FWF) and UNIKO, research funders and performers have organised themselves into the 'Open Access Network Austria' to coordinate open access activities and make nationwide recommendations in the field. Additionally, since 2007 research and funding institutions from Austria, Switzerland and Germany cooperate in a joint project/online platform to improve information, knowledge and discuss open access.

Open access was enshrined as a topic of the future at national level as the Austrian Council for Research and Technology Development (RFTE) articulated open access in their Strategy 2020, that all public research results in Austria shall be freely accessible on the Internet by 2020.

Open access is one the key priorities of the Austrian Science Fund (FWF), the main funding for basic research in Austria.

FWF has a mandatory policy on open access, including towoards data where legally possible, with green and gold open access as equivalent options. Similarly, the Austrian Academy of Sciences (ÖAW) and the University of Graz have developed an institutional open access policy. All other universities will follow.

Indicator	Level/cluster	Value	Year	Source

Share of responding funders supporting open access to publications	National level	64.5 %	2013	ERA survey 2014
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	1 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	1 %	2013	ERA survey 2014

The share of research funders in Austria who responded to the survey and support open access to publications is higher than the EU average.

Within the ERA compliant cluster in Austria, the share of publicly-funded scientific publications in open access amongst research-performing organisations is lower than within the EU ERA compliant cluster.

Concerning open access to data this is legally included, where possible into open access for publications.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting open access to data	National level	18.6 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-	ERA compliant cluster (EU	54.2 %	2013	ERA survey 2014

line and free of charge	level)			
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	46.1 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	9.7 %	2013	ERA survey 2014

The share of research funders in Austria who responded to the survey and support open access to data is lower than the EU average.

Within the ERA compliant cluster in Austria, the share of research-performing organisations making publicly funded scientific research data systematically available online and free of charge, is lower than within the EU ERA compliant cluster.

With respect to repositories, the Austrian Academy of Sciences (ÖAW), the University of Vienna, the Austrian Library Network LTD have created a repository.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to Open Innovation and Knowledge Transfer between public and private sectors, Austria has embedded academia-industry cooperation among the objectives of the 2011 Austrian Federal Government strategy for research, technology and innovation 'Becoming an Innovation Leader: Realising Potentials, Increasing Dynamics, Creating the Future'. However, the country has not developed a knowledge transfer strategy. The adoption of the strategy was followed by an inter-ministerial working group 'knowledge transfer and start-ups' and introduced improved tax measures in 2012.

The Austrian RTI strategy aims to improve and stimulate the level of collaboration between universities, public research organisations and the economic sector. For this purpose the Austrian RTI strategy promotes the establishment of knowledge transfer centers. Knowledge transfer between universities, other research organisations and the private sector will be promoted within three virtual regional Knowledge Transfer Centres and within a virtual thematic Knowledge Transfer Centre in the field of life sciences. The new BMWFW funding programme should offer incentives for Austrian state universities and defined research institutes to use strategic partnerships within the framework of the regional and thematic knowledge transfer centres to jointly utilise the potential that has been built up in recent years in the field of knowledge and technology transfer and thus to further increase both quality and

professionalism. Optimised transfer processes should furthermore enable universities in particular to participate to an even greater extent in the innovation process.

The new Austrian Federal Government workprogramme for 2013-2018 states under the research chapter the willingness to safeguard knowledge transfer, increase cooperation between science and business and develop and implement a national strategy for intellectual property.

In the ongoing performance agreements with universities and the ÖAW assurance is given that reliable and sustainable intellectual property and utilisation strategies will be developed to enable partners from the economy to formulate long-term research targets.

There are specific programmes for transferring knowledge, creating and supporting spin-offs and supporting intellectual property rights (IPRs) at the level of universities and research organisations, and specific placement schemes for young researchers in industry. The general programme of the FFG has remained Austria's most important source of public funding for R&D carried out by industry in terms of funding budget, efforts to promote R&D in all economic sectors and industries, areas of technology, and sizes of companies. Some examples of FFG programmes fostering academia-industry cooperation are COMET, COIN, BRIDGE, AplusB or uni:invent. The Christian Doppler Research Association provides also for academia-business cooperation within its programmes. Knowledge transfer measures are considered effective as they have led to a high level of transfer activities and Austria ranks third among Organisation for Economic Co-operation and Development (OECD) countries in this respect.

In 2010, a national contact point (NCP) was designated at the BMWFW. The NCP's tasks include coordinating measures regarding knowledge transfer between public research organisations and the private sector, including tackling trans-national issues, in liaison with similar contact points in other Member States. The project Intellectual Property Agreement Guide (IPAG) is funded by the NCP. The aim of IPAG is to support universities, public research institutions and also enterprises in the professional handling of intellectual properties (IP) by drafting model agreements. A set of model contracts is made available helping the most appropriate model contracts to be selected. The use of theses model contracts is voluntary (www.ipag.at). The project is an important contribution to enhance trust and confidence between all relevant stakeholders and should simplify the legal and administrative processes. As part of efforts to generate greater public awareness of the link between science and industry, the Phönix Award of the BMWFW is given to young university spin-offs from universities and public research organisations. It aims to enhance the visibility of the excellent scientific outcomes of Austrian universities.

Strategic partnerships between academia and industry are supported by funding organisations in Austria, for example the FFG funds the Laura Bassi Centres of Expertise and the thematic programme "Leuchttürme eMobilität" (Lighthouses of E-mobility).

Indicator	Level/cluste	Value	Year	Source

	r			
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	82.4 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	8.6 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	2.1 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national level)	85.2 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge	Limited compliance to ERA	1 %	2013	ERA survey 2014

transfer activities	cluster (national level)			
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (national level)	51.2 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	0.7 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	3.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	2.9 %	2013	ERA survey 2014

The share of research funders in Austria who responded to the survey and support KT and OI, TTOs and Private Public interaction is similar to the EU average.

Within the ERA compliant cluster in Austria, the share of research performing organisations having funding originating from the private sector is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Austria, the share of research-performing organisations having or using a structure for knowledge transfer activities is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Austria, the share of research-performing organisations having dedicated staff employed in knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Austria, the share of research personnel whose primary occupation is in the private sector (in FTE) is higher than within the EU ERA compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

With regards to access and usage of e-infrastructures and digital research services, most Austrian academic institutions (more than 80 %) are part of the Austrian Academic Computer Network (ACOnet -'Österreichisches akademisches Computernetz') which is the National Research and Education Network (NREN) run by the University of Vienna. This is essential to make digital services possible. However, Austria does not have a strategy for implementating the Digital European Research Area (ERA).

Concerning digital services, the country provides federated services.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	86 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration	Limited compliance to ERA cluster	8.5 %	2013	ERA survey 2014

platform, etc.)	(national level)			

Within the ERA compliant cluster in Austria, the share of research-performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is higher than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Austria was a member of an identity federation in 2011. The country is member of eduGAIN, a service intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GÉANT (GN3plus) Partners' federations, through ACOnet, which offers its members high-performance access and support services.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	28.4 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	5 %	2013	ERA survey 2014

Within the ERA compliant cluster in Austria, the share of research-performing organisations providing federated electronic identities for their researchers is lower than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 94 research performing organisations in Austria answered the 2014 ERA survey, which represents 40.1% of the total number of researchers in the country (total number of researchers in the country as of 2011). One important research performing organisation is not included.

The principal component and clustering analysis of research performing organisations in Austria shows that 21.1 % of them are in the 'ERA compliant' cluster, 51.1 % can be classified in the 'limited compliance to ERA' cluster and 27.8 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 85.7 % for the 'ERA compliant' cluster, 10.6 % for the 'ERA limited compliant' cluster and 3.7 % for those organisations where ERA principles are not applicable.

For the indicator 'Share of total budget allocated as project based funding' it should be noted that part of the funding of RPO's is directly by some of the ministries without intervention by any funding organisation. As a consequence the percentage is relatively high compared to official figures. Moreover one of the big funding organisations in Austria could not make a distinction between project based or institutional funding.

For the indicators on Open Access the non-response rate was high, while a high percentage ofof organisations that did reply perform applied research. These factors explain the relatively low scores on Open Access.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Research and innovation system			
Austrian EU Action Plan	2013	X	X
Project-based funding applying the core principles of international peer review			
Reform of the Austrian Academy of Sciences (ÖAW)	2012	X	
Quality Assurance Framework Law establishing the Agency for Quality Assurance and Accreditation Austria	2012	X	
The Austrian Research, Technological Development and Innovation Strategy "Becoming an Innovation Leader: Realising Potentials, Increasing Dynamics, Creating the Future"	2013	X	X

Institutional funding based on institutional assessment			
Updated evaluation standard published by the semi-public Platform Research & Technology Policy Evaluation (FTEVAL)	2012	X	
Revision of the Federal law on the organisation of universities and their studies (Austrian Universities Act) Revised university financing provisions	2013	X	X
Implementing joint research agendas			
Support for European initiatives e.g. the European Strategic Energy Technology (SET) Plan (national representatives level) and for the participation of national researchers	2013	X	X
Openness for international cooperation with third countries and regions			
Establishment of FTI-Attachés and additional Offices of Science and Technology Austria (OSTA)	2014	X	X
Beyond Europe Die Internationalisierung Österreichs in Forschung, Technologie und Innovation über Europa hinaus	2013	X	X
Interoperability, mutual recognition of evaluation results and other schemes			
Joint Programming Initiatives - Austria is leading the JPI Urban Europe and is participating in 7 more JPIs	2013	X	X
Article 185, ERA-nets and ERA-nets plus	2013	X	X
New scientific clusters launched and evaluation exercise passed in the Danube strategy	2014	X	X
Financial commitments for the construction and operation of ESFRI, national and regional			

research infrastructures of pan-European interest			
Establishment of a repository of research infrastructures in Austria	2011		
Draft national roadmap for for the building of new infrastructures and link to ESFRI.	2011		
Participation in ESFRI Initiatives	2013	X	X
Austrian Research Infrastructure – Action Plan 2014-2020	2014	X	X
Open, transparent and merit-based recruitment of researchers			
National EURAXESS portal			
Attractive careers			
Implementation of the provision of the Scientific Visa Directive 2005/71/EC and recommendations 2005/762/EC and 2005/761/EC			
Recognition ("Nostrifizierung") of foreign diploma or training qualifications	2011		
The brainpower austria programme; the Career Grants Programme; various grants and scholarships			
Revision of the Federal law on the organisation of universities and their studies (Austrian Universities Act) (revision of/amendment to the original 2002 law, Bundesgesetz BGBl. I Nr. 81/2009)	2009		
Gender balance in the decision-making process			
FWF structured doctoral programmes Hertha Finberg Programme and Elise Richter Programme			
Revision of the Federal law on the organisation of universities and their studies (Austrian Universities Act)	2011		

(revision of/amendment to the original 2002 law)			
Federal Constitutional Act (BV-G) and Federal Budget Act (BHG) Federal Equal Treatment Act and equivalents at regional level	2013	X	X
The Charter on the Compatibility of Family and Career, The National Action Plan (NAP) for Gender Equality in the Labour Market, The Care Allowance Reform Act 2012 and The Care Allowance Act National policy on gender equality	2013	X	X
Working Group on Gender and Diversity Management	2013	X	X
inter-ministerial action umbrella programme fForte (Women in Research and Technology), industry and PROs branch (FEMtech)	2002		
Inter-ministerial action umbrella programme fForte (Women in Research and Technology), industry and PROs branch (FEMtech)	2002		
inter-ministerial action umbrella programme fForte (Women in Research and Technology), schooling branch Educational gender initiatives by BMWF			
Open access to publications and data resulting from publicly funded research			
Open Access Network Austria	2012	X	
Open innovation and knowledge transfer between public and private sectors			
Overarching laws on the research system Inter-ministerial working group			

"knowledge transfer and start-ups"			
Tax incentives for research	2012	X	
Christian Doppler Research Association			
General Programme of the Austrian Research Promotion Agency (FFG) - support of KT and OI	2011		
Establishment of a national contact point (NCP) for IP management	2010		
Harmonise policies for public e-infrastructures and associated digital research services			
ACOnet "Österreichisches akademisches Computernetz" - member of GÉANT			
Uptake of federated electronic identities			
eduGAIN	213		

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

The research and innovation (R&I) policy is designed and implemented in a multi-level governance framework involving the Federal Government and autonomous regional/community governments.

The Federal Government has competence for the federal scientific institutes, intellectual property (IP) law, standardisation, fundamental metrology, nuclear research, corporate taxation, employment legislation and social security. The communities are competent for matters related to individuals including scientific research and (higher) education, and the Community Scientific Institutes. The regions are competent for territorial matters such as energy, environment, and economic support, thus including innovation, applied and industrial research, science parks, and technology transfer. The three Belgian regions (Brussels-Capital, Flanders and Wallonia) design policies that suit the specific needs of their business sectors for innovation and that are tailored to optimise the potential of their higher education research capacities. The Belgian German-speaking community does not have a research policy.

At Federal level, the Federal Office for Science Policy (BELSPO) provides project funding. Moreover, the Federal level supports the federal research institutes. In Flanders, the Flemish Government defines policy orientations and provides institutional funding to higher education institutions (HEIs). Its main funding instrument is the Special Research Fund (BOF) allocated depending on defined criteria (BOF-key). Project-based funding is managed by two agencies: the Research Foundation - Flanders (FWO) and the Institute for the Promotion of Innovation by Science and Technology in Flanders (IWT). FWO stimulates fundamental research, whereas IWT promotes innovation through science and technologies. The Hercules Foundation stimulates the use of a large research infrastructure, which proposals can be forwarded to. In Wallonia, industrial research funding and funding for academic, public or not-for-profit research centres are managed by the General Operational Directorate for Economy, Employment and Research, called DGO6. In the French Community, the National Scientific Research Fund (F.R.S-FNRS) manages competitive project funding. Research and development (R&D) investments are long-term secured and multi-annual research and development and innovation (R&D&I) strategies are implemented at different government levels.

The country has adopted an R&I strategy on a regional level.

In Flanders, the regional R&D and innovation strategy is based on the minister's policy note on innovation that covers the priorities and initiatives for the five year governing period, which is elaborated by annual policy letters. In adittion, there are related initiatives such as e.g. the Concept note on Innovation Centre Flanders (2011). At the overall policy level of Flanders, the Flanders in Action (FiA) future plan aims to make Flanders one of the top five EU regions by 2020, and includes targets on research. The amended Flemish Parliament Act on Innovation from 2012 sets out the legal basis for subsidies for special research funds, and legal anchoring of the young researchers support programme. Belgium has a Country Specific

Recommendation: 'Restore competitiveness […] by promoting innovation through streamlined incentive schemes and reduced administrative barriers'.

In Wallonia and the Wallonia-Brussels Federation, the Research Strategy 2011-2015 follows up on their willingness for closer cooperation between the different policy levels (cfr. Marshall Plan2.Green). This document sets out eight strategic objectives (including reiterating the 3 % objective), identifies five priority thematic areas and includes a detailed plan of action for meeting the objectives. Competitive funding is implemented through calls for proposals connected to the research strategy priorities (i.e.GREENTIC, Competitiveness Poles, RELIABLE programme, etc). The Wallonia Marshall Plan2.Green allocates funds to competitiveness clusters with support to public-private partnerships and projects related to the research strategy priorities (information and communication technologies, sustainable development, ageing and health).

Additional competitive funds are available from the Strategic Fundamental Research fund, hosting the virtual research institutes for life sciences and sustainable development.

In terms of R&D&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Belgium represented EUR 224 per inhabitant in 2012, above the EU28 level (EUR179). In 2012, total GBAORD corresponded to 1.2 % of total government expenditures and 0,7 % of Gross Domestic Product (GDP) (Eurostat).

However, GBOARD does not show the complete picture for Belgium. Apart from direct support to R&D indirect support by fiscal measures (tax benefits) plays a substantial role in Belgium. The sum of direct and indirect support has increased over the period 2007-2012 and is close to 1.1 % of GDP in 2012. Fiscal measures for R&D and innovation in Belgium amount to around EUR 1,1 billion in 2012.

The analysis of the evolution of GBAORD in the period during the economic crisis (2007-2012) shows that in nominal terms, the rate of growth of total GBAORD in Belgium has been higher than the rate of growth of total EU GBAORD. In terms of R&D efforts, the rate of growth of GBOARD in Belgium, measured as percentage of public government expenditure evolved more negatively than the negative evolution observed in the EU27. Finally, GBAORD as a share of GDP has regressed in Belgium but less than the evolution observed in EU28.

1.2. Project-based funding applying the core principles of international peer review

• In October 2012, the Council of Ministers (federal government) approved the launch of the first phase (2012-2017) of the recurrent Research Framework Programme BRAIN-be. The programme, which mobilises EUR18 million/year, is organised around six themes, open to the participation of researchers and institutions from other countries on a co-funding basis and supports two types of research projects: network projects and pioneer projects.

• The Research Strategy 2011-2015 remains the main policy document: it allows for public private partnership (PPP) funding and the support of several calls for projects

connected to its priority themes (GREENTIC, competiveness poles, RELIABLE programme, Employment-Environment Alliance etc.)

- In the Wallonia's Marshall Plan 2.Green, funding is allocated to competitiveness clusters, with additional support for PPPs and to R&D programmes on subjects linked to the Research Strategy for, in particular, ICT, the environment and sustainable development, ageing and health.

- Through the Fundamental Strategic Research Fund, additional funds were made available for fundamental strategic research, hosting the virtual research institutes for life sciences (continuation, EUR6 million per year) which already funds research through competitive calls and sustainable development (creation, EUR5 million per year). The fund will also accommodate the Walloon Institute for Sustainable Development.

- The Walloon Government asked for 22 approved research centres to be brought together into seven institutes, in order to simplify the landscape of these research centres and to guarantee cohesion among the subjects handled within them. A body called WAL-TECH, tasked with ensuring the visibility of the institutes and management of internal collaboration will oversee these institutes. The objective is to increase the service provided to businesses, in particular small and medium-size enterprises (SMEs), wishing to improve their process or to develop new products.

- In the Wallonia-Brussels Federation, block funding for HEIs is allocated on the basis of the number of students and full time equivalent (FTE) researchers. The allocation of block funding is not based on scientific performance indicators such as bibliometrics.

- In the Flemish Community, additional funding for universities is also distributed based on an allocation key, which is partially based on scientific output indicators.

- The Innovatiedecreet (Flemish Parliament Act on Innovation) was modified, whereby three elements were added: conditions for the support of the higher education sector (good governance, strategic planning, gender balance, reporting and science communication), the legal basis for subsidies for the special research funds, the legal anchoring of the programme for the support of young researchers.

- In 2011, a new support programme for young researchers was implemented in the Flemish Community. Since the budgetary year of 2013, this annual subsidy of EUR4 million has been embedded legally.

- Starting from 1 January 2012 a new agreement between the Research Foundation Flanders (FWO) and the Flemisch Governement was put in place. Based on this agreement FWO can support for the next five years basic research performed at Flemish universities and institutes.

- In the Flemish Community, the period of the legal basis for funding from the BOF ended in 2012. A new decision has been approved that builds on the existing legislation, and also alters some specifications. The funding from BOF aimed at universities includes a

number of conditions that refer to the autonomy of the universities. Also, a number of parameters were changed for the distribution of the budget among universities. There will be guaranteed minima for small and middle-sized universities. Finally, a number of gender mesures are included to stimulate the balance between the sexes in academic research and actively involve more women .

• After concluding new long-term agreements with the Flemish strategic research centres VIB (biotechnology), IMEC (nanotechnology), iMinds (ICT) for the period 2012-2016, the Flemish Community also cconcluded with VITO, after an evaluation by international experts, a new multi-annual covenant. During the period 2014-2018, VITO will annually receive a grant of a minimum of EUR39 million. VITO should become/remain an internationally renowned research organisation in the areas of environment, energy and materials, and stimulate an attractive innovation climate for companies from Flanders.

• The concept note 'Innovatiecentrum Vlaanderen' from 2011 elaborated a basis for a more flexible approach of thematic-oriented innovative centres at the initiative of the industry, the so-called 'Lichte Structuren' (innovation platforms). A number of existing excellence centres as well as new centres (e.g. FISCH for sustainable chemisrty) are being supported under the new legislative framework. Other new initiates are the test gardens or living labs supported by IWT, e.g. on care innovation space Flanders, or on social innovation factory.

• For 2013, within the implementation of Creative Wallonia, actions will be continued and strengthened and new actions will be launched:

- Launch of a tool for diagnosis of innovation potential for SMEs.

- Creation of Creative Labs in two Teacher Training HEIs to test the possibility of extending the tool and see if eventually all pupils of basic teaching could benefit from new approaches in this subject.

- Creation of one or more Living Lab/Fablab: a feasibility study is underway.

- Fulfilment in the first semester of an assessment of the Creative Wallonia Plan.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' total budget allocated as project-based funding	National level	45.9 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Belgium who responded to the survey and support project-based funding is lower than the EU average.

The core principles of international peer review are arranged at regional level. In Flanders, the Research Foundation – Flanders (FWO) calls on international experts to evaluate all applications, both fellowships and projects. These procedures are based on the European Science Foundation's (ESF) European Peer Review Guide. Applicants provide a list of ten possible referees out of which the FWO randomly contacts referees until at least two international peer review reports are available. Specific regulations on External Peer Reviews are in place to make sure that there is no conflict of interest between the applicant and the referee. Efforts for avoiding, detecting and punishing conflicts of interest have been further intensified since 2012, which resulted in a significant lower amount of conflicts.

Projects submitted under calls for proposals organised by the Walloon Region are also evaluated separately by at least two foreign experts.

1.3. Institutional funding based on institutional assessment

Institutional funding based on institutional assessment is regularly applied in Flanders and seldom at the Federal level and Wallonia.

In the Flemish Community, additional funding for universities is also distributed based on an allocation key, which is partially based on scientific output indicators such as the numbers of completed PhDs, Mas and the volume of third- party findings. Furthermore there are performance contracts between ministries and universities, formula-based funding etc.

The Flemish Special Research Fund (BOF) of the Research Foundation Flanders is solely meant for fundamental research in universities in the shape of either projects or mandates and does not have any thematic focus.

In the Wallonia-Brussels Federation, block funding for HEIs is allocated on the basis of the number of students and FTE researchers – the allocation of block funding is not allocated based on scientific performance indicators such as bibliometrics. Nonetheless some additional public funding tools for the HEIs, such as the Actions de recherche concertées (ARC) and the Fonds spéciaux de la recherche (FSR) are based on competitive peer reviewing procedures and take the excellence of the research production into account.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	46.2 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional	EU level	24 %	2013	ERA survey 2014

funding based on institutional assessment and/or evaluation				

The share of research funders in Belgium who responded to the survey and the support institutional assessment for allocating institutional funding is higher than the EU average.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	2.7 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	2.6 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Belgium allocated to transnationally coordinated R&D is lower than the EU average.

The share of responding funders' research and development budget in Belgium dedicated to jointly defined research agendas with other EU organisations is higher than the EU average.

Cooperation between institutions of Member States, Associated Countries and Third Countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme, the share of participation of Belgium in total participation is 5% and the country received 4.8% of total EC contribution. FP funding represents EUR 157 per inhabitant (EU average EUR72 per capita) for the period 2007-2013 and 5 % of the Gross Domestic

Expenditures on R&D (GERD) for the period 2007-2011 (last available data) (EU average is 3 % of GERD for the same period).

Concerning joint programming initiatives, the country participates in 10 of the 10 on-going initiatives [coordinating 0 of them]. These initiatives are Neurodegenerative diseases (Alzheimer), Food Security, Agriculture and Climate Change, Cultural Heritage and global change: a new challenge for Europe, Healthy Diet for Healthy Life, The Demographic change (More Years, Better Life), Antimicrobial resistance - An emerging threat to human health, Connecting Climate Knowledge for Europe, Water Challenges for a Changing world, Healthy and Productive Seas and Oceans, and Urban Europe - Global Challenges, Local Solutions.

Belgium is involved in four Article169/185 initiatives (Ambient Assisted Living, European and Developing Countries Clinical Trials Partnership, EMRP and Eurostars),

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 86 ERA-NETs, of which 26 are currently still running. The country also has participated in seven ERA-NET Plus actions of which four are still running in areas with high European added value and additional EU financial support topping up their joint call for proposals.

Concerning research agreements with EU Member States and/or Associated Countries, Flanders is active in several EU Interreg projects in future-oriented domains. Examples are BioBase Europe (bioeconomy), NanoSensEU (nanotechnology) or Waterstofregio (Hydrogen Region, a finalist of the EUROSTARS AWARD 2012.

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with third countries and regions, the country has not developed a specific policy.

Several bilateral agreements reinforce cooperation. These agreements are signed at Federal level or Community level. At Federal level, agreements exist with Bulgaria, China, Poland, Russia, Vietnam. Wallonia-Brussels signed agreements with Argentina and the Flemish Community via FWO with Brazil, Ecuador, Quebec, Vietnam, South Africa, Luxembourg, Netherlands and Slovenia. The FWO started in 2012 with a new Pegasus program for postdoctoral fellowships to attract researchers from abroad. Exchange Agreements with the FWO and international partners have entered into force with research councils from South Korea, Turkey and Mexico. In August 2013, Belgium was involved in 125 joint calls related to EU joint research agendas. Moreover, bilateral agreements are also implemented through yearly joint calls.

Indicator	Level/cluster	Value	Year	Source

Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	0.2 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	Limited compliance to ERA cluster (national level)	0 %	2013	ERA survey 2014

The share of responding funders' research and development budget in Belgium allocated to collaboration programmes carried out with third countries is lower than the EU average.

Within the ERA compliant cluster in Belgium, the organisations declared that they did not receive funding from third countries.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

Mutual recognition of evaluations that conform to international peer-review standards is not supported as such. However, Belgium and its Communities develop cooperation with other EU and non-EU countries to facilitate cross border interoperability. The implementation guides of these agreements apply to each bilateral call for proposal and set the common priorities. The crossborder interoperability and mutual recognition mechanism is facilitated in the case of the Lead Agency process implemented in Flanders with Luxembourg, the Netherlands and Slovenia. The key features of the Lead Agency system in are:

- The support to joint projects for a maximum duration of three years.
- Thematic areas are defined by the agreements.
- The objective of these agreements is to enhance the cooperation between the scientists of signatory countries.
- The proposal is evaluated by the Lead Agency only, according to national rules. The partner funding organisation accepts the evaluation results as a basis for its decision process.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	46.9 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	0.1 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

The share of research funders in Belgium who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is higher than the EU average.

The share of responding funders' project-based research and development budget in Belgium allocated through peer review carried out by institutions outside the country is lower than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Belgium participates in the following large international research infrastructures: European Space Agency (ESA), Conseil Européen pour la Recherche Nucléaire (CERN), European Fusion Development Agreement (EFDA), European Molecular Biology Laboratory (EMBL), European Southern Observatory (ESO), The European Synchrotron Radiation Facility (ESRF) and Institute Laue-Langevin (ILL). In 2012, the country contributed 1.7% of GBAORD to the activities carried out by CERN, EMBL, ESO, ESRF, ILL and the European Commission's Joint Research Centre (JRC) (Eurostat).

With regards to participating in the European Research Infrastructure Consortium, Belgium is involved in four of the seven consortia which adopted the legal framework designed by the Commission to facilitate the establishment and operation of research infrastructures of European interest involving several European countries. Belgium is member of SHARE-ERIC, CLARIN ERIC, ESS ERIC and Biobanking and Biomolecular Resources Research Infrastructure (BBMRI-ERIC).

In terms of support for developing and implementing Research Infrastructures (RI) in Belgium, there is an ongoing national debate on the approach for participating in the European Strategy Forum on Research Infrastructures (ESFRI) roadmap with a clear division of responsibilities and guiding rules. The ministers in charge of research are debating a national approach regarding the participation in the ESFRI roadmap with a clear division of responsibilities and guiding rules. Flanders is co-operating in five ESFRI projects (ICOS, LIFEWATCH, ESSurvey, SHARE, PRACE) over 20 to 25 years, for a budget of EUR 3.5 million in 2012. It has allocated a supplementary budget of EUR 5 million euro to the Hercules Foundation for special research infrastructure, aimed at supporting the participation of Flemish actors in the ESFRI-ERIC initiatives. Proposals from consortia of Flemish researchers were evaluated in 2012 within the context of a general assessment of a potential participation of Flanders at the construction and exploitation of the INSTRUCT, EMBRC, ANAEE en DARIAH projects. For four ESFRI projects (BBMRI, EATRIS, ECRIN, ELIXIR), the evaluation of the proposal and consequent possible Flemish participation will be finalised in 2014. The Flemish Government also awared support to the Grand Accelerateur National d'Ions Lourds (GANIL) in Caen (France), as a one-off input for the setup of the 'High Resolution Separator' of SPIRAL2.

The Wallonia-Brussels Federation and Wallonia approved their participation to the same projects in addition to PRACE (EUR 4.4 million are given by Wallonia for the participation in the PRACE project in 2011) and BBMRI, for a budget of EUR 6 million in 2012.

Some EUR 5.8 million have been jointly allocated by Wallonia and the Wallonia-Brussels Federation to insert teams of researchers in the European infrastructures of the ESFRI Roadmap (PRACE, SHARE, LIFE WATCH, ICOS, BBMRI and ESSurvey.5).

3.2. Access to research infrastructures of pan-European interest

In terms of access to RIs among the research infrastructures coordinated by BE, access to five of them has been funded by the European Commission.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Belgium in the Researchers' Report 2014
[http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Belgium_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 42 686 full time equivalent (FTE) researchers in Belgium in 2011. This represents 8.8 researchers per 1000 labour force compared with 5.3 among the Innovation Union reference group (Moderate Innovators) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per 1000 researchers in the public sector was 44.1 in Belgium compared with 72.3 among the Innovation Union reference group and an EU average of 43.7.

In 2012, 65% of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

Recruitment policies are a matter for academic autonomy, but the Federal State encourages institutions to recruit as openly as possible. However, the traditions of some institutions and linguistic laws can be seen as barriers to the openness of the recruitment process. The Wallonia-Brussels Federation's Fonds de la Recherche scientifique (FRS-FNRS) has reformed its recruitment system throughout the selection process. In detail, the reform eliminates the age criterion formerly applied to applicants for FRS-FNRS mandates, provides pre-defined evaluation criteria and feedback to the candidates, develops an evaluation procedure for selecting of projects that involves more external experts from outside the Wallonia-Brussels Federation, advertises the calls for candidates and the mechanisms for obtaining a mandate in FRS-FNRS/Associated Funds more widely on different internet portals (FRS-FNRS, EURAXESS, etc). A renewed Internet portal has also been created, containing information of better quality on the FRS-FNRS procedures.

4.3. Attractive careers

At Federal level, the BELSPO endorsed the Charter & Code in 2011. All strategic research centres and universities in Flanders have acknowledged and implemented the Charter & Code

principles. In the Wallonia-Brussels Federation, the EURAXESS Rights Group (made up of university representatives), the FRS-FNRS and the Walloon administration have agreed on a communication plan for the implementation of the Charter & Code. In addition, higher education institutions (via the CGHE - Conseil général des Hautes Ecoles and the Interface ADISIF-Entreprises, a service centre for research centres and higher education institutions and research centres have been invited to participate in the initiative.

By May 2014, 15 Belgian organisations were involved in the Commission's Human Resources Strategy for Researchers of which 11 had received the HR Excellence in Research logo for their progress in implementing the Charter & Code.

The 2012 funding agreements between the Flemish government (Ministry of Innovation) and three strategic Research Centres (IMEC, VIB and iMINDS V.Z.W.), foresees that the research centres must have a coherent Human Resources policy (on recruitment, career development, salary, training and working conditions), should introduce a clear non-discrimination policy and respect the principles of the Charter & Code for recruitment. The agreements contain details of the funding envisaged as well as the duties and rights of the beneficiaries.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per 1000 population aged 25 to 34 years old was 1.5 in 2011 compared to 1.6 among the Innovation Union reference group and an EU average of 1.7.

The Flemish Community finances the Support Programme for Young Researchers with a yearly budget of EUR 4 million. The Programme targets young researchers at doctoral and postdoctoral level, providing them with training, career development incentives, and support for participating in international events and job fairs. In the Wallonia-Brussels Federation, measures to improve researchers' employment skills and competencies are taken individually by the universities and doctoral schools.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU27 Member State was 14.2% in Belgium compared to 18.4% among the Innovation Union reference group and an EU average of 7.7 %. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 21.0 % in Belgium compared to 16.9 % among the Innovation Union reference group and an EU average of 24.2 %.

The Back to Belgium grants and the post-doc fellowships of the federal government as well as the Methusalem and Odysseus Programmes of the Flemish community and the Ulysses Programme of Wallonia-Brussels Federation target talented researchers to come/remain in Belgium and perform their research activities. They are designed to promote the reintegration (and long-term stay) and use of the skills acquired during a post-doctorat stays abroad of highly-qualified researchers (Belgians, or foreigners who have stayed at least three years in Belgium for studies), who have been working in another country for at least two years.

In the Flemish Community, the Agency for Innovation by Science and Technology (IWT) Innovation mandates are set up with the objective of connecting the academic and the industrial world, and stimulating postdoctoral researchers to improve their skills in maximising the value of their research and to develop their careers, taking a step towards industry. Inter-sectoral mobility is encouraged during the fellowship. There are innovation mandates leading to the establishment of a spin-off company (so-called spin-off mandates) and those involving cooperation with existing companies. The annual budget is some EUR2 to 3 million. Approximately 40 mandates are granted yearly. In the Wallonia-Brussels Federation (FWB), one of the objectives of the Marshall Plan 2.Green is to encourage enterprise competitiveness and attractiveness and promote research and innovation, in close linkage with enterprises. In addition, the Wallonia-Brussels Federation intends, as part of Marshall 2.Green (2009-2014), to promote the recognition of the years preparing for a doctorate as relevant job experience in the public sector (in French speaking Belgium), so that these years can be taken into account in the salary scale of the young civil servants/doctorate holders. This proposal has been approved by the governments of Wallonia and the Wallonia-Brussels Federation and is under the responsibility of the Minister of Public Service.

5. GENDER

5.1. Foster cultural and institutional change on gender

Belgium has set up specific laws or actions for implementating EU legislation in the field of research. The country has set up a gender equality strategy in research institutions.

There are essentially soft measures launched at Federal level and by the Flemish and French Communities in terms of gender equality and gender mainstreaming in research. In Flanders, an action plan on Gender Equality in academia was adopted in 2012. The Wallonia-Brussels Partnership for Researchers adopted in 2011 also contains several orientations to improve gender balance in the research community.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	National level	85.2 %	2013	ERA survey 2014
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality	ERA compliant cluster	56.4 %	2013	ERA survey 2014

Plans	(national level)			
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	1.6 %	2013	ERA survey 2014

The share of research funders in Belgium who responded to the survey and support national policies on gender equality in public research is higher than the EU average.

Within the ERA compliant cluster in Belgium, the share of research-performing organisations which that have adopted Gender Equality Plans is lower than within the EU ERA compliant cluster.

The country has measures supporting return after parental leave.

At Federal level, and in the Flemish and French Communities, permanent researchers enjoy the same rights for maternity leave as all employees. They also provide mechanisms for the suspension of the grants during maternity leave.

The country provides incentives for recruiting female researchers.

Parental leave:

In addition to social security provisions (including maternity leave provisions), the Walloon Government ensures that all researchers enjoy the same rights to grant extension and alternative incomes during maternity leave. The provisions are applicable to researchers with fixed-term contracts as well as grant beneficiaries.

The FRS-FNRS allows for an extension of a mandate or a grant when a fixed-term mandate or a grant is suspended due to maternity, paternal or adoption leave, for a period equal to that of the suspension. A replacement income is then provided by the healthcare body (as is also the case for open-ended mandates) and a complement is provided by the FRS-FNRS to compensate for the loss of income.

The FWO for example extends the fellowship of female researchers with one year to compensate for the pregnancy leave. In Flanders, this follows a decision from the Flemish Government dated 13 July 2007 on setting up a quota of a maximum of two thirds of one sexes in boards that advice government or individual ministers. This applies for example to the internal scientific advisors of the Agency for Innovation by Science and Technology (IWT).

Balanced participation between men and women:

The Flemish action plan on Gender Equality in academia and the Wallonia-Brussels Partnership for Researchers were followed by actions such as the joint interuniversity master Gender Studies established by the five Flemish universities.

The Collaboration agreement with the Flanders Scientific Research Fund (FSR) 2012-2016 specifically mentions the need for more (female) researchers, more international researchers and better research conditions in Flanders.

At the end of May 2012 the Flemish' inter-university Council (VLIR) submitted the Actieplan (Action Plan) Gender Hoger Onderwijs (Action Plan Gender Higher education) to ensure that gender policy at universities is developed from the bottom up. The Flemish Interuniversity Council (Vlaamse Interuniversitaire Raad/VLIR) set up the Gender at Universities high-level action group. The group aims to improve the gender balance among professors, researchers and students by a gender action plan at the level of the universities. In the course of 2013, this action plan will be translated into an interuniversity charter on gender equality that will contain obligatory clauses.

The new legislation regarding the research funding through the special research funds (valid from 1 January 2013) pays a lot of attention to the gender balance in the universities:

- One of the performance indicators used to calculate the sum per university is a diversity parameter that looks at the number of female researchers at postdoctoral and permanent level

- If one of the sexes at postdoctoral and permanent level (per faculty)is under represented, in recruitment procedures with equal candidates priority must be given to the underrepresented sex.

- Administrative boards, research councils and selection juries must be gender balanced.

- The headmasters of the universities of the Flemish Community are required to submit (by early 2014) a proposal on the actions to be taken in favour of the gender balance.

- Labour law and rules are not only affecting researchers but all other labour market participants. In this respect, the Government Agreement of 1 December 2011, the basis for the new federal government, states the extension of anonymous curriculum vitae for applications in the public sector (first round). A specific law will also be established concerning equal pay.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014

Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	54.9 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	1.6 %	2013	ERA survey 2014

Within the European Research Area (ERA) compliant cluster in Belgium, the share of research performing-organisations implementing recruitment and promotion policies for female researchers is higher than within the EU ERA compliant cluster.

There seems to be no policies fostering gender as criteria in research programmes.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the inclusion of gender dimension in research content	National level	45.9 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	54.1 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in	Limited compliance to ERA cluster	3.7 %	2013	ERA survey 2014

research content	(national level)			

The share of research funders in Belgium who responded to the survey and support gender dimension in research content/programmes is lower than the EU average.

Within the ERA compliant cluster in Belgium, the share of research-performing organisations that include the gender dimension in research content is higher than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

Concerning gender balance in decision making, the country has set up targets for the participation of the under represented sex in decision making bodies of Research Performing Organisations.

The Flemish action plan on Gender Equality in academia and the Wallonia-Brussels Partnership for Researchers require a better gender balance in committees. However, they do include neither identified target nor mechanisms.

See also the new legislation regarding research funding through the special research funds (valid from 1 January 2013):

Administrative boards, research councils and selection juries must be gender balanced.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	0 %	2013	ERA survey 2014

Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	34.9 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	EU level	35.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Belgium, no gender-balanced recruitment committees for leading researchers in research-performing organisations could be identified.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Belgium is lower than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

In terms of support to open access, Belgium has a proactive policy on open access to scientific publications:

- In 2007, Belgian public funding organisations signed the Berlin Declaration on Open Access.

- In October 2012, the ministers of Science and Research at federal level and from each Community signed a Declaration on open access in Brussels in which they agreed to make open access the default for all Belgian research output.

- The main funding agencies (FWO and F.R.S.-FNRS) are obliged to self-archive all articles coming from research funded by them.

The share of research funders in Belgium who responded to the survey and support open access to publications is higher than the EU average.

Within the ERA compliant cluster in Belgium, the share of publicly-funded scientific publications in open access amongst research-performing organisations is lower than within the EU ERA compliant cluster.

Concerning open access to data, according to OpenAire Belgian fiche FWO is studying an obligation for research that it funds to deposit relevant raw datasets.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting open access to data	National level	50.8 %	2013	ERA survey 2014

Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	3.7 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	3.7 %	2013	ERA survey 2014

The share of research funders in Belgium who responded to the survey and support open access to data is higher than the EU average.

Within the ERA compliant cluster in Belgium, the share of research-performing organisations making available online and free of charge publicly-funded scientific research data systematically is lower than within the EU ERA compliant cluster.

With respect to repositories, The DRIVER project led by the University of Ghent played an important role to promote open access awareness in the scientific community and among repository managers. It was followed by other initiatives, in particular from the University of Liège.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to open innovation and knowledge transfer between public and private sectors, Belgium has not developed a knowledge transfer strategy. However, on the Community and regional level open circulation of knowledge between companies and research organisations is supported in various ways.

Several programmes are implemented to facilitate knowledge transfer between public and private sector. Nearly all the items identified in this report are covered. However, distinct measures are established by each Community, and an item can be covered by one and not by the other, as described below.

Funding organisations support the professionalisation of knowledge transfer activities, a necessary condition to increase the rate of success of the programmes

Strategic partnerships and/or the definition of joint collaborative research agendas between academia and industry are supported by funding organisations in Belgium

o Support to networking and communication activities with the private sector (e.g. academia-private sector networks, alumni networks, platforms, job fairs).

The French Community PRODOC programme promotes exchanges between researchers and private sector via events such as job forums.

o Support to the implementation of research training agreements with private sector organisations

In Flanders, IWT Innovation mandates are set up with the objective of connecting the academic and the industrial world.

o Support to structured programmes for placements in the private sector (e.g. internships) for researchers.

In Wallonia, the programme FIRST Entreprise provides support to companies to train young researchers. In Flanders, the Baekeland programme funds doctoral projects carried out at a Flemish university in close cooperation with a company.

o Support to the implementation of bilateral agreements with non-public organisations for specific projects (e.g. private sector, including the Industry and voluntary sector).

Both Communities support technology transfer offices (TTOs) that must stimulate exchanges with the private sector.

Moreover, Flanders and Wallonia also develop and support innovation platforms responsible for competence poles to stimulate cooperation between public research and industry.

In Flanders, the IWT has adapted the selection criteria for the annual call for VIS-trajectories. The aim is to increase the success rate of VIS-trajectories that also target innovation followers. Moreover, a specific (pilot) call was launched in 2013 for VIS-trajectories for innovation followers (VIS-trajectIV). The aim of this is to increase the transfer of innovation to the market (16 projects were selected for support of in total EUR4.6 million).

In Wallonia, a main action to strengthen relations between public research and academia is the establishment of public-private partnerships (PPPs) for R&D. It supports projects financed by the region, private sector and public research organisations on strategic research for companies. The aim is to foster synergies between private and public research.

o Support to intellectual property right (IPR) including patents.

In Wallonia, financial support to patent is provided to public research organisations since they can demonstrate the potential economic value of the patent.

o Support the creation, management and/or follow-up of spin-offs.

Wallonia, Brussels and Flanders established specific funding programmes to support spin-offs: Venture cap for spin-off and FIRST Spin-off in Wallonia; Spin-off in Brussels; and in Flanders there exist the Innovation Mezzanine, the SOFI fund, Vinnof, and ARKimedes fund (managed by PMV).

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	69.6 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	8.5 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	0.9 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or	ERA compliant	87 %	2013	ERA survey

using a structure for knowledge transfer activities	cluster (national level)			2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	6.6 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (national level)	87 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	2.6 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national	0.2 %	2013	ERA survey 2014

	level)			

The share of research funders in Belgium who responded to the survey and support national support to knowledge transfer and open innovation, TTOs and Private Public interaction is lower than the EU average.

Within the ERA compliant cluster in Belgium, the share of research performing organisations having funding originating from the private sector is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Belgium, the share of research-performing organisations having or using a structure for knowledge transfer activities is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Belgium, the share of research-performing organisations having dedicated staff employed in knowledge transfer activities is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Belgium, no research personnel whose primary occupation is in the private sector (in full time equivalents) could be identified.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation with implementation of the Digital ERA, Belgium has not set up a strategy for its implementation. However, the country has implemented a research and education network, essential to make digital services possible.

At Federal level, BELSPO has established an operational unit named BELNET responsible for the design and network management and research education in Belgium. Nearly 200 institutions representing more than 650 000 users are connected to BELNET. It provides on-request services such as a platform for e-collaboration or video conferencing. At Community level, Flanders developed virtual labs in the areas of medicine and new materials.

Concerning digital services, the country provides premium services.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research	ERA	65.5 %	2013	ERA survey

performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	compliant cluster (national level)			2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	Limited compliance to ERA cluster (national level)	7.9 %	2013	ERA survey 2014

Within the ERA compliant cluster in Belgium, the share of research-performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Belgium was a member of an identity federation in 2011. It was a member of an identity federation in 2013. The country is member of eduGAIN, a service intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GÉANT (GN3plus) Partners' federations.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	8.1 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	5.4 %	2013	ERA survey 2014

Within the ERA compliant cluster in Belgium, the share of research-performing organisations providing federated electronic identities for their researchers is lower than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 35 research performing organisations in Belgium answered the 2014 ERA survey, which represents 19.2% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Belgium shows that 24.1 % of them are in the 'ERA compliant' cluster, 55.2 % can be classified in the 'limited compliance to ERA' cluster and 20.7 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 87.9 % for the 'ERA compliant' cluster, 11.4 % for the 'ERA limited compliant' cluster and 0.7 % for those organisations where ERA principles are not applicable.

Some large universities and research institutes did not reply to the survey, which diminishes the representativeness of the results of the research performance organisations.

For the indicator 'Share of total budget allocated as project based funding' it should be noted that part of the funding of private industry research takes place directly by ministries without intervention by any funding organisation.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Research and innovation system			
Brussels-Capital Region strategy for Research, Development and Innovation (RDI) - up-date	2012	X	
Flanders : Smart Specialisation strategy concept paper	2013	X	X
Indicators' database of BELSPO	2012	X	
WAL-TECH	2013	X	X
Project-based funding applying the core principles of international peer review			

Research strategy 2011-2015 of Wallonia and the Brussels-Wallonia federation	2012	X	
Calls on international experts for the evaluation of fellowships and projects applications			
Wallonia's Marshall Plan 2.Green	2012	X	
Institutional funding based on institutional assessment			
Peer Assessment of the Walloon regional innovation system (OECD)	2012	X	
Fundamental Strategic Research Fund	2012	X	
Belgian Research Action through Interdisciplinary Networks (BRAIN_be)	2012	X	
Implementing joint research agendas			
Adoption of a joint action plan shared by the governments of Flanders, Wallonia and the Wallonia-Brussels Federation for boosting economic activity through R&D	2012	X	
Joint call Belgium/India	2011		
Interoperability, mutual recognition of evaluation results and other schemes			
Joint call for micro awareness-raising projects in 2011 called ‘Later, I will be Einstein or Marie Curie' Regions Wallonia/ Brussels and French speaking community	2011		
Bilateral agreements for economic, industrial, scientific and technological cooperation with third countries			
Joint call for RDI projects- WB GREEN (Brussels Region and Wallonia)	2012	X	
Flanders: Interreg programme			

participation			
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
Financing of research infrastructure investments			
Open, transparent and merit-based recruitment of researchers			
Euraxess Belgium			
'Wallonia-Brussels Partnership for Researchers'	2012	X	
Opening up recruitment of researchers			
Improve objectivity and transparency of decision making on recruitment and researchers career paths, including equal opportunities			
Attractive careers			
Training young researchers and opening up career prospects	2011		
Brussels Capital region - DOCTRIS			
Flanders – Baekeland mandates innovation mandates			
Gender balance in the decision-making process			
Collaboration agreement with the Flanders Scientific Research Fund (FSR) 2012-2016	2012	X	
Minimum % of experts of the same sex in scientific evaluation panels			
Gender at Universities high-level action group	2013	X	X
Wallonia-Brussels Partnership for researchers	2011		
Flanders : Gender Action Plan	2012	X	

Women and Science committee Wallonia-Brussels Federation			
Open access to publications and data resulting from publicly funded research			
Open Access scheme			
Brussels Declaration on Open Access	2012	X	
STIS service of BELSPO	2013	X	X
Open innovation and knowledge transfer between public and private sectors			
Wallonia - Second "Public Private Partnership" (PPP) call			
Excellence centres - Flanders	2012	X	
Public-Private Partnership (PPP 2012) Programme	2012	X	
Support of interface technology transfer offices			
"Innovation centre Flanders" - Concept Note	2012	X	

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

The Bulgarian Government has adopted a series of measures aimed at modernising the national research and development (R&D) structures. The Bulgarian National Reform Programme (NRP) 2013 identifies the need to improve the efficiency of public spending for R&D by leveraging funds to attract more private capital as key for achieving its national target of 1.5% of GDP in 2020.

The highest policy-making body of the Bulgarian research system is the National Assembly of the Republic of Bulgaria (Parliament) which decides the state budget to be allocated for research in the country, as well as its distribution. Its Standing Committee on Education, Science, Children, Youths and Sports plays an important role. Since 2012 the Parliament has controlled the Bulgarian Academy of Sciences research activities directly.

Research and innovation (R&I) policies are the responsibility of the Ministry of Education, Youth and Science (MEYS) and the Ministry of Economy, and Energy co-shares some responsibilities for designing and implementing the national R&D policy. The main competitive national public R&D funding instruments are the National Innovation Fund (NIF) and the National Science Fund (NSF).

The biggest research performers in Bulgaria are the Bulgarian Academy of Sciences (BAS), the Agricultural Academy and some of the Bulgarian universities. A recent trend is for research to be carried out in smaller private sector organisations. The Ministry of Agriculture and Food hosts the Agricultural Academy, which champions Bulgarian research policy in agriculture. Similarly, the Ministry of Health oversees the National Centre of Public Health Protection. The core portion of Bulgarian scientists is employed in public R&D organisations and higher education establishments, while the percentage of scientists in business organisations is 14% of the total.

The country has not adopted a coherent national research and innovation strategy to underpin the research, development and innovation policy. The National Strategy for Scientific Research to 2020, as of 2011, is the key policy document, which sets five priority areas for the development of research in Bulgaria. Public competitive R&D project grants, support for R&D infrastructures, structural reform of public research institute sector are becoming important characteristic of the national policy. However, some necessary strategic documents and measures are still under preparation such as the Innovation Strategy, announced already in 2011.

The latest R&I policy developments in the country are related to the published drafts for the operational programme (OP), called “Science and Education for Smart Growth 2014-2020” (version 02.06.2014) and „Innovation and Competitiveness” (version 02.06.2014), both approved by the Council of Ministers.

In terms of R&Dfunding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Bulgaria represented EUR 14 per inhabitant in 2012, less than

10% of the EU28 average (EUR 179). In 2012, total GBAORD corresponded to 0.7% of total government expenditures and 0.2% of Gross Domestic Product (Eurostat).

The analysis of the evolution of GBAORD in the period during the economic crisis (2007-2012) shows s that in nominal terms, the rate of growth of total GBAORD in Bulgaria has been higher than the rate of growth of total EU GBAORD. In terms of R&D efforts, the rate of growth of GBOARD in Bulgaria, measured as percentage of public government expenditure evolved negatively, but less negatively than the evolution observed at EU 27 level. Finally, GBAORD as a share of GDP has regressed more in Bulgaria than the regression observed in EU28.

1.2. Project-based funding applying the core principles of international peer review

Since 2010, the competitive project-based R&I funding mechanisms are prevailing the institutional ones. The inflow of EU Cohesion and Structural Funds in 2010 and 2011 has considerably increased the share of competitive public funding for R&D.

The "Regulation No. 9" allows each Higher education institution (HEI) to dedicate funds (up to 10%) of its total R&D budget to activities, related to their current financing and support, allocated on competitive basis. Progress must be reported to MEYS every six months.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	80 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Bulgaria who responded to the survey and support project-based funding is higher than the EU average.

The National Evaluation and Accreditation Agency has introduced criteria compatible with the European standards, as norms expressed about desired practices, developed and applied for the institutional and programme accreditation, evaluation of the projects for opening or transforming HEIs. The Agency defined a system for post-accreditation monitoring and control and the basis for contacts with similar institutions and associations in Europe.

Funding instruments should respect peer review principles, however submitting proposals only in Bulgarian, in some cases, may in fact hamper the foreign review if needed. Starting from 2014 the project proposals submitted to the National Science Fund should be submitted in Bulgarian and in English and the evaluation panels should involve foreign reviewers.

Creating national centres of excellence and competence should embrace capacity and potential for innovation growth both of the research institutes and universities working in partnership with the industry and international partners. They will be supported only after an international evaluation of the proofs of concept (deadline for submission 30 May 2014) and a valorisation of their ten year Research and Innovation Strategic Agenda.

One international evaluation and consultation of research organisation has been undertaken so far by the Bulgarian Academy of Sciences (BAS), performed jointly by the European Science Foundation (ESF) and ALLEA. The evaluation had significant impact on the reform, taking place in the BAS during the period 2010-2012 in the direction of programme oriented organisation of research activities.

1.3. Institutional funding based on institutional assessment

The institutional funding available for R&D in universities and in the Bulgarian Academy of Sciences is further distributed to research projects on the basis of competitive calls. The R&D funding available, according to law, is 10% of the total state subsidy, available for each university (in spite of some fluctuations in practice). Similar is the situation in BAS, where funds are allocated by the General assembly, upon approval from the Board of trustees. The allocation of the state subsidy among the 42 BAS institutes is based on recent research performance and results of international evaluation. However, institutional funding is seldomly allocated based on an institutional assessment.

Sources about research funding instruments in the Higher Education Sector are not that many. The European University Association (2009) indicated that, in Bulgaria, funding is distributed using line-item budgets, which implies that universities receive their funding for already allocated cost items and/or activities (European university funding and financial autonomy, DG Joint Research Centre, 2011).

In 2010 a new Law on development of academic staff has been introduced, regulating the acquisition of scientific degrees and academic positions based on autonomy, free choice of scientific development and objectivity in his assessment, public interest and international recognition and exchange of information when conducting procedures.

The government announced its intention to put in place a system of regular international evaluation of public research funding organisations (NSF) and research performing organisation.

The ranking of universities, launched in 2010, provides the government with a tool for performance-based allocations. However, the share of funds allocated according to this ranking is comparatively small and is could be better focused on R&I. The ranking system compiles information and data for more than 70 indicators, which measure different aspects of university activities including teaching and learning, university environment, welfare and administrative services, science and research, prestige, career development and relevance to the labour market.

The draft strategy for developing higher education foresees a new methodology for determining the differentiated standards for maintenance of educating a student based on the real value of education and research performed in any professional field. It also envisages measures for strengthening the research potential and innovative developments in high school.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	0 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

Research funders in Bulgaria who responded to the survey indicated that the allocation of institutional funding is not based on institutional assessment.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives.

According to the ERAWATCH report Bulgaria needs to set more precise guidelines to elaborate and implement effectively support measures in order to define and implement common research agenda on grand challenges. The existing set of priorities of the research agenda are not yet sufficiently connected to meeting grand challenges.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	0 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to	National level	0 %	2013	ERA survey 2014

jointly defined research agendas with non-national EU organisations				
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

Research funders in Bulgaria who responded to the survey indicated that they do not support transnational cooperation.

The share of responding funders' research and development budget in Bulgaria dedicated to jointly defined research agendas with other EU organisations is lower than the EU average.

Cooperation between institutions of Member States, Associated Countries and third countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme, the share of participation of Bulgaria in total participation is 0.6% and the country received 0.3% of total EC contribution. FP funding represents EUR 13 per inhabitant (EU average EUR 72 per capita) for the period 2007-2013 and 0.1% of the Gross Domestic Expenditures on R&D (GERD) for the period 2007-2011 (last available data) (EU average 3% of GERD for the same period).

Concerning Joint Programming Initiatives, the country participates in one of the 10 on-going initiatives, namely the Cultural Heritage and global change: a new challenge for Europe.

Bulgaria has been involved in 25 joint calls.

In terms of programmes undertaken jointly by several Member States (so called Article 185 initiatives), the country was involved in two programmes. In Horizon 2020, the country is already involved in two out of the four existing initiatives.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 20 ERA-NETs, of which 8 are currently still running. The country also has participated in one ERA-NET Plus actions in areas with high European added value and additional EU financial support topping up their joint call for proposals.

Additionally, the country participates in the EU Strategy for the Danube Region (EUSDR), a multilateral (and macro-regional) strategy has been developed by the Commission in cooperation with 11 countries in the Danube region (Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia and Ukraine). It comprises science and technology cooperation across the region and by the end of 2013 six scientific clusters were launched.

2.2. Openness for international cooperation with third countries and regions

International cooperation in the fields of education, higher education, science and technology is based on bilateral and multilateral international agreements and implementation of cooperative programmes. Bulgaria has bilateral scientific agreements with eight third countries among which joint research programmes are running with Ukraine, India, China and Switzerland.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	0 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	Limited compliance to ERA cluster (national level)	2 %	2013	ERA survey 2014

Research funders in Bulgaria who responded to the survey indicated that they do not have measures supporting international cooperation with third countries.

Within the ERA compliant cluster in Bulgaria, the share of organisations' research and development budget originating from third countries is lower than within the EU ERA compliant cluster.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

No relevant information was found about the degree of implementation of mutual recognition of evaluations that conform to international peer-review standards as a basis for national funding decisions (peer review standards defined in ESF peer review guide). A Formal comprehensive evaluation of Bulgaria's participation in the Framework Programmes of the EU is planned for 2014. Bulgaria cooperates with the META group in the project MIRRIS (Mobilising Institutional Reforms in Research and Innovation Systems), which aims at encouraging a better exploitation of European research and innovation programmes and participation in the European Research Area of the 13 target countries by setting up a process of analysis, dialogue, mutual learning among key concerned stakeholders, namely research, innovation and institutional actors.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	0.1 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

The share of research funders in Bulgaria who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is lower than the EU average.

The share of responding funders' project-based research and development budget in Bulgaria allocated through peer review carried out by institutions outside the country is lower than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Bulgaria participates in the following large international research infrastructures: European Space Agency (ESA), Conseil Européen pour la Recherche Nucléaire (CERN), Joint Institute for Nuclear Research (JINR)-Dubna and European Fusion Development Agreement (EFDA).

The country contributes 2,54% of GBAORD to the activities carried out by CERN, the European Molecular Biology Laboratory (EMBL), the European Southern Observatory (ESO), the European Synchrotron Radiation Facility (ESRF), the Institut Laue-Langevin (ILL) and the European Commission's Joint Research Centre (JRC) (Eurostat).

In terms of participation to the development of research infrastructures (RI) included in the ESFRI Roadmap, the country participates in the preparatory phase of six of them (12%. of the RI in the Roadmap).

In terms of financial commitments to the development of these Research Infrastructures, Bulgaria is committed to fund one RI, namely: CLARIN-ERIC.

With regards participating in the European Research Infrastructure Consortium, Bulgaria is not yet involved in any of the nine consortia which adopted the legal framework designed by the Commission to facilitate the establishment and operation of research infrastructures of European interest involving several European countries.

In terms of support to the development and implementation of Research Infrastructures, the national roadmap on research infrastructures was published in 2010 and does include references to the participation of Bulgaria in the development of the research infrastructures mentioned in the ESFRI roadmap. Seven of the projects had been supported at national level for preparatory phase. Still, Bulgaria lacks financial, industrial and human potential for construction and maintenance of big research infrastructures. Currently an update of the roadmap is ongoing, following an international evaluation by ESFRI experts. It will include national research centres with proven capacity or creating new to serve as regional partner facilities (RPFs) or nodes/hubs of distributed pan-European Research Infrastructures. RIs should be financed jointly by national funds and under the OP" Science and Education for Smart Growth" 2014-2020.

3.2. Access to research infrastructures of pan-European interest

While the National Strategy of Scientific Research 2020 defines ambitious objectives towards cross-border access to research infrastructures, its implementation is still a challenge.

For the RI coordinated by Bulgaria, access has been funded by the European Commission

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Bulgaria in the Researchers' Report 2014 [http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Bulgaria_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

There were 11,902 FTE researchers in Bulgaria in 2011. This represents 3.6 researchers per 1000 labour force compared with 3.0 among the Innovation Union reference group (Modest Innovators) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 0.4 in Bulgaria compared with 9.0 among the Innovation Union reference group and an EU average of 43.7

In 2012, 46 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

According to the guidance on implementation of the Law on Development of Academic Staff, all open research positions must be published in the Bulgarian Official Journal and on the institutional web sites - though they are mainly published in Bulgarian. The new law eliminates the age criterion formerly applied to applicants for scientific positions, including post-doctorate positions, provides defined evaluation criteria which become available to the candidates, and it also provides feedback on the decisions taken by the scientific commission. Job vacancies are also published on other platforms (e.g. the labour agency) and the EURAXESS jobs portal, but these are not statutory requirements.

4.3. Attractive careers

Representatives of the Bulgarian Rectors Council have signed the 'Charter & Code' in 2007. By May 2014, 2 Bulgarian organisations were involved in the Commission's Human Resources Strategy for Researchers of which 1 had received the "HR Excellence in Research" logo for their progress in implementing the Charter & Code.

The "Law on the Development of Academic Staff" enables universities to define their own staff policy. In addition, it provides a mechanism for regulating the careers of scientific personnel. The implementation of the new Law will result in a qualification and career development system for academic staff - planned for the end of 2014.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged 25-34 was 0.6 in 2011 compared with 1.1 among the Innovation Union reference group and an EU average of 1.7.

Under the Bulgarian Labour Code, all PhD students receive fixed grants (including social security cover) for three years. Universities and research institutes can apply for funding for their doctoral candidates from the state budget based on open competition. In order to improve research funding opportunities, the National Science Fund (NSF) offers doctoral candidates the possibility of participating in competition-based science projects which can serve as an additional source of income. Approximately 30% of the resources of the NSF are dedicated to young researchers. In addition to new policies aimed at improving the research profession in Bulgaria, bilateral programmes, such as the Sciex Programme with Switzerland, are considered not only to be a means of improving researchers' funding opportunities, but also as instruments for increasing the quality of doctoral training in Bulgaria.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU-27 Member State was 3.1% in Bulgaria compared with 1.7% among the Innovation Union reference group and an EU average of 7.7%. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 3.8% in Bulgaria compared with 2.0% among the Innovation Union reference group and an EU average of 24.2%.

There are more outbound researchers than those wishing to pursue a career in Bulgaria. The Sciex Programme with Switzerland and other bilateral research programmes support researchers' outbound mobility and foster knowledge transfer. The Science + Business project supports young researchers in gaining practical work experience in foreign research institutions. As part of this initiative, young researchers receive short-term training abroad in foreign research infrastructures.

The Science + Business Project provides a platform for researchers to carry out projects in collaboration with industry. Supported by universities, research institutes and businesses, the scheme fosters skills and knowledge transfer between the different parties. Research projects must address societal challenges and provide solutions which are market-oriented.

5. GENDER

5.1. Foster cultural and institutional change on gender

Gender equality is regulated at horizontal level. The transposition of the European directive on gender equality (Council Directive 2000/78/EC of 27 November 2000) provides for equal treatment of women and men in research. In Bulgaria more women than men are involved in the research profession. It is difficult to attract men into research careers due to the low salaries in the public research sector.

Indicator	Level/cluster	Value	Year	Source

Share of responding funders supporting gender equality in research	National level	0.1 %	2013	ERA survey 2014
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	8.8 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	2.1 %	2013	ERA survey 2014

The share of research funders in Bulgaria who responded to the survey and support national policies on gender equality in public research is lower than the EU average.

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations which have adopted Gender Equality Plans is lower than within the EU ERA compliant cluster.

The Labour Code grants women researchers the right to interrupt and extend their contract during maternity leave. However, other contracts (stipends, fellowships, or equivalent) do not guarantee the right to maternity leave. The right depends on the contractual conditions and on the researcher's level of income in the previous 18 months.

Bulgaria supports the L'Oreal and UNESCO 'For Women in Science programme' and co-funds the L'Oreal national fellowship programme.

In 2012 a Bulgarian Centre of Women in Technology (BCWT) was launched to promote more girls and women in the technology sector.

Bulgaria is one of the few countries reporting higher success rates of female researchers for grant applications.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	2.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	3.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations implementing recruitment and promotion policies for female researchers is lower than within the EU ERA compliant cluster.

There are no national policies fostering gender as criteria in research programmes, however there are some stakeholder initiatives.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting the inclusion of gender dimension in research content	National level	0.1 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014

Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	22.6 %	2013	ERA survey 2014

The share of research funders in Bulgaria who responded to the survey and support gender dimension in research content/programmes is lower than the EU average.

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations which include the gender dimension in research content is lower than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

Objective 3 of the National Strategy for Promotion of Gender Equality for the period 2009-2015 clearly states the importance of the promotion of gender equality in governance and decision-making bodies in the development of science.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	7.5 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	27.4 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	100 %	2013	ERA survey 2014
Share of gender-balanced research	EU level	35.8 %	2013	ERA survey

evaluation panels amongst responding research funding organisations				2014

Within the ERA compliant cluster in Bulgaria, the share of gender-balanced recruitment committees for leading researchers in research performing organisations is lower than within the EU ERA compliant cluster.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Bulgaria is higher than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

In terms of support to open access, the key strategy document is the National Reform Programme 2012-2014 which points to the need to develop strategic long-term infrastructures to support the building and maintaining of the high-performing computing infrastructure, and access to different network infrastructures like GRID networks, European digital data bases.

The Bulgarian research community is informed about the benefits of open access and uses open access research publications. There is a certain level of awareness among libraries, though still very few institutions are involved in managing repositories. At a special meeting of the Association of University Libraries (AUL) in 2010, the steps to build open repositories were outlined.

A national concept and an action plan for open access are under development by a working group to the Ministry of Education and Science.

The Bulgarian Academy of Sciences (BAS) announced its intention to establish a network of scientific open access centres. The Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS) will coordinate the Bulgarian network and will provide support for academic institutions and researchers. IMI-BAS will launch a national project to develop the research infrastructure and digital repositories for researchers, educators, public bodies and companies who need contemporary scientific and education information and resources (Implementing Open Access Mandates in Europe, 2012).

Related to open access to publications, different practices are applied in the country and there is not enough information available to quantify the preferred types of open access use. There is a specific programme of the NSF supporting open access (OA) for covering OA-related costs. Different practices are applied in the country but the preference in the institutions is for the Green model open access use. The OA policy is envisaged to become mandatory for all public research funding organisations.

Indicator	Level/cluster	Value	Year	Source

Share of responding funders supporting open access to publications	National level	0.1 %	2013	ERA survey 2014
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	15.3 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	10.6 %	2013	ERA survey 2014

The share of research funders in Bulgaria who responded to the survey and support Open Access to publications is lower than the EU average.

Within the ERA compliant cluster in Bulgaria, the share of publicly funded scientific publications in OA amongst research performing organisations is lower than within the EU ERA compliant cluster.

Research funders in Bulgaria who responded to the survey indicated that they do not have measures supporting Open Access to data.

With respect to repositories, as of August 2012, there were six Bulgarian open access repositories registered in Open-door: those of the New Bulgarian University, IMI-BAS (Bulgarian Digital Mathematics Library and Bulgarian Openaire Repository), Burgas Free University, Sofia University “St. Kl. Ohridski”, and Medical University of Sofia. Apart from them there is a repository at Tsenov Academy of Economics and a pilot repository of the University of Rouse.

There are currently 32 Bulgarian open access journals available in the Directory of Open Access Journals (DOAJ). In addition, a pilot repository of the University of Rousse and the Medical University of Sofia (MU Sofia) is now being tested to become the Electronic Repository of the Central Medical Library of MU Sofia.

The Bulgarian Current Research Information System (BulCRIS) is developed and maintained by MEYS. (BulCRIS) is a starting point for detailed information about Bulgaria's research, development and innovation resources, and for staying in touch with the latest innovations. BulCRIS is targeted to bring together the abilities of universities and institutes in Bulgaria, and of organisations throughout the world to help them make efficient use of these resources.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to open innovation (OI) and knowledge transfer (KT) between public and private sectors, the National Strategy of Scientific Research provides measures aiming to promote KT between public and private sectors. The draft of the new Law on innovation also suggests such measures. Even though there is not an explicit national strategy to promote knowledge transfer, measures exist to foster KT at stakeholder level. More than 40 Knowledge transfer offices are supported by special funding.

The 2014 NRP announces the development of a national bulletin for monitoring the condition of the links between business and science.

Strategic partnership between academia and industry are supported by funding organisations in Bulgaria. As an important step in that direction is the establishment of the first science and technology park in Sofia, co-financed by the ERDF for around EUR 50 million, which should grow into a core national R&I hub and attract leading local and international scientists.

Within the OP "Human Resources and development" Science and business project an integrated platform was developed and launched in April 2013. It provides a meeting point between science and business for the purpose of developing partnerships and joint work on projects (NRP 2014).

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	100 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the	ERA compliant cluster (EU	6.8 %	2013	ERA survey 2014

private sector	level)			
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	2.4 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	0.6 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national level)	23.6 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	10.4 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (national level)	21.9 %	2013	ERA survey 2014
Share of responding research performing organisations having	Limited compliance	8 %	2013	ERA survey 2014

dedicated staff employed in knowledge transfer activities	to ERA cluster (national level)			
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	3.3 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	4.6 %	2013	ERA survey 2014

The share of research funders in Bulgaria who responded to the survey and support national support to KT and OI, Technology Transfer Offices (TTOs) and Private Public interaction is higher than the EU average.

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations having funding originating from the private sector is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations having or using a structure for knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations having dedicated staff employed in knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Bulgaria, the share of research personnel whose primary occupation is in the private sector (in Full Time Equivalents) is higher than within the EU ERA compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation with the implementation of Digital ERA a national policy has been initiated by the research community. As a result, since 2008, MEYS provides national access for 58 research institutions, public and private universities, hospital's research centers to scientific information, including bibliometric resources and analytical tools.

Additionally, the Bulgarian Information Consortium was set-up, an organization of 38 members representing academic, public research organisations and libraries aimed at sharing good practice and resource development.

Concerning digital services, the Commission could not identify support to their provision.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	53.6 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	Limited compliance to ERA cluster (national level)	32.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Bulgaria was a member of an identity federation in 2011.

From 2009 to 2012 the institute of Technology and Development Foundation participated in a FP7 Project OpenScout aiming at providing an education service via internet to enable users to easily find, access, use and exchange open content for management of education and training.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	26.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	18 %	2013	ERA survey 2014

Within the ERA compliant cluster in Bulgaria, the share of research performing organisations providing federated electronic identities for their researchers is lower than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 41 research performing organisations in Bulgaria answered the 2014 ERA survey, which represents 31.7% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Bulgaria shows that 39.0 % of them are in the 'ERA compliant' cluster, 51.2 % can be classified in the 'limited compliance to ERA' cluster and 9.8 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 59.6 % for the 'ERA compliant' cluster, 37.7 % for the 'ERA limited compliant' cluster and 2.8 % for those organisations where ERA principles are not applicable.

Finally, it should be noted that the major research funding organisations in Bulgaria did not respond to the ERA survey which may have an incidence on the analysis of the state of implementation of ERA by research funders.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Research and innovation system			
Innovation Strategy for Smart Specialisation (draft)	2013	X	X
Project-based funding applying the core principles of international peer review			
Operational Programme "Science and Eductaion for Smart Growth"	2014	X	X
Draft regulation for monitoring and evaluation of scientific research activities	2011		
Joint ESF and ALLEA International evaluation “Research at the Bulgarian Academy of Sciences”	2009		
Institutional funding based on institutional assessment			
Operational Programme "Competitiveness"	2007		
National Strategy for Scientific Research 2020	2011		
National Innovation Fund - competitive grants 2012	2012	X	
Law on Higher Education	1995		
Law on Scientific Research Promotion	2003		
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
National research infrastructure roadmap, on-going update	2010		
Open, transparent and merit-based recruitment of researchers			
EURAXESS BULGARIA portal			
Attractive careers			

Ordonance in accordance with European Council Directive 2005/71/EC of 12 October 2005 on a specific procedure for admitting third country nationals for the purposes of scientific research	2008		
Operational programme "Human resource development"(OP HRD)			
Supporting structured innovative doctoral training programmes			
Support to doctoral training	2012	X	
Gender balance in the decision-making process			
Harmonisation of strategic documents according to Council Directive 2000/78/EC of 27 November 2000	2000		
Open access to publications and data resulting from publicly funded research			
Support to Open Access	2014	X	X
Open access infrastructure for research in Europe (OPEN AIRE)	2010		
National digital library	2006		
The world's largest bibliographic database, providing the foundation of cooperative library services in metadata management, discovery, resource sharing and collection management (OCLC WorldCat®	2008		
Open innovation and knowledge transfer between public and private sectors			
"Science-Business" project	2011		
Draft Law on Innovations	2013	X	X

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

The research, technology development and innovation (RTDI) system in Cyprus is relatively new and is evolving with the aim to increase efficiency and modernise the Government, research and productive sector cooperation. At the operational level of the Directorate General of European Programmes, Coordination and Development (DGEPCD), an independent government agency, is entrusted with the formulation of the research and innovation strategy (R&I), the identification of objectives and the introduction of policy measures aimed at the promotion of research activities in Cyprus. At the implementation level, most of the R&I activities are integrated under the Research Promotion Foundation (RPF), an autonomous agency governed by a 12-member board, chaired by the current Permanent Secretary of DGEPCD under the supervision of the DGEPCD. The Foundation is fully supported by the Government and its resources are derived mostly from the Ministry of Finance through the DGEPCD. The Ministry of Commerce, Industry and Tourism (MCIT) is responsible for industrial policy, including the promotion of technology and entrepreneurship.

The System for Research, Technological Development and Innovation is governed by the National Research and Innovation Council (NRIC), made up of competent ministers, chaired by the President of the Republic and advised by the Cyprus Scientific Council (CSC). The latter is composed of internationally-recognised scientists.

The main research performer group are the public research institutes and universities. Private Universities followed by private sector organisations and small and medium-sized enterprises (SMEs).

Recently, a systematic effort was initiatated in order, (a) to evaluate the current research and innovation system and procedures in Cyprus and to give recommendations for its adjustment and upgrade so it becomes more effective and efficient and (b) to adopt explicit multi-annual RTDI priorities.

The National Committee for Research, Innovation and Technological Development (NCRITD) was established by the Council of Ministers, in September 2013. This Committee was entrusted with the task of evaluating the current R&I systems and procedures in Cyprus and give recommendations for its adjustment and upgrading so it becomes more effective and efficient. The work of the NCRITD was completed in March 2014 and its outcomes submitted to the President. The report of the NCRITD proposes creating a new system structured in four levels (strategic, political, operational/implementation and research stakeholders), which integrates Research, Innovation and Entrepreneurship. The study proposes among others, to appoint a Commissioner for Research Innovation and Entrepreneurship, create a new Directorate General for Research, Innovation and Entrepreneurship under the Ministry of Finance, establish an Advisory Committee and redesign the role of the Research Promotion Foundation (RPF) in order to accommodate Technology Transfer activities. The study is currently being reviewed by the Presidency.

The joint effort of the RPF and a research team of the Cyprus Technology University is to propose a smart specialisation strategy based on desk research, experience and a field survey (800 companies) and discussed with a Steering Committee composed of national stakeholders. It is expected that the Government will receive all input by the end of June 2014 and adopt priorities by the Summer.

Additionally, the preparation of the Smart Specialisation Strategy for Cyprus, an ex-ante conditionality for the absorption of European Structural and Investment Funds for R&I, was initiated in mid-2013 by DGEPCD and is expected to be finalised in September 2014. An extensive analysis of the national R&I priorities has been conducted with the aim of maximising the knowledge-based development potential of the Cyprus economy through targeted support to R&I in the sectors where Cyprus has a competitive advantage. The sectors identified through this process are tourism, energy, construction, shipping, health, information and communication technology (ICT) and environment. The overall results of the Smart Specialisation Strategy in line with the recommendations of the NCRITD, will be used to determine the vision and the formulation of a new Strategy for Research and Innovation. This Strategy will be implemented through the programmes of the Research Promotion Foundation which is the main funding agency for research and innovation in Cyprus.

In order to encourage cooperation between academia and industry, a project under the name 'Development and operation of Enterprise Liaison Offices in Universities operating in the Republic of Cyprus', involving a consortium of six Universities operating in the Republic of Cyprus, was awarded in 2009. Six Industry Liaison Offices, three public and three private Universities, are in full development and operation at the moment.

The Government of Cyprus is investigating the possibility for creating a Science Technology Park (STP) in the form of a Knowledge Park with the scope of promoting research, innovation and technology. In the short term, the main objective of the STP will be to enhance the entrepreneurial and industrial development of Cyprus. Even more in the long term the objective will focus on transforming Cyprus into a regional research and innovation center.

Finally, it should me mentioned that due to the prevailing economic crisis in the country and the consequent liquidity constraints, the main source of public funding for the implementation, the new R&I Strategy is expected to derive from the European Structrual and Investment Funds (ESIF) for the period 2014-20 in Cyprus. The bulk of the funding that will be allocated for R&I from the ESIF operational programme (OP) for Cyprus will be spent through the DESMI 2014-2020, which is the National Framework Programme for R&I designed and implemented by the Research Promotion Foundation. In parallel, the Technology Service of Ministry of Energy, Commerce Industry and Tourism will implement schemes for specifically promoting business innovation.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Cyprus represented EUR 81 per inhabitant in 2012, less than half the EU-28 average (EUR 179). In 2012, total GBAORD corresponded to 0.9 % of total government expenditures and 0.4 % of Gross Domestic Product (GDP)(Eurostat).

1.2. Project-based funding applying the core principles of international peer review

The major sources for project-based funding of R&D activities are the programmes launched by the Research Promotion Foundation (RPF). Grants are distributed through the multiannual competition-based National Framework Programme (NFP) for Research and Technological Development (DESMI). Currently, funding comes from the 2008-2010 programme. A new multiannual programme is under preparation based on the results of the Smart Specialisation Strategy for R&I. This Strategy will be implemented through the programmes of the RPF which is the main funding agency for R&I in Cyprus. As mentioned before, the sectors identified from this Strategy, which are tourism, energy, construction, shipping, health, ICT and environment, will be thematic areas where the multiannual programme will focus.

Once the priorities are formally adopted by the Government, the RPF will launch new calls in autumn 2014 at the earliest. Competitive funding addresses both basic and applied research in the context of DESMI.

Project-based funding is composed of the calls of the RPF and most recently the innovation call of the Ministry of Energy, Commerce, Industry and Tourism. Although no precise data are published on an annual basis, the delays in new calls by the RPF since 2011 result in a de facto increase of the share of institutional funding.

Historically institutional funding was block-funding. Only State aid for Research and Innovation took the form of competitive funding. Since the adoption of DESMI, additional competitive funding was used for individual research teams and collaborative projects. DESMI 2009-2010 was running until recently with five priority axes. Multidisciplinary development of Research, Development of Human Resources for Research, Development of Research and Innovation for Enterprises, Development of Research Infrastructures, Development of International Networking and Collaborations. A total of 1 126 proposals were submitted for funding by DESMI 2009-2010. However, due to financial constraints and provisional governance problems in the RPF, competitive funding has diminished since 2011. RPF announced that the budget of all research proposals would decrease by 35 %.

The only new competitive call launched in 2012 was the 'Enhancement of Business Innovation in Cyprus', launched by the Ministry of Energy, Commerce, Industry and Tourism. A total of 41 proposals were approved for funding, with a total budget of EUR6.2 million, 62.9 % out of which will come from public funding. New similar calls were announced for the new programming period 2014-2020. As 2013 was marked by the financial crisis and the end of the programming period no funds were released for new calls.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	100 %	2013	ERA survey 2014

Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Cyprus who responded to the survey and support project-based funding is higher than the EU average.

The core principles of international peer review are based on selection panels composed of Greek researchers. When DESMI competitive calls are launched the selection of projects relies on international peer review. This process was designed independently of the European Research Area (ERA) requirements, as the national research community is too small and local peer review only could jeopardise objectivity.

1.3. Institutional funding based on institutional assessment

The government plans institutional funding annually through the state budget. Institutional assessment is partly allocated based on institutional assessment.

Public higher education institutes (HEIs), which benefit from block-funding, have introduced internal research support mechanisms: faculty members apply for a (small) research budget and selection is based on a review process by an internal HEI Committee. Based on a study on the degree of diversification of university budgets and the share of competitive funding, 86 % of the university budget of the University of Cyprus comes from core funding, 2 % comes from competitive funding and 12 % comes from EU funds.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	0 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

Research funders in Cyprus who responded to the survey indicated that they do not allocate institutional funding.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	0.7 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	0.7 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Cyprus allocated to transnationally coordinated R&D is lower than the EU average.

The share of responding funders' research and development budget in Cyprus dedicated to jointly defined research agendas with other EU organisations is lower than the EU average.

Cooperation between institutions of Member States (MS), Associated Countries and Third Countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme (FP7), the share of participation of Cyprus in total participation is 0.4 % and the country received 0.2 % of total EC contribution. FP funding represents EUR90 per inhabitant (EU average EUR72 per capita) for the period 2007-2013 and 19.5 % of the Gross Domestic Expenditures on R&D (GERD) for the period 2007-2011 (last available data) (EU average 3 % of GERD for the same period).

Concerning joint programming initiatives, the country participates in five of the 10 on-going initiatives, coordinating none of them. These initiatives are Food Security, Agriculture and Climate Change, Cultural Heritage and global change: a new challenge for Europe, Healthy Diet for Healthy Life, Water Challenges for a Changing World, and Urban Europe - Global Challenges, Local Solutions.

In terms of programmes undertaken jointly by several MS (so called Article 185 initiatives), the country was involved in two programmes, as leader in none of them. In Horizon 2020, the

country is already involved in two of the four existing initiatives: EUROSTARS, Ambient Assisted Living.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 20 ERA-NETs, of which nine are currently still running. T

Concerning research agreements with EU MS and/or Associated Countries, Cyprus has four bilateral agreements with France, Slovenia, Romania and United Kingdom.

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with Third Countries and regions, the country has not developed a specific policy, although bilateral reseach agreements exist with Egypt, Israel, Cuba and the United States.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	0 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third	Limited compliance to ERA cluster (national	3.4 %	2013	ERA survey 2014

countries	level)			

Research funders in Cyprus who responded to the survey indicated that they do not have measures supporting international cooperation with Third Countries.

Within the ERA compliant cluster in Cyprus, no budget of organisations' research and development originating from Third Countries could be identified .

2.3. Interoperability, mutual recognition of evaluation results and other schemes

There is no mutual recognition of evaluations, national funding decisions still follow a rule of path-dependence rather than following evaluations.

There are no other common ex post evaluation procedures except those foreseen and implemented in the context of the European Commission.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	0 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	0 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

Research funders in Cyprus who responded to the survey indicated that they do not have measures supporting the allocation of project-based funding on peer-reviewed decisions made by non-national institutions.

Research funders in Cyprus who responded to the survey indicated that they do not allocate project-based funding based on peer-reviewed decisions made by non-national institutions.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Cyprus participates in the large international research infrastructure (Ris) of the European Space Agency (ESA). In 2012, the country contributed 0.3 % of GBAORD to the activities carried out by Conseil Européen pour la Recherche Nucléaire (CERN), the European Molecular Biology Laboratory (EMBL), the European Southern Observatory (ESO), the European Synchrotron Radiation Facility (ESRF), the Institut Laue-Langevin (ILL) and the European Commission's Joint Research Centre (JRC) (Eurostat).

In terms of participation to the development of RIs included in the European Strategy Forum on Reserach Infrastructures (ESFRI) Roadmap, the country participates in the preparatory phase of five of them: European Social Survey, PRACE, DARIAH, KM3NeT, EU SOLARIS. Researchers from Cyprus have also expressed interest in participating and/or are participating in the following projects: European XFEL, CLARIN, BBMRI, ELIXIR and the European Spallation Source. The participation of Cyprus in the above projects does not include the coordination of any of them.

In terms of financial commitments to developing these research infrastructures, Cyprus is not involved.

With regards to participating in the European Research Infrastructure Consortium, Cyprus is not involved.

In May 2013, RPF invited interested parties to express their interest in participating in the ESFRI Roadmap. A total of 40 proposals were submitted by July 2013. The strategy in investing in pan-European R&Is including those from the ESFRI roadmap will be part of the National Strategy for the period 2014-2020. Additionally in June 2013, RPF announced the launch of an excercise for mapping the Cyprus Research landscape. As part of this procedure the RPF, in cooperation with the Cyprus Science Council, initiated the examination of the current situation in order to facilitate the formulation of a national roadmap for R&Is. The study uses 22 R&D indices and two structured questionnaires addressed to research institutions and researchers.

3.2. Access to research infrastructures of pan-European interest

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Cyprus in the Researchers Report 2014 [http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Cyprus_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 915 full time equivalent (FTE) researchers in Cyprus in 2011. This represents 2.1 researchers per 1 000 labour force compared with 7.6 among the Innovation Union reference group (Innovations Followers) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 66.5 in Cyprus compared with 72.3 among the Innovation Union reference group and an EU average of 43.7.

In 2012, 54 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

Recruitment for research positions in Cyprus is considered open and transparent. All publicly-funded vacancies are published on the Cyprus Government Gazette official website, on local press websites and on the Cyprus EURAXESS portal. Job vacancies are often published in English.

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 65.5 in the Republic of Cyprus compared with 72.3 among the Innovation Union reference group and an EU average of 43.7.

All publicly-funded research jobs must be advertised online on the EURAXESS jobs portal. In addition, the social security services of the Republic of Cyprus have created a portal for employers and employees on social security legislation and the implementation of Council Regulation 1408/71 on 'the application of social security schemes to employed persons, to self-employed persons and to members of their families moving within the Community'.

4.3. Attractive careers

The RPF serves as the Bridgehead Organisation and Service Centre for the EURAXESS Network in Cyprus. The RPF is responsible for promoting the implementation of the Charter & Code through its networking activities with the research institutes and the dissemination of promotional material.

By May 2014, six Cyprian organisations were involved in the Commission's Human Resources Strategy for Researchers of which two had received the 'HR Excellence in Research' logo for their progress in implementing the Charter & Code.

The Government of the Republic of Cyprus has adopted a package of measures aimed at training enough researchers to meet its R&D targets and at promoting attractive employment conditions in public research institutions, training enough researchers to reach Cyprus' R&D targets, promoting attractive working conditions, and addressing gender and dual career aspects.

However, in the past, the severe economic crisis and the fiscal austerity measures adopted led to a considerable reduction in the budget for R&I, which hampered the adoption and implementation of any new strategy.

On the positive side, the new Government as of March 2013 has announced that a significant effort will be put into R&I as an attempt to exit the financial crisis. As a result of this, a National Committee on Research, Innovation and Technological Development (NCRITD) was set up by the Council of Ministers in September 2013, consisting of distinguished experienced scientists coming from the Cypriot academic, research and business sectors, to review the national R&I system and to give relevant recommendations on its governance to the President of the Republic of Cyprus. The work of the NCRITD was completed in March 2014 and its outcomes submitted to the President. The report of the NCRITD proposes to create a new system structured in four levels (strategic, political, operational/implementation and research stakeholders), which integrates Research, Innovation and Entrepreneurship. The study proposes among others, to appoint a Commissioner for Research Innovation and Entrepreneurship, create of a new Directorate General for Research, Innovation and Entrepreneurship under the Ministry of Finance, establish an Advisory Committee and redesign the role of the RPF in order to accommodate Technology Transfer activities. The study is currently being reviewed by the Presidency.

Further to that the Smart Specialisation Strategy for R&I, an ex-ante conditionality for the utilisation of European Structural and Investment Funds (ESIF) for R&I in Cyprus, is expected to be finalised in Spring 2014. The sectors identified through this process are tourism, energy, construction, shipping, health, ICT and environment.

The outcomes of the two abovementioned reports are expected to prove as useful input to draw up the National 2014-20 R&I Strategy that is expected to be completed by the end of 2014. This Strategy will be implemented, mainly through the programmes of the Research Promotion Foundation, which is the main funding agency for R&I in Cyprus. In parallel, the Technology Service of Ministry of Energy, Commerce Industry and Tourism will implement schemes for specifically promoting business innovation.

Finally, due to the prevailing economic crisis in the country and the consequent liquidity constraints, the main source of public funding implementing the new R&I Strategy is expected to derive from the ESIF for the 2014-20 period in Cyprus.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged between 25-34 was 0.3 in 2011 compared with 1.6 among the Innovation Union reference group and an EU average of 1.7.

The on-going scheme for the promotion of innovation in training and development of human resources (HRDA) aims to encourage enterprises and organisations to prepare and implement proposals that include the research and development of innovative ideas for training and developing of human resources. This scheme is open amongst others to entities such as universities, research institutes and major industries, which deal with R&I in human resources issues.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU-27 Member State was 9 % in Cyprus compared with 18.4 % among the Innovation Union reference group and an EU average of 7.7%.

The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 1.7% in Cyprus compared with 16.9 % among the Innovation Union reference group and an EU average of 24.2%.

The Government of the Republic of Cyprus has not implemented measures encouraging researchers to spend time as a researcher in another country. However, universities permit their academic staff to take 'sabbatical leave' on request for the purpose of expanding their research interests/aspirations, but such provision is not provided for non-academic research staff. Researchers also have the right to participate in research projects/conferences in accordance with the research programme provisions funding opportunities. Language barriers and the cost of accommodation remain the major mobility obstacles for incoming researchers. In addition, the low demand for researchers and PhD holders from local industry impedes inward mobility. However, the fully operational EURAXESS Service Centre in Cyprus, along with the adoption and implementation of the Scientific Visa Package, are two factors that are increasing the number of researchers from abroad coming to Cyprus. The Proselkysh Programme is targeted to young and experienced researchers not residing in Cyprus but wishing to carry out research within a Cypriot host research organisation.

A University-Industry Liaison Offices Network was established in 2010 at the major Universities in Cyprus. The network is composed of six Liaison Offices, with full human resources in place, and a shared web portal and data base hosting registered profiles e.g. academic, laboratory, business and student profiles. The main priorities of the network are to ensure benefits to business and industry through academic research results and vice versa, to maximisee opportunities and employment potential of students/graduates through a student placement framework, to promote cross-national agreements/partnerships with Universities in Europe (similar activities) through student placements and internships, to exploit University research results by Cypriot businesses and encourage research in the Cyprus business Society.

The operation of the network proved extremely successful, in particular with regards to student placements that reached 937, exceeding by far the initial target of 400 placements.

5. GENDER

5.1. Foster cultural and institutional change on gender

Gender equality is not a specific topic in the research agenda in Cyprus.

In 2013, there was a decision to join the Gender NET ERA-NET.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	National level	26.3 %	2013	ERA survey 2014
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	8 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	1 %	2013	ERA survey 2014

The share of research funders in Cyprus who responded to the survey and support national policies on gender equality in public research is lower than the EU average.

Within the ERA compliant cluster in Cyprus, the share of research performing organisations that have adopted Gender Equality Plans is lower than within the EU ERA compliant cluster.

In Cyprus, as far as eligibility of fellows to participate in the national research programmes for post-doctorates is concerned, in cases where the potential fellow was on a maternity leave, or has served his military service after he/she has obtained his/her PhD title, then the

requirement of obtaining his/her doctorate in the past five years could be extended (for maternity leave one year per child could be added, for military service the actual time of service) as this is certified by the competent authorities.

Funding agencies consider leaves of absences in researcher evaluations and project monitoring.

As far as eligibility of fellows to participate in the national research programmes for post-doctorates is concerned, in cases where the potential fellow was on a maternity leave, or has served his military service after he/she has obtained his/her PhD title, then the requirement of obtaining his/her doctorate in the past five years could be extended (for the maternity leave one year per child could be added, for the military service the actual time of service) as this is certified by the competent authorities.

There are no initiatives to strengthen the gender dimension in research programmes.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	22.2 %	2013	ERA survey 2014

Within the ERA compliant cluster in Cyprus, the share of research performing organisations that include the gender dimension in research content is lower than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

There are no explicit quotas or quantitative targets. Scientific evaluators are urged to consider the projects positive contribution to gender equality (where applicable) and research funders consider equality and women's representation in the evaluation process of research projects and project monitoring.

Indicator	Level/cluster	Value	Year	Source

Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	33.3 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	0 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	EU level	35.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Cyprus, the share of gender-balanced recruitment committees for leading researchers in research performing organisations could not be identified. However, the share of gender-balanced recruitment committees for leading researchers is high in the limited compliance cluster.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

In terms of support to open access, there is no specific document or initiative describing the national policy concerning open data policies in Cyprus. A limited number of local data collections were identified and contacts with the responsible persons are in progress by the Cyprus NOAD (UCY Library).

However within the framework of OpenAIRE & OpenAIREplus projects, the UCY Library supports institutions that hold data sets in various forms and either by digitising or hosting their data in open formats (e.g. project of the digitisation of the Complete Gazetteer of Cyprus, produced by the Land Survey Department of Republic of Cyprus).

Open access dissemination activities are implemented through the Project OpenAIRE and OpenAIREplus, which is represented by the University of Cyprus Library since 2009.

There are three parallel approaches for dissemination purposes:

I. Central approach: Contacts with the Research Promotion Foundation (which is also one of the NPR for open access) in order to forward informative material via email for Open Access and OpenAIREplus.

II. Cluster approach: a) Participation in conferences of librarians/information scientists who acted as multipliers because they were able to disseminate the obligation derived by SC39 FP7 projects to their institutional researchers. b) We indentified and participated with posters or papers in conferences / information days that took place in our region through which we reached researchers.

III. Individual approach: Emails were sent to the Cypriot coordinators/partners of SC39 FP7 projects and phone calls were answered for questions and help requests.

Related to open access to publications, in November 2008 the Senate of the University of Cyprus supported and accepted the Library Committee's proposal to sign the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. (http://oa.mpg.de/lang/en-uk/berlin-prozess/signatoren/). The Berlin declaration was also signed in 2011 by the Governing board of the Cyprus University of Technology.

In October 2009 the Cyprus Academic Library Consortium (CALC) signed a nationwide subscription contract with BMC (Biomed Central) for an open access model to the BMC journals.

Furthermore, a cooperation network was established including different stakeholders in order to increase awareness on open access (OA). One of the results of this networking was the launch of the "Cyprus University of Technology Open Access Author Fund".

It is noted that in the last few years Academic Institutions organise relevant events in Cyprus during the European Open Access Week.

Concerning funding allocations on the 21 October 2013 an agreement between the Cyprus University of Technology Library and the Pharmaceutical company REMEDICA was signed so, Academic publications could be funded with open access terms and be deposited in an open institutional repository.

It should be noted that there are no publishers in Cyprus dealing with academic publications.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014

Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	1.1 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	45.1 %	2013	ERA survey 2014

Within the ERA compliant cluster in Cyprus, the share of publicly-funded scientific publications in open access amongst research performing organisations is lower than within the EU ERA compliant cluster.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting open access to data	National level	0 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	8 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-	Limited compliance to ERA	89.5 %	2013	ERA survey 2014

line and free of charge	cluster (national level)			

Research funders in Cyprus who responded to the survey indicated that they do not have measures supporting open access to data.

Within the ERA compliant cluster in Cyprus, the share of research performing organisations making available on-line and free of charge publicly-funded scientific research data systematically is lower than within the EU ERA compliant cluster.

Currently there are three Open Access Institutional Repositories in which researchers can submit relevant articles in Cyprus:

- The repository LEKYTHOS, University of Cyprus
- The repository KTISIS, Cyprus University of Technology
- The repository KYPSELI, Open University Cyprus

The University of Cyprus Library works as a partner in OpenAIRE & OpenAIREplus - under the Institutional Repository LEKYTHOS and it allows the imporation and diffusion of publications and primary research data while acting as a point of information, which supports researchers in depositing articles and in diffusing their research.

Also Zenodo which is also a European repository (orphan repository) that enables researchers, scientists, EU projects and institutions to easily access, share and reuse research results in a wide variety of formats including text, spreadsheets, audio, video, and images across all fields of science, is also promoted in Cyprus as an alternative hosting area.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to open innovation and knowledge transfer between public and private sectors, Cyprus has not developed a knowledge transfer strategy. Funding organisations have not specific funding lines dedicated to the implementation of knowledge transfer.

Strategic partnership and/or the definition of joint collaborative research agendas between academia and industry are being developed in Cyprus.

Specifically in order to encourage cooperation between academia and industry, a project under the name 'Development and operation of Enterprise Liaison Offices in Universities operating in the Republic of Cyprus', involving a consortium of six Universities operating in the Republic of Cyprus, was awarded in 2009. The project will last six years and is funded by the European Union Social Funds. Its purpose is to strengthen the links and the relationships between Universities and the Industrial environment, in order to develop operations and communication tools for supporting cooperation and placements of students in industry. Six

Industry Liaison Offices, three public and three private Universities, are in full development and operation at the moment. It is the first time that a wide channel of communication and common data base among the Universities has been established and furthermore between the academic community and the business world, in order to achieve a wider promotion of knowledge transfer, student internships, and entrepreneurship.

So far, the Industry Liaison Offices (ILOs), have achieved the following results. They managed to arrange for the placement of approximately 1 500 students in organisations, of which 924 were arranged directly from the ILOs, whereas in the remaining the ILOs provided indirect support. Furthermore, 803 academics and researchers have had their profiles recorded, along with 194 research laboratories. Finally, the ILOs have recorded the profiles of 615 organisations. So far,these results have enhanced the culture of developing co-operation between the academia and the business world.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	100 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national	2.4 %	2013	ERA survey 2014

	level)			
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	3.4 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	4.9 %	2013	ERA survey 2014

The share of research funders in Cyprus who responded to the survey and support KT and OI, TTOs and Private Public interaction is higher than the EU average.

Within the ERA compliant cluster in Cyprus, the share of research performing organisations having funding originating from the private sector could not be identified.

Within the ERA-compliant cluster in Cyprus, the share of research performing organisations having dedicated staff employed in knowledge transfer activities is lower than that within the EU's ERA-compliant cluster.

Within the ERA compliant cluster in Cyprus, the share of research personnel whose primary occupation is in the private sector (in full time equivalents) is higher than within the EU ERA compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation with the implementation of the Digital ERA, Cyprus has set up a strategy for its implementation. The country has implemented a research and education network, essential to make digital services possible.

In 2012, a Digital Strategy was adopted, aiming to provide a comprehensive plan for the period 2012-2020 and introduce a holistic approach for developing information society in Cyprus. The Strategy focuses on six strategic objectives, (i) Connect Cyprus, (ii) Modernise public administration and provide public electronic services, (iii) Inclusion of all into digital Cyprus, (iv) Education and learning, (v) Digital entrepreneurship, (vi) ICT for the environment.

CyNet is Cyprus' National Research and Education Network. It provides a network infrastructure for the Cypriot Research and Education Community. CyNet connects educational and research institutions. The national backbone of CyNet is connected to the European backbone GEANT2, which is a part of the worldwide community of research and education networks. Through this connection the CyNet backbone is also connected to the Global Internet as well.

Furthermore, due to the manageable size of the country, the UCY Library was able to reach all existing three institutional repositories (Cyprus University of Technology, Open University of Cyprus and University of Cyprus) to meet the guidelines of OPENAIRE compliance.

Drawing from the experience gained through the active participation of the University of Cyprus (UCY) Library in OPENAIRE programs, the Library has undertaken a project to identify, collect and organise all the scientific research output of the University in an open access repository (it should be noted that the UCY research output constitutes 62 % of the country's total output). This will reinforce and facilitate the ability of UCY Library NOAD to influence the rest of the research institutions and policy makers, ministries and funders towards establishing a regional open access agenda.

Within the ERA compliant cluster in Cyprus, the share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Cyprus is not a member of eduGAIN.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research	Limited	10.6 %	2013	ERA survey

performing organisations in the sample providing federated electronic identities for their researchers	compliance to ERA cluster (national level)			2014

Within the limited ERA compliant cluster in Cyprus, the share of research performing organisations providing federated electronic identities for their researchers is lower than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 13 research performing organisations in Cyprus answered the 2014 ERA survey, which represents 75.8% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Cyprus shows that 18.2 % of them are in the 'ERA compliant' cluster, 45.5 % can be classified in the 'limited compliance to ERA' cluster and 36.4 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 8.0 % for the 'ERA compliant' cluster, 90.2 % for the 'ERA limited compliant' cluster and 1.8 % for those organisations where ERA principles are not applicable.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Research and innovation system			
Smart Specialisation Strategy for Research and Innovation (under preparation)			
Cyprus Innovation Strategy (under development)	2014	X	X
Project-based funding applying the core principles of international peer review			
Reform of the National Research and			

Innnovation System			
Enhancement of Business Innovation in Cyprus	2012	X	
Institutional funding based on institutional assessment			
Innovation Strategy (under review)	2013	X	X
DESMI Programme			
Implementing joint research agendas			
Joint Research Agendas			
Interoperability, mutual recognition of evaluation results and other schemes			
Participation in Joint European Programmes	2014	X	X
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
National Roadmap - under preparation			
Call for participation in ESFRI roadmap	2014	X	X
Open, transparent and merit-based recruitment of researchers			
Euraxess Cyprus			
Attractive careers			
Programme for the Support of Young Researchers	2000		
HR Logo award - Action Plan of the Cyprus Institute of Neurology and Genetics & University of Cyprus for Charter and Code	2010		
Foster cultural and institutional change on gender			
Participation in COST Programme:"Gender, Society, Technology and Environment" Initiative	2012	X	
Gender balance in the decision-making process			
Law 100/1997 for the protection of	2011		

mothers (as amended)			
Open access to publications and data resulting from publicly funded research			
Open access repositories	2013	X	X
Open innovation and knowledge transfer between public and private sectors			
Development and Operation of Enterprise Liaison Offices at the Universities Operating in the Republic of Cyprus	2011		
"Manufuture-CY"	2012	X	
Harmonise policies for public e-infrastructures and associated digital research services			
Digital Strategy	2012	X	

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

In 2008, the Czech Republic launched a comprehensive reform of the research and innovation (R&I) system (Act No. 211/2009 Coll, amending Act No.130/2002 Coll.).

As a result, the Council for Research, Development and Innovation (CRDI) was put in place as an advisory body of the Government, thereby improving the governance and coordination of the system. As a single advisory body for innovation policy (in a broad sense) and for the coordination of public support to research, development and innovation (RDI), the CRDI defines applied research priorities (through different committees), proposes the research, development and innovation State budget and is ultimately responsible for the annual evaluation of research institutions. It also targets funding towards potentially strong and globally competitive research fields and areas with strong potential for applications. The recently-established Government now includes a Vice-Prime Minister in charge of science, research and innovation, who will be chairing the CRDI. While CRDI has become the main coordinating body of the RDI system, the Ministry of Education, Youth and Sports (MEYS) and the Ministry of Industry and Trade (MIT) continue to set priorities in the context of the National Innovation Strategy and to administer the European Structural and Investment Funds (ESIF) through their respective operational programmes (OP) dealing with research and development (R&D) and innovation. The MEYS is particularly concerned with public sector R&D, particularly institutional funding for public universities. It is also responsible for international R&D cooperation as well as the support to large R&D infrastructures and fulfilling the administrative function of a central administration body for R&D, e.g. maintaining registers of public research institutes. The MIT is responsible for policies in the domain of business R&D and innovation.

The reform also reorganised R&D funding bodies by creating the Technology Agency of the Czech Republic (TACR), which directly reports to CRDI and is in charge, together with the already existing Grant Agency of the Czech Republic (GACR), of managing most of the targeted R&D competitive funding provided by MIT.

In 2013, the Government updated the 2009-2015 National Research, Development and Innovation Policy of the Czech Republic with a view towards 2020, approved the implementation plan of the National priorities for oriented research, experimental development and innovation (2012-2030) (including the revised six priorities for oriented R&D) and set the goal of preparing the Smart Specialisation Strategy and the Strategy of Internationalisation of Higher Education, research and development and innovation (R&D&I) and Business. All these R&D&I policy documents currently fall under the overarching International Competitiveness Strategy steered by the Office of the Government.

The National Research, Development and Innovation Policy defined long-term national priorities for R&D&I: (1) Quality and productive research system; (2) Effective knowledge transfer; (3) Innovative businesses; and (4) Stable, efficient and strategically-governed research and innovation system. One of its main goals with respect to increasing efficiency of

the national R&D&I system is the preparation of a new methodology for R&D&I results evaluation and research organisations institutional funding.

The 2014 National Reform Programme mentions that the Government is going to define a governmental body responsible for innovation by revising the legislation.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Czech Republic represented EUR 99 per inhabitant in 2012 (EUR 179 in EU-28). In 2013, GBAORD per inhabitant declined a little (EUR 97). In 2012, total GBAORD corresponded to 1.5% of total government expenditures and 0.7 % of Gross Domestic Product (GDP) (Eurostat).

During the period from 2007 to 2012, several changes in public R&D expenditures were observed. In nominal terms, the rate of growth of total GBAORD in the Czech Republic was higher than the rate of growth of total EU GBAORD. In terms of R&D efforts, the rate of growth of GBOARD in the Czech Republic, measured as a percentage of public government expenditure, evolved positively. In comparison, in the EU-27 the rate of growth of GBAORD, measured as a percentage of public government expenditure, evolved negatively. Finally, GBAORD as a share of GDP evolved positively in the Czech Republic even when it regressed at EU-28 level.

1.2. Project-based funding applying the core principles of international peer review

The bulk of competitive project-based funding is administered by GACR, which allocates grants for basic research, and by TACR, which allocates grants for applied research and development. GACR also awards postdoctoral grants with limited funding on an open, merit and competitive basis. GACR has a budget of CZK 3.3 billion (EUR 132 million) in 2013. On the side of applied research and development, there is currently a transition period where TACR is taking over the management of most of MIT's competitive funding. The budget of TACR has grown significantly in recent years from CZK 0.9 billion (EUR 34 million) in 2011, to CZK 2.8 billlion (EUR 113 milllion) in 2013 to CZK 2.6 billion in 2013. In addition, five other ministries administer their own (relatively small) competitive research funds in their respective domains (agriculture, health, defence, interior, and culture). The coordination between all research programmes (funded from the national budget) is ensured by CDRI.

In the 2014 National Reform Programme, the Czech Government mentions that it will start preparing a new methodology for evaluating programmes that targeted support of research, development and innovation, including ex ante, interim and ex post stages, which should be finalised by the end of 2014.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	53.2 %	2013	ERA survey 2014

Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and support project-based funding is lower than the EU average.

In order to guarantee the scientific excellence of funded projects, both GACR and TACR use peer review in the framework of their calls of proposals and international reviewers for their evaluation.

1.3. Institutional funding based on institutional assessment

Since the 2008 reform, there has been a constant decrease in institutional funding from 56 % in 2009 to 51 % in 2012. In its outlook for 2014, the CRDI envisages a further decrease to 47 % in 2014 and 2015.

In principle any research organisation, irrespectively of its public/private status, is entitled to receive institutional support from the state R&D budget on the basis of the excellence of the R&D results, which the organisation achieved in a specified time frame.

The largest recipients of institutional funding are on the one hand institutes of the Academy of Science of the Czech Republic (ASCR) and on the other, other public research institutes and higher education institutions (HEIs) (particularly via the MEYS which distributes the funds). Due to its particular status, ASCR uses its own internal evaluation methodology for internally redistributing the funds that have been received.

Over the period 2010-2013 the performance of research institutions was systematically evaluated annually, strictly based on quantitative indicators. The results were used by the CRDI as a starting point for allocating funding. However, the Government decided to revise the evaluation methodology, following a Country Specific Recommendation from 2012 and criticism by stakeholders and by the independent international audit of the Czech R&D&I system (Arnold, E. 2011).

The National Reform Programme (NRP) 2014 reaffirms that a revised methodology is expected to be available for 2016, while the Country Specific Recommendation 2014 calls for accelerating the development of a methodology that would increase the share of performance-based funding of research institutions. This new methodology is expected to take into account the status and role of beneficiaries, be based on international peer review and place emphasis on excellence in the international context and cooperation with industry. The 2014 NRP also mentions the methodology for the transitional period 2013-2015, which has been prepared based on a combination of new evaluation criteria (such as peer review of books and, for applied research, funds attracted from businesses and acquired through competitive funding) and peer review. The evaluation of research uses a five-year rolling average. The results of the first evaluation using this revised methodology are expected in time to be used for the 2015

R&D budget while the CRDI has the authority to recommend that the Government increases budget lines of particular providers. Still, the transitional methodology referred to above is seen as a short-term solution and a more comprehensive methodology as foreseen by the National Reform Programme 2014 is needed. This complex solution should include right incentives to public researchers to strive for excellence, address societal challenges and cooperate with the business sector.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	45.4 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and support institutional assessment for allocating institutional funding is higher than the EU average.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives.

As part of the revision of the 2009-2015 National R&D&I policy performed in 2013, the set of national priorities for R&D&I was revised to better target the six major grand challenges identified (competitive knowledge economy, sustainable energy and material resources, environment for quality life, social and cultural challenges, healthy people and secure societies). Those priorities are largely in line with the grand challenges of the Horizon 2020 proposal. International cooperation is encouraged and emphasised in particularly in these areas.

MEYS is responsible for the international R&D cooperation. International cooperation activities are supported through separate budgetary lines (worth approximately CZK 2 billion). The Interdepartmental Policy of International Cooperation in R&D (2008-2015) should help address international cooperation together with other ministries through cross-sectional R&D programmes, improve the participation of Czech researchers in international research programmes, increase effectiveness of R&D cooperation based on bilateral

intergovernmental agreements and unify the administration of present programmes of international cooperation in R&D.

The 2014 NRP states that the Government will develop a Strategy of Internationalisation of Higher Education, R&D&I and Business by the end of the year. This strategy, which will include, among others, a long-term strategy for membership of the Czech Republic in international research organisations, supports the participation of the Czech entities in Horizon 2020, the principles of involving the Czech Republic in international R&D&I initiatives and programmes implemented within the ERA and the objectives for developing international cooperation in R&D&I with countries outside the EU.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	1.8 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	0.6 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Czech Republic allocated to transnationally coordinated R&D is lower than the EU average.

The share of responding funders' research and development budget in CZ dedicated to jointly defined research agendas with other EU organisations is lower than the EU average.

The cooperation between institutions of Member States (MS), Associated Countries and third countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme (FP7), the share of participation from the Czech Republic in total participation is 1.2 % and the country received 0.7 % of total EC contribution. FP funding represents EUR 23 per inhabitant (EU average EUR 72 per capita) for the period 2007-2013 and 2.1 % of the Gross Domestic Expenditures on R&D (GERD) for the period 2007-2011 (latest available data) (EU average 3 % of GERD for the same period).

Concerning Joint Programming Initiatives (JPIs), the country participates in five of the ten ongoing initiatives. These initiatives are Neurodegenerative diseases (Alzheimer), Food Security, Agriculture and Climate Change, Cultural Heritage and global change: a new challenge for Europe, Healthy Diet for Healthy Life and Antimicrobial resistance - An emerging threat to human health.

There are programmes at national level which support research on topics relevant to the Strategic Research Agendas (SRAs). Funding of common actions and alignment of national programmes to the SRAs are under development.

In terms of programmes undertaken jointly by several MS (so called Article 185 initiatives), the country was involved in two programmes: EUROSTARS and EMRP. In Horizon 2020, the country is already involved in two of the four existing initiatives.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 28 ERA-NETs, four of which are currently still running. The country also has participated in one ERA-NET Plus action in areas with high European added value and additional EU financial support topping up their joint call for proposals.

The Czech Republic has concluded about 70 inter-governmental bilateral R&D cooperation agreements, but only some of them are implemented in the way of joint R&D projects funding: with the United States, Russia, China, South Korea, Japan, Argentina, France, Austria, Germany, Israel, Poland and Norway (The Norwegian Financial Mechanism) in the frame of which it recognises evaluations made by partner countries.

Additionally, the country participates in the EU Strategy for the Danube Region (EUSDR), a multilateral (and macro-regional) strategy that has been developed by the Commission in cooperation with 11 countries in the Danube region (Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia and Ukraine). It comprises of science and technology cooperations across the region and by the end of 2013 six scientific clusters were launched, for example a cluster in energy and sustainability research.

The Visegrad fund (between the Czech Republic, Hungary, Poland, and the Slovak Republic) also provides research grants from a common pot contribution of all countries involved.

The 2014 NRP states that the Czech Republic is going to put in place a National Space Agency, being the space R&D coordination body, and update the National Space Plan, which focuses its attention particularly, but not exclusively, on cooperation with the European Space Agency (ESA).

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with third countries, the Czech Republic has many inter-governmental bilateral agreements, including with the United States of America, Russia,

China, India, Japan, South Korea, Taiwan, Argentina and Chile. Regular funding is attributed through the GACR bilateral grants (based on agreements with the Deutsche Forschungsgemeinschaft, National Science Foundation of Korea and National Science Council of Taiwan) and TACR budget (newly launched DELTA programme). However, the majority of funds for bilateral cooperation are provided through the MEYS via the KONTAKT II programme, which focuses on the implementation of non-EU intergovernmental agreements.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	1.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	Limited compliance to ERA cluster (national level)	0 %	2013	ERA survey 2014

The share of responding funders' research and development budget in Czech Republic allocated to collaboration programmes carried out with third countries is lower than the EU average.

Within the ERA compliant cluster in the Czech Republic, the share of organisations' R&D budget originating from third countries is lower than within the EU ERA compliant cluster.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

Mutual recognition of evaluations that conform to international peer review standards is supported in the frame of the bilateral agreements under a mechanism close to the 'lead agency' procedure. However the Money-follows cooperation or Money-follows researchers scheme are not supported by funders.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	57.3 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	4 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is higher than the EU average.

The share of responding funders' project-based research and development budget in the Czech Republic allocated through peer review carried out by institutions outside the country is higher than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

The Czech Republic participates in the following large international research organisations, particularly: European Space Agency (ESA), Conseil Européen pour la Recherche Nucléaire (CERN), The Joint Institute for Nuclear Research (JINR), European Fusion Development Agreement (EFDA), European Southern Observatory (ESO), European Synchrotron Radiation Facility (ESRF), Fermi National Accelerator Laboratory (Fermilab), Institut Laue-Langevin (ILL) and Pierre Auger Observatory. In 2012, the country contributed 0.8 % of GBAORD to the activities carried out by CERN, ESO, ESRF, ILL and the European Commission's Joint Research Centre (JRC) (Eurostat). In early 2014, the Czech Republic became a MS of the European Molecular Biology Laboratory (EMBL).

In terms of participation in the development of Research Infrastructures included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap, the country participates in the preparatory phase of nine of them (18 %).

With regards to its participation in the European Research Infrastructure Consortium, the Czech Republic is involved in six of the nine projects. The country is a member of SHARE-ERIC, CLARIN ERIC, EATRIS ERIC, ESS ERIC, BBMRI-ERIC and CERIC-ERIC, and committed to fund all six. Moreover, all six large European Regional Development Fund (ERDF) funded centres (ELI, IT4I, BIOCEV, CEITEC, SUSEN and FNUSA-ICRC) participate in ESFRI projects.

A proposed draft amendment (March 2013) of the principal law governing research and development (Act No.130/2002 Coll.) should provide institutional funding to support of international cooperation in research on the basis of international evaluation (in order to conform to the Council Regulation 2009/723/EC from 25 June 2009 on ERIC).

In terms of support to the development and implementation of research infrastructures (Ris), the Czech Republic includes RIs among the policy priorities. The Roadmap of Large Research, Development and Innovation Infrastructures in the Czech Republic was approved in 2010 and it was updated in 2011. Another update is planned for 2014/2015 on the basis of the new methodology for Large Research, Development and Innovation Infrastructures evaluation, which will be prepared by mid-2014. The roadmap includes references to the participation of the Czech Republic in the development of the RIs mentioned in the ESFRI roadmap. There is a multiannual budget for funding Large Research, Development and Innovation Infrastructures in the Czech Republic with annual appropriations of approximately CZK 800 million (i.e. EUR 30 million).

In order to ensure the long-term sustainability of the 'European Centres of Excellence' (six R&D centres being built in 2007–2015 using ERDF with the investment costs over EUR 50 million each), the first National Sustainability Programme II call is going to be launched in 2014. Up to 60 % of operating costs of the 'European Centres of Excellence' are to be covered by public funds, while at least 30 % of operational costs shall be covered by international (foreign) or private funds. The total expenditures of the National Sustainability Programme II

(2016–2020) are expected at the level of EUR 500 million, including EUR 250 million of contribution from the public funds of the Czech Republic.

With the intention of guaranteeing long-term sustainability of 42 regional R&D centres and 32 R&D centres in Prague (being built by using ERDF in 2007–2015 with investment costs up to EUR 50 million each), the National Sustainability Programme I continues to be implemented. The total expenditures spent in the programme (2013–2020) will reach EUR 700 million, including EUR 350 million of contribution from the Czech Republic public funds.

3.2. Access to research infrastructures of pan-European interest

Among the research infrastructures coordinated by the Czech Republic, the access to two of them was funded by the European Commission.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for the Czech Republic in the Researchers Report 2014 [http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Czech Republic_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 30 682 full time equivalent (FTE) researchers in the Czech Republic in 2011. This represents 5.9 researchers per 1 000 labour force compared with 5.3 among the Innovation Union reference group (Moderate Innovators) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 22.8 in the Czech Republic compared to 39.9 among the Innovation Union reference group and an EU average of 43.7.

In 2012, 52 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

In the Czech Republic, each institution is an autonomous employer with its own personnel and recruitment policies. There is no statutory instrument that would allow breaches of the autonomy of the institution. There is no legislation dealing with the online publication of publicly-funded research jobs. EURAXESS Czech Republic operates the Czech National EURAXESS Jobs portal that is linked to the pan-European EURAXESS Jobs portal. This tool is used increasingly by Czech public research organisations/institutes and universities.

4.3. Attractive careers

In 2009, the Academy of Sciences of the Czech Republic (ASCR) declared its interest in the 'Human Resources Strategy for Researchers incorporating the Charter and the Code' and included some of the principles to their career system The ASCR also joined the Charles University's Charter & Code Promoter´s Network' project (2010) that focuses on raising awareness of the Charter & Code in the research community. As of 2012, the ASCR and the Central European Institute of Technology (CEITEC) were the only research organisations that had signed the Charter and Code in 2006 and 2012 respectively. The Charter & Code are actively promoted by the coordinator of the EURAXESS Network in the Czech Republic at different events organised for researchers as well as for research organisations

By May 2014, one Czech organisation was actively engaged in the Commission's Human Resources Strategy for Researchers.

There is no policy at Government level in the Czech Republic to offer clear career prospects to researchers. However, an increasing number of institutions, especially natural science institutes of the ASCR, require graduated doctoral students to leave the institution for a postdoctoral fellowship elsewhere.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per 1 000 population aged between 25 and 34 was 1.5 in 2011 compared with 1.2 among the Innovation Union reference group and an EU average of 1.7.

Attracting young talented students to become researchers has been embedded in the International Competitiveness Strategy, the National Innovation Strategy and the Human Resources Development in R&D documents developed by the Government of the Czech Republic. All three documents suggest the development of tools and strategies to inspire young people to become researchers. In 2013, there were 24,755 doctoral students at higher education institutes (HEIs) in the Czech Republic, compared to 24 803 in 2012 and 16 491 in 2001. Active doctoral studies in sciences (including mathematics, technology and engineering) accounted for 49.8 % of all doctoral studies in 2013. If medical, pharmaceutical, and life sciences are included the proportion rises to 65.2 %. The percentages have remained relatively stable for the past five years.

The Czech Government has not put in place any measures to increase the number of students taking science to a doctoral level. Moreover, national statistical data and recent reports from the Institute for Information on Education (ÚIV) and the Research, Development and Innovation Council state that - one third of doctoral graduates in the Czech Republic go into a science and technology career. The Czech Government, along with grammar schools, universities and research institutions, is working towards creating or supporting (existing) tools to attract students to science, technology, engineering and mathematics (STEM) subjects. In addition, several universities as well as the National Contact Centre for Women and Science at the Institute of Sociology of the ASCR have introduced mentoring

programmes to attract women students at secondary education level to follow STEM subjects at university level.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU-27 Member State was 9 % in the Czech Republic compared to 4.2 % among the Innovation Union reference group and an EU average of 4.7%. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 4.1% in the Czech Republic compared with 5.2 % among the Innovation Union reference group and an EU average of 24.2 %.

The Návrat (Return) programme (2012-2019), funded by the Ministry of Education, Youth and Sports targets researcher reintegration. It creates conditions for a faster and more successful reintegration of professionals with significant experience in research organisations within the Czech Republic. Since 2012, five-year reintegration grants have been provided. The first call was regionally limited and focused on the region of the capital city because of the complementarity with some particular calls under the operational programmes. Since 2013, three-year reintegration grants have started without any regional limitation. The shorter period was set due to better flexibility, complementarity with other measures and the existed limitations of the R&D national budget.

Another measure is the Purkyne Fellowship, which is awarded by the ASCR and aims to attract 'leading' researchers from abroad (mostly Czechs who have spent a period abroad). In the Czech Republic, the level of awareness of the scientific visa for scientists/researchers from third countries has improved thanks to the EURAXESS Network in the Czech Republic. Most researchers from third countries are now well informed about the scientific visa via the EURAXESS centres located at universities and other research organisations in the Czech Republic. The Czech embassies are also well aware of the scientific visa procedures, and thus more and more scientists are being advised to apply for this type of permit.

The Czech Government (the Ministry of Education, Youth and Sports of the Czech Republic) along with universities, research institutions and industrial partners are working towards creating support for existing tools to boost the collaboration between academia and industry. For instance, the Czech Government is currently implementing an 'Effective Knowledge Transfer' project. This is one of several individual national projects under the Education for Competitiveness Operational Programme. The project covers systems for intellectual property protection and commercial use, commercialisation of R&D results, and cooperation with industry. The project also involves the development of support methodologies for the implementation, the creation of networks for effective knowledge transfer, and the training of the target group of users in methodological materials. The issue of encouraging researchers to move from the public to the business sector and vice-versa has been embedded in the Czech National Innovation Strategy and is being implemented by the Ministry of Education, Youth and Sports of the Czech Republic. Despite recent efforts to develop new collaborative programmes, cooperation between academia and industry is still underdeveloped in the Czech Republic.

5. GENDER

5.1. Foster cultural and institutional change on gender

The recruitment, retention and career progression of researchers is regulated by the general labour market legislation on non-discrimination and equal opportunities (the Act No. 262/2006, Coll. on labour code, the Act No. 435/2004 Coll. on employment and the Act No. 198/2009, Coll. on antidiscrimination). Labour law guarantees a maternity leave of six months with return to the same position (not for fixed-term contracts) and parental leave up to three years. The Government proceedings (or law) require that gender impact is assessed for every Government resolution.

The Governmental Resolution No. 1033 of 2001 establishes measures on equal opportunities. The most important body concerning equal opportunities is the Governmental Council for Equal Opportunities for Women and Men, which started its activity at the end of 2002 as an advisory body of the Government. Also created in 2001, the National Contact Centre for Women and Science ('Zeny a veda') is the main agent shaping gender policy in R&D in the Czech Republic. It carries out analysis and raises awareness about gender issues.

A strategy on gender equality in public research, in line with the ERA Communications objectives, is being prepared by the Ministry of Labour and Social Affairs. No dedicated funds shall directly be allocated to the implementation of this strategy in the field of research and innovation; MEYS only consults Zeny a veda every year on priority actions to be carried out.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	National level	57.4 %	2013	ERA survey 2014
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	26.1 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and support national policies on gender equality in public research is lower than the EU average.

Within the ERA compliant cluster in the Czech Republic, the share of research performing organisations that have adopted Gender Equality Plans is lower than within the EU ERA compliant cluster.

The Czech Republic has set up some awards, fellowships and/or other similar mechanisms to specifically support female researchers. The award Milada Paulová is jointly organised by MEYS and Zeny a veda for lifelong achievement of female researchers in Czech science. The L'ORÉAL Scholarship Czech Republic for Women in Science is also in place.

At the funders' level, the GACR allows, with some restrictions, female researchers to interrupt or postpone research activities due to maternity leave. In 2013, an independent audit was carried out to assess gender equality in the operation of GACR, but the results have not publicly been released yet.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	22.1 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	22.9 %	2013	ERA survey 2014

Within the ERA-compliant cluster in the Czech Republic, the share of research performing organisations implementing recruitment and promotion policies for female researchers is lower than that within the EU's ERA-compliant cluster.

So far, it seems that no provisions exist to tackle the gender dimension in research programmes.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting the inclusion of gender dimension in research content	National level	0 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	35 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and support gender dimension in research content/programmes is lower than the EU average.

Within the ERA-compliant cluster in the Czech Republic, the share of research performing organisations that include the gender dimension in research content is lower than that within the EU's ERA-compliant cluster.

5.2. Gender balance in the decision-making process

The Czech Republic has not set up any targets for the participation of women in decision-making bodies of Research Performing Organisations. However, the ASCR has constantly increased the share of women in higher management positions. Thus, the representation of women in its Academic Council is now about 25 %. The ASCR has established the National Contact Centre for Gender & Science of which it is also supportive.

Indicator	Level/cluster	Value	Year	Source
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014

Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	12.5 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	0 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	19.6 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	EU level	35.8 %	2013	ERA survey 2014

Within the ERA-compliant cluster in the Czech Republic, the share of gender-balanced recruitment committees for leading researchers in research performing organisations is lower than that within the EU's ERA-compliant cluster.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in CZ is lower than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

In terms of support to open access, the CRDI administers the R&D&I information system of the Czech Republic, which provides open access to information about publicly-funded research activities, projects and their outputs. It allows the collection, processing, publication and utilisation of data. The Czech Statistical Office (CZSO), pursuant to the Section 17 'Provision of confidential statistical data' of the Act No. 89/1995, on the State Statistical Service, provides confidential statistical data for scientific research purposes. Several open access repositories are run by different stakeholders.

Related to open access to publications or data, there are no specific obligatory measures in place at national level. However, in February 2014, the CRDI approved its document titled 'Open Access to published research results financed by public budget' (CRDI OA Document) which mainly presents three types of recommendations:

1°) Recommendation for respective public administration bodies to tackle open access issue and prepare national strategy on open access,

2°) Recommendation for research organisations to deal with open access at institutional level in terms of supporting repositories and adopting internal guidelines on open access,

3°) Recommendation for R&D&I grants providers to include requirement to promote open access to scientific publications into their R&D&I programs. The stakeholders targeted by the CRDI OA Document are expected to start acting in line with the recommendations as soon as possible unless they have already done so. For example, a number of Czech universities as well as the ASCR have an open access policy in place and have their institutional repositories for depositing research publications. The Association of Libraries of Czech Universities also provides institutional support to open access.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting open access to publications	National level	64.5 %	2013	ERA survey 2014
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	9.1 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	8.3 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and support open access to publications is higher than the EU average.

Within the ERA compliant cluster in the Czech Republic, the share of publicly-funded scientific publications in open access amongst research performing organisations is lower than that within the EU's ERA-compliant cluster.

Concerning open access to data, there seems to be limited support.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to data	National level	13.1 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	46.9 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	18.5 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and support open access to data is lower than the EU average.

Within the ERA compliant cluster in the Czech Republic, the share of research performing organisations making available online and free of charge publicly-funded scientific research data systematically is lower than that within the EU's ERA-compliant cluster.

With respect to repositories, a few research organisations have created their own repositories.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to Open Innovation and Knowledge Transfer between public and private sectors, the Czech Republic’s National Innovation Strategy (NIS), published in October 2011 and

coproduced by MIT and MEYS, lists 'Cooperation and knowledge transfer between academia and industry' as one of the four priority areas. Additionally, the National Research, Development and Innovation Policy also promotes better research links between academia and industry. The newly implemented R&D programmes, mostly funded by TACR but also by MEYS and MIT, support public-private R&D co-operation (ALFA, Centres of Competence, etc.) With the same overall objective, two new governmental programmes have recently been put in place: EPSILON, supporting applied research and experimental development for industry and GAMA to support a more efficient transfer and commercial exploitation of R&D&I results. The state-of-the-art intellectual property rights (IPR) legislation is in place and the NRP 2014 mentions that the Government will support its application. These efforts are being largely supported by EU funds allocated to R&D, which reached 0.3 % of GDP in 2012 and have become one of the main sources of R&D funding in the Czech Republic. As a result, the level of public funding injected into the national innovation system is currently quite high by EU standards (in 2012, the sum of national and EU funding of R&D amounted to 1.01 % of GDP) and business expenditure on R&D is gradually catching up. However, these initiatives and efforts are not yet translating into a visible improvement of the quality and relevance of scientific output which would support the emergence and development of more domestic innovation leaders. This weak performance is attributed to misaligned incentives embodied in the current approach to evaluating public research and allocating funding. The complexity of Czech research and innovation policy may also play a role.

In December 2012, the Government already approved an action plan to promote growth, entrepreneurship and employment, which one of the proposed measures is to extend the existing R&D tax credits to purchase external R&D services from research organisations.
This is a step towards fostering cooperation between academia and the business sector. Research performing organisations are also assessed on their ability to attract industry funding (see section on Effectiveness). Beginning with 2012, the setting-up of Technology Transfer Offices (TTOs) at universities or intermediary organisations is supported via the Structural Funds. Strategic partnerships between academia and industry are supported by TACR via the Centres of Competence programme. Additionally, provisions are in place to support public-private partnerships (PPPs) via Structural Funds.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	75 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its	EU level	82.9 %	2013	ERA survey 2014

institutional and/or project-based funding				
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	2.3 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	0.4 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national level)	40.2 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	20.7 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having	ERA compliant	30.4 %	2013	ERA survey 2014

dedicated staff employed in knowledge transfer activities	cluster (national level)			
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	20.6 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	0.8 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	1.1 %	2013	ERA survey 2014

The share of research funders in the Czech Republic who responded to the survey and support national support to knowledge transfer and open innovation, TTOs and Private Public interaction is lower than the EU average.

Within the ERA-compliant cluster in the Czech Republic, the share of research performing organisations having funding originating from the private sector is lower than that within the EU's ERA-compliant cluster.

Within the ERA-compliant cluster in the Czech Republic, the share of research performing organisations having or using a structure for knowledge transfer activities is lower than that within the EU's ERA-compliant cluster.

Within the ERA-compliant cluster in the Czech Republic, the share of research performing organisations having dedicated staff employed in knowledge transfer activities is lower than that within the EU's ERA-compliant cluster.

Within the ERA-compliant cluster in the Czech Republic, the share of research personnel whose primary occupation is in the private sector (in full time equivalents) is lower than that within the EU's ERA-compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation with the implementation of the Digital ERA, in March 2013, the Czech Republic approved the State Policy in Electronic Communications Digital Czech Republic v. 2.0 - The Way to the Digital Economy. In 2010, with the approval of CESNET (initially established in 1996 as a joint venture of universities and the ASCR) the Czech Republic has implemented a research and education network (NREN) essential to make digital services possible. CESNET is also the coordinator of the National Grid Infrastructure (NGI) and a member of EGI.eu.

Other e-infrastructures of relevance are: eIGeR – e-Infrastructure and Grids for e-Regions; IT4Innovations – building a national High Performance Computing Centre of Excellence in the field of information and communication technologies, NTIS (New Technologies for Information Society) and the CERIT Scientific Cloud.

Concerning digital services, the country provides federated services, cloud services and premium services.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	46.2 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	Limited compliance to ERA cluster (national level)	31.2 %	2013	ERA survey 2014

Within the ERA-compliant cluster in the Czech Republic, the share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than that within the EU's ERA-compliant cluster.

6.4. Uptake of federated electronic identities

The Czech Republic was a member of an identity federation in 2011 via CESNET providing inter-organisational identity management and interconnectivity of networks. Also via CESNET, the country is a member of eduGAIN, a service intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GEANT (GN3plus) partners federations. Among the projects run by CESNET, the EDUROAM infrastructure and eduroam.cz project support and spread Internet Protocol (IP) mobility and roaming in order to enable users of interconnected networks an easy and transparent usage of any network connected to the roaming space. The Czech Academic Identity Federation eduID.cz project provides means for inter-organisational identity management and access control to network services.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	37.3 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	6.7 %	2013	ERA survey 2014

Within the ERA-compliant cluster in the Czech Republic, the share of research performing organisations providing federated electronic identities for their researchers is similar to that within the EU's ERA-compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 24 research performing organisations in Czech Republic answered the 2014 ERA survey, which represents 8.0% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Czech Republic shows that 34.8 % of them are in the 'ERA compliant' cluster, 39.1 % can be classified in the 'limited compliance to ERA' cluster and 26.1 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 46.9 % for the 'ERA compliant' cluster, 43.8 % for the 'ERA limited compliant' cluster and 9.3 % for those organisations where ERA principles are not applicable.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Research and innovation system			
National Research, Development and Innovation Policy of the Czech Republic 2009-2015 with a view to 2020. National priorities of oriented research, experimental development and innovations	2013	X	X
Project-based funding applying the core principles of international peer review			
Act No. 211/2009 Coll, amending Act No.130/2002 Coll. on the support for research and development from public funds	2009		
Council for Research, Development and Innovation (CRDI)	2009		
TCAR programmes for applied research and development ALFA, BETA, GAMA, DELTA, OMEGA programmes, Competence Centres	2013	X	X
Other programmes providing competitive funding	2008		

TIP programme			
Institutional funding based on institutional assessment			
New methodology to allocate institutional funding	2013	X	X
GACR Postdoc grants	1998		
Revision of the formula for allocation of institutional funding for 2013-2015	2012	X	
Implementing joint research agendas			
Participation in EIROs			
Joint Programming Initiatives, ERA-NETS and ERA-NETS plus	2009		
Participation in Joint Technology Initiatives	2007		
Interoperability, mutual recognition of evaluation results and other schemes			
GACR and TACR programmes			
The Visegrad Fund	2000		
International bilateral agreements	2006		
National Information Centre for European Research (NICER) Czech Liaison Office for Research and Development in Brussels (CZELO)	2005		
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
Update of the Roadmap for Large Research, Development and Innovation Infrastructures	2011		
Draft version of the Amendment of the Act No. 130/2002 Coll. On the support for research and development from public funds	2013	X	X
Large Research Infrastructures linked	2010		

with ESFRI			
National Sustainability Programmes I and II	2013	X	X
Open, transparent and merit-based recruitment of researchers			
Project „EURAXESS Czech Republic 2012 - 2015“	2012	X	
Attractive careers			
Scientific Visa Package - transposed through Act No. 379/2007			
The Higher Education Act (Act No. 111/1998 Coll.)	1998		
Reform of Tertiary Education programme	2013	X	X
The Common Rules for Human Resources Management of CEITEC Code of Ethics for Researchers of the ASCR	2011		
International and inter-sectoral mobility			
MOBILITY programme			
Gender balance in the decision-making process			
Act No. 262/2006, Coll. on labour code Act No. 435/2004 Coll. On employment Act No. 198/2009, Coll. On antidiscrimination General provisions in the NRP 2013			
Milada Paulova Award	2009		
Governmental Resolution No. 1033 of 2001	2010		
Government proceedings ("Jednací řád vlády")	1998		

ERA Working Group on Human Resources Development and Equal Approach to Women and Men in Research, Development and Innovation.	2001		
Ministerial gender focal points Working Groups for Equal Opportunities for Women and Men	2001		
National Contact Centre for Women and Science	2001		
L'ORÉAL Scholarship Czech Republic for Women in Science	2007		
Open access to publications and data resulting from publicly funded research			
Research Data Repositories			
Open access repositories			
Central Register of R&D projects Register of public R&D tenders Information Register of R&D results Central Register of Institutional Research Plans	1993		
www.openaccess.cz www.dspace.cz	2010		
Statistical Data for Scientific Research Purposes			
Open innovation and knowledge transfer between public and private sectors			
Priority Axis 3 "Commercialisation and popularisation of R&D" of the OP Research and Development for Innovation	2006		
Action plan to promote growth, entrepreneurship and employment	2013	X	X
National Innovation Strategy of the	2011		

Czech Republic			
ALFA Programme Centres of competence DELTA programme EF-TRANS TIP programme	2009		
Harmonise policies for public e-infrastructures and associated digital research services			
Czech Education and Scientific NETwork (CESNET)	2010		
IT4Innovations	2010		
CERIT Scientific Cloud	2010		
Uptake of federated electronic identities			
Czech academic identity federation (eduID.cz) - member of eduGAIN	2009		
Project eduroam.cz	2004		

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

In Germany, the central responsibility for research, technology and innovation policy lies with two ministries: the Federal Ministry of Education and Research (BMBF) is mainly responsible for public research, while the Federal Ministry for Economic Affairs and Energy (BMWi) focuses on funding innovation and research in the business sector. In addition, other Federal Ministries provide funding for research in their respective spheres of competence, particularly the Federal Ministry of Food and Agriculture (BMEL), the Federal Ministry of Health (BMG), the Federal Ministry of Transport and Digital Infrastructure (BMVI) and the Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

The 16 Länder also provide funding for research and innovation (R&I) under their own programmes. Regional research and innovation policy is to some extent based on the Federal Government's research funding priorities but also follows regional funding agendas. The Länder are responsible for higher education legislation and for financing institutions of higher education.

The Joint Science Conference (GWK) is the main body that coordinates research policies between the Federal Government and Länder (State) governments.

The German Science Council (sometimes called the German Council of Science and Humanities - WR) advises the Federal Government and the Länder on questions related to universities, science and research both content-wise and from the structural development point of view.

The German Research Foundation (DFG), the German Rectors' Conference (HRK), the Helmholtz Association (HGF), Fraunhofer (FhG), the Max Planck Society (MPG), the Leibniz Association (WGL), the Alexander von Humboldt Foundation (AvH), the German Academic Exchange Service (DAAD), the German National Acedemy of Sciences (Leopoldina) and the German Council of Science and Humanities (WR) have organised themselves in the Alliance of Science Organisations in Germany.

The Federal Government and the Länder jointly support the DFG as well as other non-university research institutions: HGF, MPG, FhG,WGL the National Academy of Science and Engineering (acatech), and Leopoldina. Other non-university research institutions comprise of the departmental research institutions of the Federal Government and the Länder, which also receive their basic funding largely from the public sector.

DAAD, which is mainly financed by the Federal Government, supports international exchanges of students, graduates and researchers. Public and private foundations also provide funding for research, for example the Volkswagen Foundation, AvH, the German Environment Foundation (DBU), the German Foundation for Peace Research (DSF), and the twelve organisations for the promotion of young talent in higher education.

The institutions of higher education comprise of government-funded and private universities, universities of applied sciences and other academic institutions, which all combine both academic teaching and research.

The High-Tech Strategy 2020 of the Federal Government defines the central goals of Germany's research and innovation policy. It is a follow-up of the previous High-Tech Strategy of 2006 and was developed to concentrate the public research and development (R&D) resources and improve coordination between all affected ministries. The aim is to create lead markets in Germany, to intensify cooperation between science and industry, and to further improve the framework conditions for innovation. The overall goal of the High-Tech Strategy 2020 is to make Germany a pioneering force in solving global challenges. In this respect, the strategy addresses five key priority areas (demand fields) of research that are linked to global challenges: climate and energy, health and nutrition, mobility, security and communication.

In its National Reform Programme 2014, Germany states that the High-Tech Strategy as the Innovation Strategy for Germany will be further developed by the Summer of 2014. It should reinforce the focus on challenges such as sustainable development and digitalisation.

Additionally, the Strategy of the Federal Government on the European Research Area (ERA), as already anounced by the 2014 National Reform Programme, has been published at July 18th. It focuses on researchers' mobility, joint programming, research infrastructures, knowledge transfer, gender equality and international cooperation.

Germany has a Country Specific Recommendation: 'Use the available scope for increased and more efficient public investment in infrastructure, education and research'.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Germany represented EUR 294 per inhabitant in 2012 (EUR 179 in EU-28). In 2013, GBAORD per inhabitant increased, to reach EUR 306. In 2012, total GBAORD corresponded to 2 % of total government expenditures and 0.9 % of Gross Domestic Product (GDP) (Eurostat).

The analysis of the evolution of GBAORD in the period during the economic crisis (2007-2012) shows that in nominal terms, the rate of growth of total GBAORD in Germany has been higher than the rate of growth of total EU GBAORD. In terms of R&D efforts, the rate of growth of GBOARD in Germany, measured as a percentage of public government expenditure, evolved positively. In comparison, in the EU-27 the rate of growth of GBAORD measured as a percentage of public government expenditure, evolved negatively. Finally, GBAORD as a share of GDP has evolved positively in Germany even when it regressed at EU-28 level.

1.2. Project-based funding applying the core principles of international peer review

R&D programmes by ministries (e.g. 'Initiative of Excellence', R&D thematic programmes by BMBF; etc) are administered and managed by a range of implementation agencies (Projektträger, seven at the moment), which are mostly located in large research centres.

These programmes provide project funding on a competitive basis, according to the 'Pakt für Forschung und Innovation'.

Most R&D programmes support cooperation between public (or private) research institutions, higher education institutions (HEI) and companies.

The central task of the DFG is to award funding for basic research to universities as well as research organisations' cooperating with them in projects via a competitive procedure. DFG provides one of the main sources of competitive funding through its funding programmes collaborative research centres, research centres, research training groups, priority programmes and research units, both in quantitative as well as in qualitative terms.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	56.9 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and support project-based funding is lower than the EU average.

Competitive, peer review-based allocation of funds is the main procedure applied at DFG and is embedded in its statute. International peer-review principles like excellence, objectivity, transparency, confidentiality and ethics of science are applied. In 2012, 26 % of DFG expert opinions were prepared by experts from abroad. R&D programmes not managed by the DFG normally also require the establishment of an evaluation committee.

1.3. Institutional funding based on institutional assessment

The Federal Government and the Länder concluded a Pact for Research and Innovation (also called the Joint Initiative for Research and Innovation) with the science and research organisations (DFG, FhG, HGF, WGL and MPG) in 2005. The Pact was renewed in 2009 to cover the period up to 2015. One of the objectives of this joint initiative is to launch suitable measures to ensure and optimise the quality, efficiency and performance of science and research institutions that receive institutional funding. Large non-university research institutions (HGF, FhG, MPG and WGL) allocate a share of their institutional funds on competitive basis, based on processes that include peer review. According to the Pact for Research and Innovation, these instruments should be developed further on a continuous basis.

90 % of the funding for universities is provided by public sources, 80 % by the Länder and 10 % by the Federal Government. 10 % are private funds. The governments of the Länder are responsible for financing research and teaching at public universities in their respective state. Co-funding of universities by the Federal Government is restricted to financing the construction of research infrastructure and some specific programmes (for example 'Excellence Initiative', Higher Education Pact, Programme for Women Professors).

Institutional funding to individual HEIs is partly allocated on a competitive basis. Within HEIs, a certain share of salaries might be allocated on a competitive basis with criteria defined and thus variable by State (Land) and university.

Evaluations of public research institutions are carried out on a more or less regular basis, for example by the WR. Depending on the outcome and recommendations made in light of such evaluations, budgets provided by the Federal Government or the Länder might be adjusted structurally (share of institutional to total funding), in terms of total budget provisions (volume change, contribution of Federal/State Government), up to the closure or reorganisation of the corresponding institutes.

The evaluation of the German science system has also become increasingly international since 2008. International science is represented on the permanent advisory boards of the institutes of research organisations as well as on the commissions for institutional and programme evaluation.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	42.2 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and support institutional assessment for allocating institutional funding is higher than the EU average.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives.

The 2008 Strategy of the Federal Government for the Internationalisation of Science and Research 'Strengthening Germany's role in the Global Knowledge Society' has four designated priority fields that form the central theme of the international activities of German science and research: strengthen cooperation with the world's best, developing innovation potential at an international level, strengthening the cooperation with developing countries in education and research in the long term, assuming international responsibility and coping with global challenges. Its objectives are well interwoven with the High-Tech Strategy, the Pact for Research and Innovation and the Initiative for Excellence. The strategy sets a general target of 20 % of the participation rate of foreign partners for BMBF programmes, but the degree of openness is programme specific.

The general importance of international cooperation, especially with regards to solving the 'grand challenges' has been highlighted and reinforced in the High-Tech Strategy 2020, which is intended to help Germany assume a leading role in the solution of global challenges.

The (revised) Pact for Research and Innovation calls upon research organisations to continuously review and develop their internationalisation strategies in terms of their contribution to increasing institutional performance. The organisations establish and expand research collaborations on important topics with excellent international partners and strategic countries, gain access to research objects including those abroad and open up their own research infrastructures to foreign researchers, become involved in global knowledge flows and play an active part in shaping the ERA. Science organisations described major aspects of these activities in their 2011 Pact Monitoring Report and presented a joint position paper on internationalisation.

The major players enabling international research collaboration, which provide by far largest share of respective resources, are the BMBF and the DFG. The framework for international research collaboration is set by the BMBF's 2008 'Guidelines for the participation of the BMBF in the preparation and implementation of transnational calls for proposals' (Leitfaden des BMBF zur transnationalen Zusammenarbeit).

The National Reform Programme 2014 highlights cooperation within Joint Programming Initiatives and International Cooperation as two of the fields to be included in the forthcoming National ERA Strategy.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	5.1 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014

Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	0.8 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Germany allocated to transnationally coordinated R&D is higher than the EU average.

The share of responding funders' research and development budget in Germany dedicated to jointly defined research agendas with other EU organisations is lower than the EU average.

Cooperation between institutions of Member States, Associated Countries and Third Countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme (FP7), the share of participation of Germany in total participation is 15.4 % and the country received 18.7 % of total EC contribution. FP funding represents EUR 82.7 per inhabitant (EU average EUR 72 per capita) for the period 2007-2013 and 2 % of the Gross Domestic Expenditures on R&D (GERD) for the period 2007-2011 (last available data) (EU average 3 % of GERD for the same period).

Concerning Joint Programming Initiatives (JPIs), the country participates in nine of the ten ongoing initiatives, coordinating two of them. These initiatives are Neurodegenerative diseases (Alzheimer), Food Security, Agriculture and Climate Change, Cultural Heritage and global change: a new challenge for Europe, Healthy Diet for Healthy Life, The Demographic change (More Years, Better Life), Antimicrobial resistance - An emerging threat to human health, Connecting Climate Knowledge for Europe, Water Challenges for a Changing world and Healthy and Productive Seas and Oceans.

In terms of programmes undertaken jointly by several Member States (MS) (so called Article 185 initiatives), the country was involved in five programmes. In Horizon 2020, the country is already involved in three of the four existing initiatives.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 126 ERA-NETs, of which 37 are currently still running. The country also has participated in 15 ERA-NET Plus actions, of which ten are still running, in areas with high European added value and additional EU financial support topping up their joint call for proposals

Concerning research agreements with EU Member States and/or Associated Countries, Germany has at least 23 bilateral agreements [notably with Austria, Belgium, Bulgaria, Switzerland, Czech Repubic, Denmark, Greece, Spain, Finland, France, Hungary, Ireland, Iceland, Italy, Luxembourg, Moldova, The Netherlands, Poland, Romania, Sweden, Slovakia, Turkey, United Kingdom] and three multilateral agreements[notably with Austria and Switzerland under D-A-C-H, France, The Netherlands, United Kingdom plus the United States beginning with 2013 under Open Research Area (ORA) plus, the Open Initiative of ERA-Chemistry with 12 countries participating] either at BMBF or DGF level in order to launch and/or further intensify cooperation in research and education, thus removing barriers and/or explicitly permitting joint financing of projects and programmes.

A good example for BMBF cooperation with MS is the French-German Agenda 2020: the bilateral work programme (adopted in 2010) lists more than 80 joint projects in various political spheres, including in education, research and innovation. Some specific research fields (for example energy and social sciences) have been identified for further collaboration.

Furthermore BMBF and the respective French Ministry organise French-German-Research-Fora every three years aimed at opening up new fields of bilateral cooperation.

DFG has a broad range of international funding programmes such as the German-Israeli Project Cooperation or the ORA plus for the Social Sciences).

One example in a range of initiatives carried out by the German Länder is the Upper Rhine Tri-national Metropolitan Region (German Länder of Baden-Württemberg and Rhineland-Palatinate and the French Alsace region) science programme set up in 2011 to facilitate the implementation of flagship projects in the Upper Rhine area through INTERREG applications in the research and innovation sector.

Additionally, the country participates in the EU Strategy for the Danube Region (EUSDR), a multilateral (and macro-regional) strategy that has been developed by the Commission in cooperation with 14 countries in the Danube region (Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia and Ukraine). Germany promotes the cooperation between the countries in the Danube Region by discussing the potential of multilateral research development and innovation (RDI) funding. It comprises science and technology cooperation across the region and by the end of 2013 six scientific clusters were launched, for example a cluster in energy and sustainability research.

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with Third Countries and regions, the country has developed a specific policy. The political basis are usually bilateral science and technology (S&T) agreements. The BMBF is managing about 40 of these bilateral S&T agreements. In addition, a number of research organisations implemented specific agreements with partner institutions on a thematic level. Their purpose is to launch and/or further intensify cooperation in science and technology, thus removing barriers for and/or explicitly permitting joint financing of projects and programmes. The priorities for international cooperation are

laid down in the strategy of the Federal Government for the internationalisation of research and science, published in 2008. The current government plans to further develop this strategy, leading to a revised strategy to be published in 2015. The G8 Research Councils Initiative on Multilateral Research Funding medium-term was established under the initiative of the DFG in 2010. The goal is to establish a large pool of multilateral projects that can be supported by the national programmes of the German Research Foundation (DFG) and its partner organisations at any time.

The international dimension is an inherent part of the national R&I system and plays an important role in the realisation of the ERA. It encompasses all activities the European institutions and MS jointly conduct on the international floor and with Third Countries. The coalition agreement of the federal election 2013 stated that the German Government will take responsibility for the completion of the ERA and consequently implement its ERA strategy on a national and European level. This also implies for the Federal Government to enhance its S&T cooperation with Third Countries as integral part of its national ERA strategy. In order to actively shape and strengthen the international dimension, Germany uses the whole European governance structure on a national and European level and takes its role seriously.

One activity stemming from the Competitiveness Council Conclusions of May 2013 invites the MS via the Scientific Forum for International Cooperation (SFIC) to support the European Commission in developing the multi-annual roadmaps, which define common European goals for future international S&T cooperation. Germany followed this request in 2013 and for the coming years supports the SFIC recommendations to develop a structured process for the consultation and implementation of these roadmaps.

Germany is very actively involved in SFIC and is the lead MS for the United States and the Russia pilot initiatives as well as a member of all working groups. Germany is also an active participant in different Senior Official configurations, aimed at implementing joint bi-regional activities, i.e. EU-CELAC, INDIA GSO, EU-ASEAN, EU-WBC, EU-AU, EU-EaP, EU-MoCo.

The international dimension is an inherent part of the national R&I-system and plays an important role in the realization of the ERA. It encompasses all activities the European institutions and Member States jointly conduct on the international floor and with third countries. In the coalition agreement of the federal election 2013 it is stated that the German government will take responsibility for the completion of the ERA and consequently implement its ERA-strategy on national and European level. This also implies for the federal government to enhance its S&T cooperation with third countries as integral part of its national ERA-strategy. In order to actively shape and strengthen the international dimension, Germany uses the whole European governance structure on national and European level and takes its role seriously:

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Germany follows the approach to emphasize international cooperation within the Horizon 2020 governance structure via the horizontal configuration and the challenge 6 configuration of the programme committee.

In the field of international cooperation within FP7 Germany is one of the most active EU-countries. German institutions successfully cooperate with 158 countries (out of 176) in FP7 projects. In 2.078 projects third countries participated (status February 2014). In 313 of these projects Germany acted as coordinator and in this function received almost EUR 255 million from the European Commission.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	4.3 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	1.1 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing	Limited compliance to ERA	0.2 %	2013	ERA survey 2014

organisations originating from third countries	cluster (national level)			

The share of responding funders' research and development budget in Germany allocated to collaboration programmes carried out with third countries is higher than the EU average.

Within the ERA compliant cluster in Germany, the share of organisations' research and development budget originating from Third Countries is higher than within the EU ERA compliant cluster.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

Mutual recognition of evaluations that conform to international peer-review standards is supported by the Guidelines for the participation of the BMBF in the preparation and implementation of transnational calls for proposals. The central goal of the guidelines is to provide the programme owners and administrators with a basis for implementatiing transnational calls for proposals within existing funding schemes, based on best practice and experience gained in bilateral and joint ERA-Net calls. However, the selection process as well as eligibility and assessment criteria have to be set in each joint programme by the participating partners according to the program specification.

When transnational project funding initiatives (e.g. ERA-NETs, Art. 185 measures) include joint evaluation procedures, the scientific and technical results of such evaluations are as a rule be recognised in Germany.

The D-A-CH is a multilateral agreement between the German Research Foundation (DFG), the Austrian Science Fund (FWF) and the Swiss National Science Foundation (SNSF). These agencies have agreed to apply the so called 'lead agency' procedure, which foresees that funding authorities 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 (for research projects with participants of at least two of the three countries). It also allows researchers to move to one of those countries following a money-follows-cooperation-line scheme, a scheme that allows small parts of a project funded by one of the participating research councils to be conducted in a different country. DFG has no specific budget for projects that are submitted and selected on the lead agency process. These projects compete with purely national projects.

DFG applies the lead agency processes also in cooperation with Luxembourg. In the G8 Research Councils Initiative on Multilateral Research and the ORA/ORA plus, proposals go through a joint respectively coordinated evaluation process by the participating funding organisations. Funding is generally allocated according to the funding rules of each individual agency. Besides, there are joint calls and evaluations by research performing organisations (RPOs) with foreign partners, e.g. Programme Inter Carnot Fraunhofer, Helmholtz-Russia or Helmholtz-CAS Joint Research Groups, Helmholtz International Research Groups.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	4.3 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	1 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is lower than the EU average.

The share of responding funders' project-based research and development budget in Germany allocated through peer review carried out by institutions outside the country is higher than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Germany participates in the following large international research infrastructures (RI): European Space Agency (ESA), Conseil Européen pour la Recherche Nucléaire (CERN), European Fusion Development Agreement (EFDA), the European Molecular Biology Laboratory (EMBL), European Southern Observatory (ESO), European Synchotron Radiation Facility (ESRF), European XFEL and Institut Laue-Langebin (ILL). In 2012, the country

contributed 1.1% of GBAORD to the activities carried out by CERN, EMBL, ESO, ESRF, ILL and the European Commission's Joint Research Centre (JRC) (Eurostat).

In terms of participation to the development of research infrastructures included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap, the country participates in the preparatory phase of 39 of them (79 %). The country coordinates ten of them: SHARE-ERIC, IAGOS, EU-OPENSCREEN, EuroBioImaging, ERINHA, INFRAFRONTIER, MIRRI, XFEL, CTA and FAIR.

In terms of financial commitments to the development of these RIs, Germany is committed to fund 18 of them. They are: CESSDA, CLARIN-ERIC, DARIAH, ESSurvey , SHARE-ERIC, EURO ARGO, IAGOS, ICOS, BBMRI, ECRIN, EU-OPENSCREEN, INFRAFRONTIER, E-ELT, ESSneutrons, XFEL, CTA, ELI, FAIR.

With regards to participating in the European Research Infrastructure Consortium (ERIC), Germany is involved in six of the seven consortia that adopted the legal framework designed by the Commission to facilitate the establishment and operation of research infrastructures of European interest involving several European countries. Germany is hosting SHARE-ERIC, is a member of CLARIN ERIC, of the ESS ERIC, of BBMRI-ERIC, of EURO-ARGO ERIC, and of ECRIN-ERIC. The legal basis for implementing a ERIC was adopted in Germany on 7 June 2013.

In terms of support to the development and implementation of RIs, Germany's Partnership Agreement (PA) with the EU provides for the possibility of spending Structural Funds on ESFRI projects between 2014 and 2020. The Federal Government called upon the Länder to include ESFRI projects in their operational programmes (OP)at Länder level.

Additionally, according to the 2014 National Reform Programme, the forthcoming National ERA Strategy will include among the priorities Research Infrastructures.

The National Roadmap on Research Infrastructures was published in 2013. It is the first German overview of priority RI projects that the BMBF is planning to realise in the coming 10-15 years. The launch of the Roadmap was meant to support and guide political decisions in terms of research infrastructures (i.e. for instance large scale research infrastructures of national/European importance, comprehensive experiments, etc.). The roadmap includes references to the participation of Germany in the development of the Ris mentioned in the ESFRI roadmap (see above). Inclusion in the Roadmap is paramount to a German financial commitment to the project in question. Some expenditure is presented on a yearly basis and some as global amounts. Timeframes for funding depend on individual ESFRI projects. Priorities outside of ESFRI are for example: research vessels, within the research vessel strategy (Forschungsschiff-Strategie), the Gauss Centre for Supercomputing (which, in turn, contributes to PRACE), or, W 7-X. An update of the Roadmap is planned so that further projects can be added, including areas for which other government departments are responsible (health, environment, energy).

3.2. Access to research infrastructures of pan-European interest

In terms of access to RIs, the 'Research in Germany' portal provides an overview of research and research funding opportunities in Germany, including RI. Access to RI is commonly possible for any researcher working at the corresponding Public Reserach Organisations (PROs) (which is operating the RI) or at another research centre which has a corresponding collaboration agreement, i.e. it is neither generally limited to researchers of German origin nor to German research organisations.

The research organisations HGF, MPG, WGL and DFG and the German Council of Science and Humanities contributed to the FP7-funded project 'MERIL, Mapping of the European Research Infrastructure Landscape'. The MERIL database, which is under construction, currently lists 119 national RIs that offer transnational access and are therefore relevant for the ERA.

Among the research infrastructures coordinated by Germany, access to 65 of them has been funded by the European Commission.

Germany is supporting and taking part in the development of a European Charter of Access, initiated by ESFRI.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Germany in the Researchers' Report 2014
[http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Germany_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 338 608 full time equivalent (FTE) researchers in Germany in 2011. This represents 8.0 researchers per 1000 labour force compared with 11.4 among the Innovation Union reference group (Innovation Leaders) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 9.6 in Germany compared with 47.6 among the Innovation Union reference group and an EU average of 43.7.

In 2012, 62 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

There is no legal obligation to publish job vacancies on national online platforms, but most organisations do so. The platform www.academics.de/www.academics.com is a central, fee-

charging commercial site for job vacancies in academia. 'Academics' is a joint venture for Germany, Austria and Switzerland of the leading German weekly 'Die Zeit' and the academic journal 'Forschung und Lehre' and achieves high visibility. It also provides additional services. It is important for universities and research institutions to publish their job vacancies on academics.de. Personnel departments at universities then have to consider whether it is worthwhile for them to publish job vacancies on EURAXESS as well.

4.3. Attractive careers

The German Government supports the objectives of the European Charter & Code.

German universities have begun to engage in the Human Resources (HR) Strategy for Researchers (HRS4R) process. In practice, however, the Charter & Code is not used much as a reference. Reasons include a relatively low awareness of the Charter & Code as well as the fact that institutions do not see the need for an additional acknowledgement because the existing regulatory framework and initiatives such as 'Total E-Quality' or 'Audit familiengerechte Hochschule' cover most areas of the Charter & Code.

By May 2014, nine German organisations were involved in the Commission's Human Resources Strategy for Researchers of which one had received the "HR Excellence in Research" logo for their progress in implementing the Charter & Code.

The German Government has continuously increased funding for education and research in recent years and aims to raise expenditure in these areas to 10 % of GDP by 2015. Between 2005 and 2012, the Federal Government increased its funding for R&D by 52 % and for education by 70 %. The Länder, which are directly responsible for schools and higher education in Germany, have all maintained or increased their basic funding for public HEIs.

Via the ongoing Helmholtz-Postdoctorate-Programme (HGF), talented young academics may receive a grant for a period of two to three years after earning their PhD, enabling them to work independently on a research topic of their own choice and establish themselves in their field of research. To promote equal opportunities at least 50 % of the positions in the programme are to be granted to women. The programme started in 2012 with the funding of 35 postdoctorates. In 2013 20 postdocs were selected for funding. The funding volume of the Initiative and Networking Fund for this programme is EUR 9 million for the two selection rounds.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged between 25-34 was 2.8 in 2011 compared with 2.7 among the Innovation Union reference group and an EU average of 1.7.

In Germany, only universities are legally entitled to grant doctoral degrees. Many universities have recently established so-called Graduate Academies or Research Schools that encompass university-wide structures to train doctoral candidates (sometimes in close cooperation with research organisations), sometimes including offers for MA students and/or post doctorates).

They function as one-stop information and support centres for doctoral candidates. They offer and coordinate various programmes for this target group, provide networking possibilities and ensure good standards in training and supervision.

Thirteen Helmholtz graduate schools and 21 Helmholtz research schools were funded since 2006. Their aim is to enhance existing training programmes both quantitatively and qualitatively. Graduate schools are designed to improve the structuring of the doctoral phase and give doctoral students stable supervision conditions and an individually agreed qualification programme consisting of scientific and interdisciplinary elements.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU-27 MS was 5.3 % in Germany compared with 9.1 % among the Innovation Union reference group and an EU average of 7.7 %. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 11.2 % in Germany compared with 14.4 % among the Innovation Union reference group and an EU average of 24.2 %.

Through the Recruiting Initiative (HGF), the Helmholtz Association has been creating extra positions for top level scientists thanks to budget increases. The initiative aims to recruit from three target groups: outstanding researchers, women scientists and researchers from abroad. The programme will run until 2015 and encompasses 40 extra positions.

The DAAD Postdoctoral Programme supports German researchers who carry out independent research projects at host institutions abroad. Funding is provided for research stays from 3 to 24 months, including a research fellowship, travel allowance, family allowance and a re-integration grant.

Universities, non-university research institutions (particularly Fraunhofer) and the private sector in Germany are closely interlinked, particularly in the field of engineering. For example, students are offered the possibility of pursuing a PhD in applied research in close collaboration with industry. A high level of third-party funding raised by universities from the private sector and the right of university employees to pursue secondary employment are additional indicators of a strong link between business and academic research in Germany. Professors at universities of applied science are generally expected to have at least five years of professional experience, three of them outside the university system. The table below describes measures aimed at encouraging researchers' inter-sectoral mobility.

The Validation of the Innovation Potential of scientific research (VIP) initiative invites scientists from universities and research institutions to benchmark and substantiate their research results with respect to their economic benefit. An innovation mentor with an industrial background is obligatory for each project. New forms of collaboration are being promoted through the 'Forschungscampus' (research campus) initiative closely linking academia and industry, and the 'Spitzencluster-Wettbewerb' (Leading- Edge Cluster Competition), which is intended to keep Germany in the top league of technologically advanced nations. The high-performance clusters formed by business and science enter into

strategic partnerships based on a common cluster strategy in a particular technological area. The 10 'Forschungscampi' and 15 'Spitzencluster' provide young researchers with outstanding opportunities to work at the interface between science and industry in a challenging and innovative environment.

5. GENDER

5.1. Foster cultural and institutional change on gender

In Germany, general anti-discrimination laws, including the 2006 General Law on Equal Treatment (Allgemeine Gleichbehandlungsgesetz (AGG)) and Germany's Federal Bodies Law (Bundesgremienbesetzungsgesetz (BGremBG) of June 1994) provide for equal opportunities. In general, ‘equal opportunities’ and thus also the responsibility for ‘equal opportunity commissioners’ in Germany falls into the competence of the federal Ministry for family, senior citizens, Women and youth (BMFSFJ). Which has put in place several initiatives to increase awareness and knowledge of the issue. An annual report on the matter is published by the German Government (Gleichstellungsbericht der Bundesregierung).

The Higher Education Laws of the Länder also provide for equal opportunities at the level of universities. Equal opportunities policy is defined as a task for the institutions' senior management. In addition the Länder have their own programmes to enhance equal opportunities at universities. The Federal Government considers that Länder and institutions should find their own solutions for increasing participation by women and a fixed quota may lead to a situation in which women researchers in areas where they have so far been heavily under-represented have to shoulder a disproportionately greater workload than their male colleagues due to committee duties in addition to research.

The 2007 Pact for Research and Innovation (PFI) firmly established the requirement that research organisations should develop strategies to ensure that women's research potential is fully used. The target agreements to which the research organisations commited themselves in 2007 were further developed in 2011. The Federal Government and the Länder expect the research organisations to implement the Joint Science Conference (GWK) decision of 2011 on recruitment and career progression of women by establishing flexible target quotas in keeping with the 'cascade model' of the DFG's research-oriented standards on gender equality. The organisations are expected to agree targets at management level to ensure that the quotas are achieved. Four research organisations, HGF, FhG, MPG and WGL developed their own specific procedures for applying the 'cascade model' and established target quotas in 2012. The organisations are expected to implement significant changes in the quantitative representation of women in the research system, particularly in leading positions. The research organisations report on the progress was made as part of the annual monitoring exercise under the Pact.

The DFG together with its member institutions adopted and committed itself in 2008 to the'Research-oriented standards on gender equality' for a sustainable gender equality policy in research and higher education. The goal is to markedly increase the proportion of women at all scientific career levels. In this frame, the DFG developed a freely accessible toolbox that

contains a collection of equal opportunity measures. DFG also supports member institutions in implementating the gender equality standards and assesses their gender equality strategies and their progress in the field.

The Centre of Excellence Women and Science (CEWS) (part of the Leibnitz Association) is the national hub for realising equal opportunities for women and men in science and research in Germany. The CEWS aims to increase the number of women in leading positions at universities and research institutions and raise the efficiency of political measures aimed at equality. The CEWS aims to introduce gender mainstreaming in all areas of science and research. It maintains the FemConsult database, which contains current profiles of several thousand women academics. With regards to HEI, CEWS rankings of institutions of higher education based on equality aspects, issued every two years, there is an established instrument of equal opportunities quality control within the higher education system.

Further equal opportunity evaluations are provides by the Total-E-Quality Advisory Service (est. 2001), Family Friendly University Audit (est. 1998) and others.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting gender equality in research	National level	100 %	2013	ERA survey 2014
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	89.1 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	5.7 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and support national policies on gender equality in public research is higher than the EU average.

Within the ERA compliant cluster in Germany, the share of research performing organisations that have adopted Gender Equality Plans is higher than within the EU ERA compliant cluster.

The country has measures supporting return after parental leave. For example, Section 2 para 5 of the Academic Fixed-Term Contract Law (Wissenschaftszeitvertragsgesetz) of April 2007 provides that fixed-term contracts may be extended for parental leave or equivalent. The Federal and Länder governments have declared providing childcare facilities as a political goal and provided additional funding. Also since 2007, several general measures are in place, for instance, the parental leave programme (Elternzeit) and parental allowance programme (Elterngeld).

The country has provisions for a balanced participation of women and men in research programmes and/or projects. Improvement of equal opportunities has indeed been included as a central goal of the BMBF large-scale initiatives: the Initiative for Excellence and the Higher Education Pact 2020. The experts evaluating proposals have to consider whether the proposed measures can promote equal opportunities for men and women in research. Since 2008, it has been possible to apply for ring-fenced funds for equal opportunities measures in all collaborative projects of the DFG. This money can be used to support women as project managers, in pursuing their research careers, or making researcher's workplaces more family-friendly.

The country provides incentives for the recruiting female researchers and to promoting the access of female researchers to senior positions in HEI and other Research Performing Organisations. To increase the participation of women in all levels of academic training the Federal Government and the Länder 2007 initiated the female Professors Programme on the basis of a positive appraisal of their equality policies, Higher education institutions have the opportunity to receive funding for up to three professorships for women. HEIs are participating to a great extent. The percentage of women professors almost doubled between 2002 and 2010 from 8 % to 15 % (She figures 2012). In 2012, the Federal Government and the Länder decided to continue the female Professors Programme and fund a second period. The first and second funding period consisted of EUR150 million each.

In Germany the National Pact for Women in MINT Careers (comparable to STEM Careers) was launched in June 2008 as part of the Federal Government’s 'Get Ahead through Education' qualifications initiative in order to increase the percentage of women in mathematics, informatics, natural science and technology. Recently 180 partners are taking part from academia, research, industry, politics, associations, labour and management and the media.

Indicator	Level/cluster	Value	Year	Source

Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	83.6 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	6.1 %	2013	ERA survey 2014

Within the ERA compliant cluster in Germany, the share of research performing organisations implementing recruitment and promotion policies for female researchers is higher than within the EU ERA compliant cluster.

In addition to the female Professors Programme, the BMBF has an important programme dedicated to research into gender equality and the gender dimension in research programmes: Frauen an die Spitze (Women at the Top). Research in this programme is focused on gender equality issues, the causes of gender imbalances in leadership positions as well as gender-specific research and gender innovation in thematic fields (medicine, natural and economic sciences). The projects are expected to test new action schemes in Germany as a basis for new approaches towards increasing equal opportunities. Between 2007 and 2015, 116 projects are ste to be funded. The results of those projects serve to develop new instruments for action that aim to improve gender balance and gender mainstreaming in research and society.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the inclusion of gender dimension in research content	National level	99.2 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014

Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	58 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	Limited compliance to ERA cluster (national level)	4.2 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and support gender dimension in research content/programmes is higher than the EU average.

Within the ERA compliant cluster in Germany, the share of research performing organisations that include the gender dimension in research content is higher than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

Concerning gender balance in decision making, one of the BMBF's central tasks is to tackle the under-representation of women in leadership positions. It created an 'Equal Opportunities in Education and Research Division' to deal with this issue.

In 2006, the organisations of the Research Alliance launched a campaign to promote equal opportunities for men and women in research (Offensive für Chancengleichheit von Wissenschaftlerinnen und Wissenschaftlern) (reviewed in May 2012) with the aim of markedly increasing the proportion of women in leading academic positions within the following five years. In 2010, women accounted for 21 % of the members of university bodies and 12 % of senior management positions at universities were held by women (She figures 2012).

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of gender-balanced recruitment committees for leading researchers amongst responding research	ERA compliant cluster (EU	33.6 %	2013	ERA survey 2014

performing organisations	level)			
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	23.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	3.3 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	8.3 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	EU level	35.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Germany, the share of gender-balanced recruitment committees for leading researchers in research performing organisations is lower than within the EU ERA compliant cluster.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Germany is lower than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

In terms of support to open access, the Federal Government has initiated a number of activities to promote open access such as a dialogue between science organisations and scientific publishing companies. The Federal Government has recently incorporated a secondary publication right in the German copyright act in order to to strengthen open access. Scientists and researchers now have the legal right to self-archive their publications in the authors version in the Internet 12 month after the first publication. BMBF also plans to add a clause on open access to the auxiliary terms and conditions governing its project funding.

Through the Priority Initiative 'Digital Information', the Alliance of German Research Organisations aims to improve the provision of information in research and teaching by raising awareness and putting forward recommendations and guidelines for the implementation of open access and promoting funding for open access publications

The Berlin Declaration on Open Access to Scientific Knowledge was introduced by MPG in 2003 and was signed by 53 German Institutions, including the big research organisations including the German Rectors' Conference which represents 258 universities and other HEIs. The signatory institutions are obliged to support open access.

Since 2006, the DFG has guidelines for providing open access to project results. The DFG provides lump sums for covering publication costs including open access fees and also has a funding programme 'Open Access Publizieren' by which universities can apply for funding in order to cover open access publication charges by university-based authors.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting open access to publications	National level	18.3 %	2013	ERA survey 2014
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	13.9 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	0.6 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and support open access to publications is lower than the EU average.

Within the ERA compliant cluster in Germany, the share of publicly-funded scientific publications in open access amongst research performing organisations is lower than within the EU ERA compliant cluster.

Concerning open access to data, Germany supports it.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to data	National level	18.3 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	54 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	4 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and support open access to data is lower than the EU average.

Within the ERA compliant cluster in Germany, the share of research performing organisations making available online and free of charge publicly-funded scientific research data systematically is higher than within the EU ERA compliant cluster.

With respect to repositories, the Federal Government gives high priority to the topic of scientific information infrastructures, because they play a key role in the storage of scientific knowledge and in making it accessible. The German Council of Science and Humanities (Wissenschaftsrat) issued recommendations for the further development of scientific information infrastructures in July 2012. The Federal Government and the Länder have appointed a working group on the implementation of the Council's recommendations, which will also review the various European Commission proposals.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to Open Innovation and Knowledge Transfer between public and private sectors, Germany has included knowledge transfer strategies at federal and regional level in the High-

Tech Strategy 2020 (national innovation strategy) respectively in the Innovation Strategies of the Länder. One of the priorities of the High-Tech Strategy is to improve cooperation between science and industry so that scientific knowledge can be transferred more quickly and applied on a commercial scale more efficiently.

The Higher Education Laws in all of Germany's 16 Länder have now identified knowledge and technology transfer as a task for institutions of higher education. Moreover, the Länder Hesse, Lower Saxony, North-Rhine Westphalia (NRW) and Thuringia have taken up the development of an intellectual property strategy in the target and performance agreements between the Länder and the universities.

Several institutions are devoted to knowledge transfer to the business sector, such as Fraunhofer, technical universities, and universities of applied sciences. A prerequisite for becoming a professor at universities of applied sciences is usually three years of work experience outside the higher education sector. A Code of Practice for HEIs and other PROs (IP Charter) has been compiled by the Joint Science Conference (GWK) and has become national strategy.

TechnologieAllianz unites patent marketing agencies and technology transfer agencies in a single network. The nationwide association representing over 200 scientific institutes provides enterprises with access to the entire range of innovative research results from German universities and non-university research institutions.

A number of different competitions and funding initiatives are implementing the High-Tech Strategy, including the Innovation Alliances partnering academia and industry, the Cluster-Platform Germany with programmes the Leading-Edge Cluster Competition and go-Cluster, the 'Research Campus - public-private partnership for innovations', the newly launched '2020 - partnership for innovation' funding programme, and the 'Validation of the Innovation Potential of Scientific Research-VIP' which stimulates knowlegde transfer by public research organisations. Other programmes such as ‘Research at Universities of Applied Sciences Programme’ (prolonged until 2018), ‘Networks of Competence scheme’ ZIM Programme for SMEs and Industrial Collective Research Programme programmes support academia-industry cooperation for knowledge transfer and innovation. Some other programmes are often funded at the Länder level and some by the Economics Ministries both at federal (for example the programme KOINNO – since March 2014 in cooperation with Switzerland) or Länder level.

Knowledge transfer measures of science organisations that signed the Pact for Research and Innovation are monitored, however, there is no national monitoring system is in place.

Strategic partnerships and/or the definition of joint collaborative research agendas between academia and industry are supported by funding organisations in Germany. Innovation Alliances represent a new instrument for research and innovation policy within the framework of the High-Tech strategy. Currently, there are nine Innovation Alliances and a large number of “strategic partnerships” created by the BMBF, the scientific community and industry. The Leading-Edge Cluster Competition (Spitzencluster-Wettbewerb) is aimed at high-performance clusters formed by business and science that enter into strategic partnerships.

The Research Campus programme contributes to knowledge circulation by enhancing partnerships, which are aiming to develop new technologies in areas with high technological complexity and a great potential for radical innovation.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	79 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	10.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	0.2 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national	77.4 %	2013	ERA survey 2014

	level)			
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	5.1 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (national level)	68.2 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	3.6 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	6.1 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	0.1 %	2013	ERA survey 2014

The share of research funders in Germany who responded to the survey and support KT and OI, TTOs and Private Public interaction is lower than the EU average.

Within the ERA compliant cluster in Germany, the share of research performing organisations having funding originating from the private sector is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Germany, the share of research performing organisations having or using a structure for knowledge transfer activities is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Germany, the share of research performing organisations having dedicated staff employed in knowledge transfer activities is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Germany, the share of research personnel whose primary occupation is in the private sector (in full time equivalents) is higher than within the EU ERA compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

The Federal Government has developed a new Information and Communication and Technology (ICT) strategy for the digital future of Germany: Digital Germany 2015. It sets out the Government ICT policy framework, i.e. the priorities, tasks and projects for the period up to 2015. The strategy, which also deals with R&D and education aspects, will be carried out in close interaction among policymakers, industry and scientists. The Federal Ministry of Economics and Technology, BMWi, is in charge of coordinating the implementation under the specific purviews of the various ministries. A major role here is played by the National IT Summit.

The Federal Government in Germany will develop a Digital Agenda 2014-2017 as a cross-departemental strategy to address the various issues of digitisation in a comprehensive approach. The action field 'Research, Education and Culture' will help the areas of education, science and research to make better use of the opportunities of digitisation offers, e.g. ensuring open access to scientific information and improve scholarly communication.

The Deutsche Forschungsnetz (DFN) is the German National Research and Education Network (NREN), a specialised Internet service provider dedicated to supporting the needs of the research and education communities within the country and essential to make digital services possible.

Concerning digital services, the country provides premium services. The recommendations of the Wissenschaftsrat for the further development of scientific information infrastructures in Germany up to 2020 also refers to a number of issues related to the electronic identity and digital research services.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	86 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	Limited compliance to ERA cluster (national level)	5.2 %	2013	ERA survey 2014

Within the ERA compliant cluster in Germany, the share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is higher than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Germany was already a member of an identity federation in 2011. The country is member of eduGAIN, a service intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GÉANT (GN3plus) Partners' federations, through DFN. To date, electronic identities that are not linked to a specific institution are only available to researchers in Germany to a limited extent, via their national identity card.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample	ERA compliant	53.3 %	2013	ERA survey

providing federated electronic identities for their researchers	cluster (national level)			2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	1.4 %	2013	ERA survey 2014

Within the ERA compliant cluster in Germany, the share of research performing organisations providing federated electronic identities for their researchers is higher than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 127 research performing organisations in Germany answered the 2014 ERA survey, which represents 22.8% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Germany shows that 65.9 % of them are in the 'ERA compliant' cluster, 26.8 % can be classified in the 'limited compliance to ERA' cluster and 7.3 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 90.3 % for the 'ERA compliant' cluster, 8.6 % for the 'ERA limited compliant' cluster and 1.1 % for those organisations where ERA principles are not applicable.

For the indicator 'Share of total budget allocated as project based funding' it should be noted that part of the funding of RPO's is directly by ministries without intervention by any funding organisation. As a consequence the percentage is relatively high compared to official figures.

For the indicator 'Public funding allocated to transnationally coordinated R&D as % of total budget in the sample' it should be noted that only data for food & agiculture are available. As a consequence the percentage is relatively low.

For the indicator ' Share of funders which can base their project based research and development funding decisions on peer reviews' only data are available for the food sector. As a consequence the percentage is relatively low.

For the indicator 'Share of publicly funded scientific publications in OA amongst research performing organisations' there are hardly any data. As a consequence the percentages are low.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Research and innovation system			
Strategy of the Federal Government on the European Research Area (ERA) - Guidelines and National Roadmap	2014	X	X
Project-based funding applying the core principles of international peer review			
SME Innovative	2007		
Institute for Research Information and Quality Assurance	2005		
DFG - German Research Council (Förderverfahren der DFG)			
Project funding (programmes)	2006		
Funding procedures of the Deutsche Forschungsgemeinschaft (DFG) since 1951, regularly updated			
Non-university research institutes (Außeruniversitäre Forschungseinrichtungen) - HGF, FHG, MPG, WGL (different dates)			
R&I funding system: general application of international peer review principles			
Initiative for excellence (Excellenz Initiative)	2012	X	
Excellence Initiative for Cutting-edge Research at Institutions of Higher Education	2014	X	X
Institutional funding based on institutional assessment			

Academic Freedom Act	2012	X	
Higher Education Pact (Hochschulpakt) - reform initiative	2011		
Leading-Edge Cluster Top Cluster Competition	2007		
R&I funding system: project funding	2006		
R&I funding system: institutional funding			
Institutional funding (non-university research institutes) - Fraunhofer Gesellschaft (since 1949)			
Implementing joint research agendas			
Initiative on Multilateral Research Funding (G8 Research Councils)	2010		
High-Tech Strategy 2020 (since 2006)	2010		
Internationalisation Strategy	2008		
Joint Programming Initiatives (JPIs)	2008		
French-German Agenda 2020 (since 2010)	2014	X	X
ERA-NET ERA-NET+	2006		
Upper Rhine Bi-national Metropolitan Region science programme	2011		
Participation in Article 185 measures			
Interoperability, mutual recognition of evaluation results and other schemes			
D-A-CH' agreement ("Lead Agency" process) - DACH Abkommen	2009		
The G8 Research Councils Initiative on Multilateral Research Funding	2010		
EIROs - participation of Germany			
Guidelines for the participation of the BMBF in the preparation and	2008		

implementation of transnational calls for proposals (Leitfaden des BMBF zur transnationalen Zusammenarbeit)			
Participation in Article 185 measures	2007		
The Joint Initiative for Research and Innovation II: Internationalisation strategies of the science organisations	2009		
Internationalisation Strategy			
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
National research infrastructure roadmap 2013 (Roadmap für Forschungsinfrastrukturen – Pilotprojekt des BMBF)	2013	X	X
ESFRI - German contribution			
Access to research infrastructures of pan-European interest			
Internationalisation Strategy	2008		
Implementation EC Regulation on ERIC	2013	X	X
Open, transparent and merit-based recruitment of researchers			
EURAXESS Germany portal			
Attractive careers			
Foreign Skills Approval and Recognition Law	2012	X	
Plan to improve the social security and pension situation of mobile researchers	2010		
Report on the Promotion of Young Researchers (BuWin)	2008		
Principles for appointing research staff by non-university institutions (HGF, FhG, MPG, WGL)			
Programmes encouraging excellent foreign scientists to spend research			

periods in Germany			
Supporting structured innovative doctoral training programmes			
Cooperative Doctoral Programme (Baden-Württemberg)	2010		
International and inter-sectoral mobility			
Programmes offering financial support to German researchers to spend periods abroad			
Foster cultural and institutional change on gender			
General Equal Treatment Act (Allgemeines Gleichbehandlungs-gesetz)	2006		
Gender balance in the decision-making process			
Center of Excellence Women and Science (CEWS)	2000		
Female professors' programme	2007		
Woman at the Top (Frauen an die Spitze)	2006		
General Anti-Discrimination Act - Allgemeines Gleichbehandlungsgesetz (AGG)	2006		
National Pact for Woman in MINT careers	2008		
Higher Education Laws in the German Länder (Hochschulgesetze der Länder)			
Targets for gender balance set by Joint Science Conference (GWK)	2011		
Programmes at Länder level to enhance equal opportunities at universities			
Campaign to promote equal opportunities for men and women in research (Offensive für Chancengleichheit von Wissenschaftlerinnen und	2006		

Wissenschaftlern)			
Open access to publications and data resulting from publicly funded research			
Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities	2003		
The German Research Foundation (DFG) has tied Open Access to its funding policy	2006		
Open innovation and knowledge transfer between public and private sectors			
Research Campus: public-private Partnership for Innovation	2011		
go-innovativ' -Vouchers for Innovation Consulting and Management	2010		
Validation of Innovation Potentials - VIP	2010		
Research at Universities of Applied Sciences	2005		
IGF -Promotion of Joint Industrial Research and Initiative Programme Future Technologies for SMEs (ZUTECH)	1954		
Innovation Alliances	2007		
National Agency for Women Start-ups Activities and Services	2004		
EXIST - Start-ups from Science (also: EXIST - University-based business Start-ups)	1999		
ERP Start-up Fund	1995		
High-tech Start-up Fund	2005		
Networks of Competence	1999		
Fostering the innovation dimension of research: SIGNO, EXIST			
National strategy to implement the	2010		

Commission Recommendation on management of intellectual property in knowledge transfer activities and on a Code of practice for universities and other public research organisations (IP Charter) by the Joint Science Confe			
TechnologieAllianz network	2001		
Regional laws on knowledge and technology transfer as a task for German institutions of Higher Education			
Secondary publication right implemented in German Copyright law	2006		
Harmonise policies for public e-infrastructures and associated digital research services			
Digital Germany 2015	2010		
Advice and federal working group with the German Länder on scientific information infrastructures (on-going)	2012	X	
Uptake of federated electronic identities			
Initiatives towards e-identity (DFN-AAI, eduGAIN)			

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

The Ministry of Higher Education and Science has the main responsibility for research and innovation (R&I) in Denmark. However, the Ministry of Business and Growth has certain tasks related to business development, and several sectorial ministries – such as the Ministry of Climate, Energy and Building, the Ministry of Food, Agriculture and Fisheries, the Ministry of the Environment, the Ministry of Finance and the Ministry of Foreign Affairs – have larger research, development and innovation (RD&I) programmes. In addition, the ministries have specific agencies that implement the respective policies.

The main R&I funding comes from the Danish National Research Foundation, the Danish Council for Independent Research, the Danish Innovation Foundation, and several sectorial R&D programmes. Another key funding source is the University Basic Research Funding, i.e. the allocated basic university grants provided to the universities from the annual national budget. In 2013, the Danish Government started in 2013 a process aimed at combining into the Danish Innovation Foundation the following bodies: the Danish Council for Strategic Research, the Danish Council for Technology and Innovation, and the Danish Advanced Technology Foundation. This reorganisation was partly based on input from the European Research Area and Innovation Committee (ERAC) Peer Review from 2012. In October, an agreement was reached stipulating that the new innovation fund shall be equipped with an annual budget of €200 million. The fund has been operational since April 2014.

The main knowledge producers in the Danish R&D system are the universities along with a few Government research institutes and a network of private, non-profit R&D organisations. The main collaboration partners of the private sector are nine institutes, belonging to the Advanced Technology Group ("Godkendte Teknologiske Serviceinstitutter").

The country has adopted a national strategy for Research and Innovation. In 2013, the Danish Government launched Denmark's first comprehensive innovation strategy "Denmark – Nation of Solutions" based on collaborative efforts between the involved ministries, i.e. the Ministry of Higher Education and Science, the Ministry of Business and Growth and other relevant sectorial ministries, as well as stakeholders from the Danish innovation system. In connection with the new innovation strategy the Danish Government has started a process that led to the creation of the first INNO+ catalogue presented in September 2013 which defines 21 concrete areas for R&I geared towards finding solutions to the grand societal challenges.

The Danish National Reform Programme (NRP) 2014 describes new support instruments to promote R&I to, such as societal partnerships, tax incentives, SMEs activities and cluster policy.

Denmark has also been engaged in a process called RESEARCH2020 that identifies areas of effort that form the basis for the political prioritization of funds for strategic research, basis for decision making for the prioritization of funds.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Denmark represented EUR 451 per inhabitant in 2012 more than twice and a half higher than the EU28 average (EUR 179). In 2013, GBAORD per inhabitant increased to reach EUR 455. In 2012, total GBAORD corresponded to 1.7% of total government expenditures and 1% of Gross Domestic Product (GDP) (Eurostat).

The analysis of the evolution of GBAORD in the period during the economic crisis (2007-2012) shows that in nominal terms, the rate of growth of total GBAORD in Denmark has been higher than the rate of growth of total EU GBAORD. In terms of R&D efforts, the rate of growth of GBOARD in Denmark, measured as percentage of public government expenditure, evolved positively. In comparison, in the EU27 the rate of growth of GBAORD measured as percentage of public government expenditure evolved negatively. Finally, GBAORD as a share of GDP has evolved positively in Denmark even when it regressed at EU28 level.

1.2. Project-based funding applying the core principles of international peer review

According to a Joint Research Centre-Institute for Prospective Technological Studies (JRC-IPTS) study on European university funding and financial autonomy (2011), the Danish universities funding consists of 59 % core funding, 12 % competitive funding, 4 % industrial funding, 1% non-profit sector funding and 2 % EU funding. However, no official statistics on this topic exist.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	77.1 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Denmark who responded to the survey and support project-based funding is higher than the EU average.

Allocation of research funds is based on the principles of international peer review. Research projects are selected on the basis of the quality of proposals and expected results and they are subject to external peer review.

For example, the Danish Council for Strategic Research, which is now a part of the Danish Innovation Foundation, has established a peer review panel that is intended to strengthen the quality of the project reviews. Assessments made by members of the peer review panel are complemented with assessments provided by the council committees of internationally recognised academics. The Danish Council for Independent Research uses peer review panels

and individual peer reviews for assessing applications. Assessments made by the peer review panels and individual reviews are complemented with assessments provided by research council members who are also internationally recognized academics.

1.3. Institutional funding based on institutional assessment

Danish universities' funding is based on a benchmark made on the basis of internationally recognised criteria and performance contracts with the Ministry of Higher Education and Science. In June 2009, a political agreement was reached on a new distribution model for core funding to the universities. The new distribution model is a modification of the former 50–40–10 model, which covered indicators for education, external funding and PhD graduates. The new model includes bibliometric indicators and has been introduced gradually over the period 2010–2012. The distribution for 2012 is as follows: 45% is based on education appropriations, 20% is based on external funding of R&D activities, 25% is based on bibliometric indicators, and 10% is based on PhD graduates.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	22.6 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

The share of research funders in Denmark who responded to the survey and support institutional assessment for the allocation of institutional funding is lower than the EU average.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It also strongly supports bilateral and multilateral initiatives.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated to transnationally	National level	18.3 %	2013	ERA survey 2014

coordinated R&D				
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	16.3 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Denmark allocated to transnationally coordinated R&D is higher than the EU average.

The share of responding funders' research and development budget in Denmark dedicated to jointly defined research agendas with other EU organisations is higher than the EU average.

Cooperation between institutions of Member States, Associated Countries and third countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme (FP7), Denmark's total share of participation is 2.4% and the country received 2.6% of total EC contribution. FP funding represents EUR 170 per inhabitant (EU average EUR 72 per capita) for the period 2007-2013 and 2.8% of the Gross Domestic Expenditures on R&D (GERD) for the period 2007-2011 (last available data) (EU average 3% of GERD for the same period).

Concerning Joint Programming Initiatives, the country participates in all the 10 on-going initiatives. Denmark is the coordinator of Agriculture, Food Security and Climate Change.

In terms of programmes undertaken jointly by several Member States (so called Article 185 initiatives), the country was involved in five programmes. In Horizon 2020, the country is already involved in four of the four existing initiatives.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in more than 40 ERA-NETs, of which 15 are currently still running. The country also has participated in seven ERA-NET Plus actions - of which five are still running - in areas with high European added value and additional EU financial support topping up their joint call for proposals. Denmark is coordinating three existing ERA-NETs.

Denmark is actively cooperating with other Nordic countries in joint programmes and institutions within the Nordic Council of Ministers. Nordic cooperation involves Denmark,

Finland, Iceland, Norway and Sweden as well as the three autonomous areas, the Faroe Islands, Greenland and the Åland Islands. The organisation of the Nordic collaboration in research and innovation is based on two main pillars: NordForsk (research) and Nordic Innovation (formerly The Nordic Innovation Centre, NICE). In 2008, the Nordic Prime Ministers initiated the Top-level Research Initiative (TRI), which is until now the largest joint Nordic research and innovation initiative that has a research focus on the climate, environment and energy fields.

In 2014 initiatives to strengthen the Arctic research were taken. The goal is to enhance national coordination of arctic research, arctic education and activities related to Arctic research.

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with third countries and regions, the Ministry of Higher Education and Science initiated several cooperation agreements and different policy measures to ensure an improved exchange between knowledge communities in Denmark and outside Europe. Among these are Memorandums of Understanding on research and innovation with countries such as Turkey and South Korea.

Denmark has developed specific strategies for Brazil, Russia, India and China (BRIC-countries) to improve trade and investment, in fields such as climate and energy, welfare, architecture, research, education and food. Denmark has established innovation centres in hotspots around the world and as part of its national Innovation Strategy. To complement its already existing innovation centers in Shanghai, Silicon Valley and Munich, Denmark opened three new innovation centres in New Delhi, Bangalore, Seoul and Sao Paulo in 2013.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	2 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014

Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0.7 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	Limited compliance to ERA cluster (national level)	0.7 %	2013	ERA survey 2014

The share of responding funders' research and development budget in Denmark allocated to collaboration programmes carried out with third countries is lower than the EU average.

Within the ERA compliant cluster in Denmark, the share of organisations' research and development budget originating from third countries is similar to the EU ERA compliant cluster.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

Regarding cross border access to funding, Danish schemes are open to researchers based abroad, regardless of their nationality, provided that their research is judged to be of benefit to Danish research. The Research Council law allows the national research councils to allocate up to 20 % of their funds to international initiatives. These initiatives are allowed to administer the funds on behalf of the Danish research councils on a real common pot model as long as it benefits Danish research and fulfils other general principles. Furthermore, the Council funds are generally available to international researchers.

The Danish Council for Independent Research and the National Research Foundation participate in Science Europe. The Danish Council for Strategic Research (now a part of the Danish Innovation Foundation) has signed the letter of intent “Money Follows Researcher”, which allows researchers to move to other countries and take the remainder of any awarded grant with them.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	87.1 %	2013	ERA survey 2014

Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	3.9 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

The share of research funders in Denmark who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is higher than the EU average.

The share of responding funders' project-based research and development budget in Denmark allocated through peer review carried out by institutions outside the country is higher than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Denmark participates in the following large international research infrastructures: the European Space Agency (ESA), the Conseil Européen pour la Recherche Nucléaire (CERN), the European Fusion Development Agreement (EFDA), the European Molecular Biology Laboratory (EMBL), the European Southern Observatory (ESO), the European Synchrotron Radiation Facility (ESRF), EU.XFEL and the Institut Laue-Langevin (ILL).

The country contributes 0,86% of GBAORD to the activities carried out by CERN, EMBL, ESO, ESRF, ILL and the JRC (Eurostat).

In terms of participation to the development of research infrastructures (RI) included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap, the country participates in the preparatory phase of 14 of them (29% of the RI in the roadmap). The country coordinates one RI, namely WINDSCANNER.

In terms of financial commitments to the development of ESFRI Research Infrastructures, Denmark is committed to funding : CESSDA, CLARIN-ERIC, DARIAH, E-ELT, EPOS, EATRIS, ELIXIR, (INSTRUCT), ESRF UPGRADE, ESSneutrons, XFEL and (PRACE).

With regard to participation in the European Research Infrastructure Consortium (ERIC), Denmark is involved in three of the nine consortia which adopted the legal framework designed by the Commission to facilitate the establishment and operation of research infrastructures of European interest involving several European countries, namely CLARIN ERIC, EATRIS ERIC and DARIAH ERIC.

To support the development and implementation of Research Infrastructures, the availability of high quality research infrastructures has been addressed in policy actions over several years. Public investments in research and innovation have been prioritised and budgeted for over the last years to ensure predictability and long term impact.

The national roadmap for Research Infrastructures presents a complete and prioritised catalogue of the national needs for research infrastructures in the short term and charts a strategic direction for national initiatives in the field.

The roadmap includes clear references to the participation of Denmark in the development of the research infrastructures mentioned in the ESFRI roadmap. The national roadmap will be updated in 2015 in parallel with the ESFRI update process.

The total Danish funding committed to the construction and operation of the research infrastructures included in the ESFRI Roadmap since 2006 is estimated at DKR 720 million.

3.2. Access to research infrastructures of pan-European interest

Among the research infrastructures coordinated by Denmark, access to four of them has been funded by the European Commission.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Denmark in the Researchers' Report 2014
[http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Denmark_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 37,944 full time equivalent (FTE) researchers in Denmark in 2011. This represents 13.0 researchers per 1000 labour force compared with 11.4 among the Innovation Union reference group (Innovation Leaders) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 13.0 in Denmark compared with 47.6 among the Innovation Union reference group and an EU average of 43.7

In 2012, 65% of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

The common government rules on posting positions and making appointments, including requirements on the prohibition of discrimination, open recruitment and objective justifications, apply to scientific positions. For scientific employees, the rules are supplemented by the Ministerial Order on the Appointment of Academic Staff at Universities (2012). Under this Order, positions at professor and associate professor level must be advertised internationally, and an assessment takes place according to local rules at each university. The Order is designed to increase international mobility as well as open competition, hence providing Danish universities with the best possible talent. The Rector may grant an exemption from this provision in the event of special circumstances of an academic nature. A non-prioritised, reasoned and written assessment of the applicants' academic qualifications is submitted to the Rector. The committee must submit its assessment within a time limit set by the Rector. In the event of differences of opinion between the members of the committee, this must be stated in the assessment.

Under the Public Administration Act (1985), the applicant can always require a written explanation of the decision. The applicant has the right to appeal to the institution to which he/she has applied for a job.

4.3. Attractive careers

All Danish universities have signed the 'Charter & Code' and are to a high degree following its principles, which are perceived as normal practice within Danish research institutions. By May 2014, three Danish organisations were involved in the Commission's Human Resources Strategy for Researchers of which one had received the "HR Excellence in Research" logo for their progress in implementing the Charter & Code.

The Job Structure for Academic Staff at Universities, the Collective Agreement for Academics in the State and the Act on Universities (in particular, points 2, 15 and 29) constitute a researcher statute by addressing wage and employment conditions (for instance pension schemes, maternity/paternity leave and long-term illness) and career prospects. In 2013 the Job Structure for Academic Staff at Universities was revised and resulted in an updated and more contemporary job structure. It includes provisions for a coherent researcher career progression, significantly revising also the principal position of assistant professor. A permanent assistant professorship may now be granted for a period of up to six years (only four years previously). As part of the position, the assistant professor may transfer directly to a position of associate professor/senior researcher provided that the employee is

recommended for assessment and is deemed qualified. The revision has been welcomed by the Danish universities which will use the permanent assistant professorship as a tenure track position.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged between 25-34 was 2.3 in 2011 compared to 2.7 among the Innovation Union reference group and an EU average of 1.7.

The Danish PhD Programme (under the Ministerial Order on the PhD Programme at the Universities, 2007) is designed by the Ministry of Higher Education and Science to provide young researchers with skills to contribute to a knowledge-based economy and society in Denmark. The PhD Programme is a research programme aimed at training PhD students at an international level to undertake research, development and teaching assignments in the private and public sectors for which a broad knowledge of research is required.

The regulation on PhD programmes was amended in 2010 in order to improve the possibilities for universities to enter into mutually binding collaboration in research and education with foreign universities. The regulation was amended again in 2013 in order to focus on providing the best opportunities for international collaboration in PhD education. On 1 September 2012, a publicly available website was launched in English with short presentations of PhD courses offered at all graduate schools in Denmark (http://phdcourses.dk/). This website gives PhD students an overview of the total offer of PhD courses in Denmark across universities.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU-27 Member State was 13.8% in Denmark compared with 9.1% among the Innovation Union reference group and an EU average of 7.7%. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 17.7% in Denmark compared with 14.4% among the Innovation Union reference group and an EU average of 24.2%.

In 2014, an action plan ‘Denmark – an attractive study destination - How to attract and retain talent from abroad’ was launched as part of the government’s effort to increase the internationalisation of higher education. The action plan includes concrete initiatives to make international graduates’ transition to the Danish labour market easier. International graduates from non-EU/EEA countries who have completed a Master’s or PhD programme in Denmark, should have the opportunity to apply for a start-up permit giving them the right to seek employment and work in Denmark for two years. A start-up permit will also – unlike the current Greencard scheme – allow the graduate the opportunity to start their own company. The plan will also ensure that all fully-fledged PhDs are granted a six-month jobseeker’s residence permit, and the rules for applying for a residence permit are simplified.

The Industrial PhD Programme aims to offer doctoral training in cooperation with the industry sector. It is a three-year research project and research training programme with an

industrial focus conducted jointly by a private company, an industrial PhD student and a university. The student is employed by the company and enrolled at the university. The company hires the Industrial PhD for the three-year duration of the project as a full-time employee on ordinary terms for salaried employees. The salary is agreed between the student and the company, and must correspond as a minimum to the pay rate of the collective agreement for PhD students employed by the Danish State. The company receives a subsidy to cover approximately half the student's salary, and the enrolling university receives a subsidy to cover tuition fees. The Programme includes a compulsory business course so that students understand the commercial aspects of research and innovation projects. It inspired the European Parliament to fund the kick-start of the Marie Skłodowska-Curie European Industrial doctorates.

5. GENDER

5.1. Foster cultural and institutional change on gender

General legislation on gender equality

The Minister for Gender Equality is responsible for the Government's overall activities in the field of gender equality and co-ordinates the equality work of other ministries.

On a general level, the Danish Gender Equality Act (GEA), as revised in 2013, stipulates among other things that boards, assemblies of representatives or similar collective management bodies within the public administration ought to have an equal gender balance. This is also the case for public research councils, universities etc.

In addition to gender equality targets, institutions and companies in public administration are obliged to formulate gender equality policies concerning the underrepresented gender on a managerial level. This is only a requirement for institutions and companies with 50 employees or more e.g. all Danish universities.

The country has provisions for a balanced participation of women and men in research programmes and/or projects. The Councils monitor the gender balance in their funding. Gender specific measures are included in the performance contracts with universities, where all universities are encouraged to include a focus area working for equal opportunities.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	National level	22.4 %	2013	ERA survey 2014
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality	ERA compliant cluster (EU	64 %	2013	ERA survey 2014

Plans	level)			
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	27.8 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	17.4 %	2013	ERA survey 2014

The share of research funders in Denmark who responded to the survey and support national policies on gender equality in public research is lower than the EU average.

Within the ERA compliant cluster in Denmark, the share of research performing organisations which have adopted Gender Equality Plans is lower than within the EU ERA compliant cluster.

The country provides incentives for the recruitment of female researchers. Some Danish universities included gender equality in their development contracts with the ministries. This practice potentially results in an extra bonus, which is seen as an incentive. Danish Gender Equality Act specially allocates an additional professorship chair (off faculty plan) if a department reaches a certain number of female professor appointees. Also the new Danish 'Sapere Aude' programme aims to encourage more women to become research leaders.

For example, the "Young women devoted to a university career programme" has been earmarked to ensure a more gender mix in research environments in Denmark (NRP 2014).

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female	ERA compliant cluster (national	27.8 %	2013	ERA survey 2014

researchers	level)			
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	6.6 %	2013	ERA survey 2014

Within the ERA compliant cluster in Denmark, the share of research performing organisations implementing recruitment and promotion policies for female researchers is lower than within the EU ERA compliant cluster.

The country has a dedicated budget for programmes funding women/gender studies. The annual report form the Research Forum and the Research Councils will for the future include relevant gender divided statistics.

In 2013, the Council of Independent Research commissioned a study on the role of gender in research and excellence (Det Frie Forskningsråd, 2013), mapping gender aspects and differences in the Danish R&I system.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the inclusion of gender dimension in research content	National level	0 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	60.5 %	2013	ERA survey 2014
Share of responding research performing organisations which	Limited compliance	0.1 %	2013	ERA survey 2014

include the gender dimension in research content	to ERA cluster (national level)			

The research funders in Denmark who responded to the survey indicated that they do not support gender dimension in research content/programmes.

Within the ERA compliant cluster in Denmark, the share of research performing organisations which include the gender dimension in research content is higher than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

Gender equality at the Danish universities

The Ministry of Higher Education and Science and the 8 Danish universities sign development contracts every three years. Some of the Danish universities have included goals and activities for gender equality in their development contracts with the ministry.

The ministry is supervising the universities on a regular basis. In 2013 and 2014, the ministry has systematically surveyed the status for gender equality at each university in the supervision

Some of the universities have initiated their own gender equality initiatives after a special autorisation of the Gender Equality Act (GEA). E.g. the University of Copenhagen has implemented a gender equality action plan for 2008-13 e.g. giving economic incentives to faculties hiring female professors.

Gender equality and the Danish research councils

The Danish Council for Independent Research has in particular emphasised gender equality in their work and practice. In 2013, the Danish Council for Independent Research commissioned a study on the role of gender in research and excellence mapping gender aspects and differences in the Danish research system with special focus on applications to and grants from the Danish Council for Independent Research. The study was followed by a conference on the role of gender in research and excellence. In 2013, the Council also adopted an equality policy. The policy set goals for both the success rates of grants awarded by the council and for the composition of the council itself and its subcouncils.

In 2014 the council presented a call for the new “Younger women Devoted to a University career Programme (YDUN-programme)” in order to stimulate the research careers of female researchers by encouraging them to apply for research funding at the council.

The council also issue gender divided statistics regarding the awarded grants.

Indicator	**Level/cluste**	**Value**	**Year**	**Source**

	r			
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	7.5 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	21.4 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	EU level	35.8 %	2013	ERA survey 2014

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Denmark is lower than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

The Danish Government supports open access. An Open Access Committee was appointed under the steering committee for Denmark's Electronic Research Library (DEFF). In March 2011 the Open Access Committee published recommendations for implementing of open access in Denmark (Danish Agency for Libraries and Media, 2011). Based on the recommendations, the Danish Government adopted a policy on open access to research articles in June 2014. The coordination and development of the national policy will be implemented by a national steering committee appointed by the Minister for Higher Education and Science in April 2014.

The implementation of Open Access is well under way among Danish universities, public research councils and foundations. In June 2012, public research councils and foundations

implemented a joint open access-policy. This policy advocates green open access and requires the deposit of a digital version of the research article to a repository after the article has been accepted. Furthermore, seven out of the eight universities in Denmark have introduced Open Access policies.

Related to open access to publications, initiatives exist at national level through soft requirements to foster the development of open access to scientific publications.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to publications	National level	88.9 %	2013	ERA survey 2014
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	7.1 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	9.9 %	2013	ERA survey 2014

The share of research funders in Denmark who responded to the survey and support Open Access to publications is higher than the EU average.

Within the ERA compliant cluster in Denmark, the share of publicly funded scientific publications in OA amongst research performing organisations is lower than within the EU ERA compliant cluster.

Concerning open access to data, in Denmark, there are no open access and preservation policies related to research data. Though, some initiatives relating to OA to data have been implemented. The awareness of OA is mainly within the research library community, but the interest in the topic is growing in the university administrations and research policy. Three

Danish universities have policies and other universities are engaging in on-going work regarding OA. Furthermore, in recent years it has been a requirement that researchers receiving grants from the Danish Research Council for Independent Research, must hand over their datasets to the Danish National Archives, which in turn have a an online platform for re-using researcher data and an advisory service to facilitate reuse of data. Though, the requirement to handover datasets is not enforced rigorously. Furthermore, all researcher datasets generated through Statistics Denmark are accessible online through Statistics Denmark after a waiting period. However, this does not include data that has been provided by the researchers themselves. It only applies to the registry data from Statistics Denmark.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting open access to data	National level	89.5 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	27.8 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	2.9 %	2013	ERA survey 2014

The share of research funders in Denmark who responded to the survey and support Open Access to data is higher than the EU average.

Within the ERA compliant cluster in Denmark, the share of research performing organisations making available on-line and free of charge publicly funded scientific research data systematically is lower than within the EU ERA compliant cluster.

Research infrastructures funded by the Ministry of Higher Education and Science are open to all Danish researchers. In principle this also includes the data which is generated from the research infrastructure.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to open innovation and knowledge transfer between public and private sectors, regulatory policies exist to support knowledge transfer between public research institutions and industry, the establishment of research-based enterprises and cooperation between public research institutions, associations and foundations.

Knowledge transfer is strongly embedded in the new Innovation Strategy Denmark adopted in 2013.

In conjunction with the establishment of the Danish Innovation Foundation in 2013, a broad evaluation of the knowledge cooperation between knowledge institutions and businesses is to be conducted during 2014 with the aim of assessing the need of new measures in the field.[NRP 2014]

In connection with the new innovation strategy the Danish Government has started a process that led to the creation of the first INNO+ catalogue presented in September 2013, which provides funding organisations with specific funding lines dedicated to the implementation of knowledge transfer.

There are several funding instruments targeted at increasing R&D cooperation between the business sector and public research organisations. Inter-sectoral mobility of researchers is high in Denmark in comparison to other EU-28 countries - approximately 80 % of the industrial PhD programmes contribute to improved mobility between universities and companies while only around 20 % of traditional PhDs gets positions in the private sector. Moreover, public-private knowledge transfer is ensured by the involvement of representatives from the private sector in the governance of higher education institutions. In several universities, the majority of board members are external members and some of them come from the private sector.

Strategic partnership and the definition of joint collaborative research agendas between academia and industry are supported by funding organisations in Denmark. Some examples may be illustrated by the following measures:

- Clusters - Innovation Network Denmark supports networking and matchmaking activities with the private sector

- Industrial Post-doc programme supports the implementation of research training agreements with private sector organisations

- Innovation Assistant (Knowledge Pilot) scheme supports structured programmes for placements in the private sector for researchers

- Innovation Voucher Scheme incentivises more SME's to require knowledge from research institutions

- The IPR Package developed by the Danish Patent and Trademark Office and the five regional Growth Houses supports IPR needs

There are also measures on technology transfer, science parks and university business incubators in Denmark.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	63.4 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	8.7 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	1.8 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014

Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national level)	68.4 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	22.9 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (national level)	68.4 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	0.6 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	0.3 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster	0.1 %	2013	ERA survey 2014

	(national level)			

The share of research funders in Denmark who responded to the survey and support national support to KT and OI, TTOs and Private Public interaction is lower than the EU average.

Within the ERA compliant cluster in Denmark, the share of research performing organisations having funding originating from the private sector is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Denmark, the share of research performing organisations having or using a structure for knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Denmark, the share of research performing organisations having dedicated staff employed in knowledge transfer activities is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Denmark, the share of research personnel whose primary occupation is in the private sector (in Full Time Equivalents) is lower than within the EU ERA compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation to the implementation of Digital ERA, Denmark has had a national research and education network – NREN – for a number of years which is essential to make digital services possible. For the last decade the Ministry of Higher Education and Science has also provided funding and an organisational structure for handling High Performance Computing (HPC) and Grid computing and other e-science matters. In recent years, the NREN and the HPC organisations have been merged into the Danish E-infrastructure Collaboration – DEIC – thereby creating one single governing board handling all e-infrastructure issues of national relevance. The mission and task of DEIC is to strengthen and facilitate e-Science collaboration, to contribute to coherence, synergy and cost-effectiveness, to ensure that Danish e-science is at a high international level, to formulate and implement strategies and initiatives, to develop new instruments for challenges regarding HPC, networks, storage, etc. and to support and coordinate training and counselling activities on e-Science.

DEIC is a collaboration between Universities, University Colleges and other educational and scientific institutions in Denmark plus the Ministry of Higher Education and Science. The establishment of a single entity creates a much more coherent e-science policy, more focus on total cost of ownership and needs of scientists. It also ensures that all matters of e-Science and E-infrastructure investment becomes a strategic priority of Danish scientific institutions.

Denmark's Electronic Research Library (DEFF) is an organisational and technological collaboration between the research libraries, the education libraries and the special libraries, co-financed and co-governed by the Ministry of Culture, the Ministry of Education and the Ministry of Higher Education and Science.

The objective of DEFF is to enhance the development of a network of electronic libraries that make their electronic and information resources available to the users in a cohesive and simple way.

DEFF funds joint development projects, development of the infrastructure and administers joint purchases of licenses. DEFF may provide subsidies for international activities. DEFF negotiates and signs contracts for electronic licenses on behalf of the research libraries.

Concerning digital services, the country provides Premium services.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	70.6 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	Limited compliance to ERA cluster (national level)	28.3 %	2013	ERA survey 2014

Within the ERA compliant cluster in Denmark, the share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Denmark was a member of an identity federation in 2011. The country is member of eduGAIN, a service intended to enable the trustworthy exchange of information related to

identity, authentication and authorisation between the GÉANT (GN3plus) Partners' federations.

In Danish academia a Single Sign-On system called WAYF (Where Are You From) has been established. WAYF permits using one single login to access several web based services. With the WAYF infrastructure, people from the research and educational sector in Denmark can reuse user name and password from their institution to access services outside the institution itself.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	2.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	2.4 %	2013	ERA survey 2014

Within the ERA compliant cluster in Denmark, the share of research performing organisations providing federated electronic identities for their researchers is lower than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 29 research performing organisations in Denmark answered the 2014 ERA survey, which represents 33.4% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Denmark shows that 16.0 % of them are in the ‘ERA compliant’ cluster, 56.0 % can be classified in the ‘limited compliance to ERA’ cluster and 28.0 % of organisations in the ‘ERA principles are not applicable’ cluster. However, when the organisations are weighted by the

number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 71.4 % for the 'ERA compliant' cluster, 28.2 % for the 'ERA limited compliant' cluster and 0.3 % for those organisations where ERA principles are not applicable.

It should be noted that the low results observed in several indicators for RPOs is due on the one hand to the absence of some important organisations among the ones which answered the survey. On the other hand, the organisations which answered the survey did not always provide the information requested for several issues (i.e. open access to publications, gender).

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Research and innovation system			
Innovation strategy "Denmark - Nation of Solutions"	2013	X	X
Project-based funding applying the core principles of international peer review			
Peer Review College of the Danish Council for Strategic Research	2012	X	
Institutional funding based on institutional assessment			
Forks2020 process	2013	X	X
New university funding model	2013	X	X
Finance Act Agreement	2013	X	X
RESEARCH2020 catalogue	2013	X	X
Interoperability, mutual recognition of evaluation results and other schemes			
Openness of National Research Council funding			
Funding schemes open to researchers abroad			
Funding provided by the Nordic Innovation Centre (NICE)	2012	X	
Money follows researcher (MFR) initiative in Denmark	2009		

Top-level Research Initiative	2008		
Collaboration agreements			
Strategic Research Alliance Strategic Network Project scheme			
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
National research infrastructure roadmap	2011		
Globalisation Fund	2006		
Access to research infrastructures of pan-European interest			
START-scheme			
Attractive careers			
Euraxess in Denmark			
Ministerial order on the appointment of academic staff at universities	2012	X	
Implementation of "Charter for Researchers" and "Code of Conduct for the Recruitment of Researchers"	2009		
The Charter and Code were debated by the Human Resources group, the Danish Committee of University Directors and the Danish Rectors' Conference.	2009		
Supporting structured innovative doctoral training programmes			
Industrial PhD Program	2002		
Gender balance in the decision-making process			
Council of Independent Research Conference on the role of gender in research and excellence	2013	X	X
Gender Equality Act (GEA) (revision)	2013	X	X
Younger women Devoited to a University career Programme	2014	X	X

Open access to publications and data resulting from publicly funded research			
Open Access Committee	2011		
Joint Open Access Policy	2012	X	
Open innovation and knowledge transfer between public and private sectors			
Globalisation Fund	2010		
Innovation strategy "Denmark - Nation of Solutions"	2013	X	X
Small and medium-sized businesses initiative for interaction between SMEs and knowledge institutions	2011		
Strategic Platforms for Innovation and Research (SPIR)	2010		
Act on Inventions at Public Research Institutions	1999		
Act on Technology Transfer at Public Research Institutions	2004		
National Network for Technology Transfer			
INNO+ Catalogue	2013	X	X
Harmonise policies for public e-infrastructures and associated digital research services			
Danish e-Infrastructure Cooperation (DeIC)	2012	X	

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

The Ministry of Education and Research (MER) and the Ministry of Economic Affairs and Communications (MEAC) share the overall responsibility for research and innovation (R&I) policy in Estonia. Both are responsible for strategic planning (including policy studies), implementing the policies in cooperation with the intermediate bodies, as well as supervising and evaluating the policy implementation. But, while MER is responsible for research and education policies, financing and evaluating research institutes and coordinating international cooperation in research, MEAC supervises support for and funding of industrial research and development (R&D), as well as planning, coordinating and implementing the innovation policy. Two permanent advisory bodies (the Research Policy Committee and the Research Competence Council) provide advice to MER, while the Innovation Policy Commission advises MEAC. In addition, the Research and Development Council (R&D Council) is an expert consultative body that advises the Government on R&D and innovation matters. All policy documents on the way for approval by the Government have to pass through this R&D Council.

Estonia has adopted a national strategy for R&I. Research, development and innovation (RD&I) strategic objectives and principles of management and financing are set in the new RDI Strategy (‘Knowledge-based Estonia’) for 2014-2020, launched in January 2014. This third RDI Strategy is supplemented by an implementation plan that provides a predictable policy framework for short and medium-term planning, via annual implementation plans, investment plans, etc. While the previous strategy primarily focused on developing Estonia's capability in RD&I, the new strategy for 2014-2020 focuses on tapping into the created potential and creates good framework conditions for developing and focusing on the social and economic effects of RD&I. In the setting of priorities, the methodology of smart specialisation served as a basis. The strategy identifies four key goals:

• For high-level and diverse Estonian research,

• For research and development (R&D) activity to be conducted in the interest of the Estonian society and economy,

• For R&D to make the structure of the economy more knowledge intensive,

• And for Estonia to be active and visible in international cooperation in RD&I.

In addition, the ‘Entrepreneurship growth strategy 2014-2020’ that focuses on innovation in enterprises and also covers also cooperation between enterprises and R&D institutions, was launched in October 2013.

It should also be noticed that the 2014 Country Specific Recommendation (CSR) for Estonia invites to 'Further intensify prioritisation and specialisation in the research and innovation systems and enhance cooperation between businesses, higher education and research institutions to contribute to international competitiveness'.

The Ministry of Education and Research (MER) and the Ministry of Economic Affairs and Communications (MEAC) share the overall responsibility for research and innovation (R&I) policy in Estonia. Both are responsible for strategic planning (including policy studies), implementing the policies in cooperation with the intermediate bodies, as well as supervising and evaluating the policy implementation. But, while MER is responsible for research and education policies, financing and evaluating research institutes and coordinating international cooperation in research, MEAC supervises support for and funding of industrial research and development (R&D), as well as planning, coordinating and implementing the innovation policy. Two permanent advisory bodies (the Research Policy Committee and the Research Competence Council) provide advice to MER, while the Innovation Policy Commission advises MEAC. In addition, the Research and Development Council (R&D Council) is an expert consultative body that advises the Government on R&D and innovation matters. All policy documents on the way for approval by the Government have to pass through this R&D Council.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Estonia represented EUR 110 per inhabitant in 2012 (EUR 179.2 in EU-28). In 2013, GBAORD per inhabitant was EUR 122.7. In 2012, total GBAORD corresponded to 2.12 % of total government expenditures and 0.84 % of Gross Domestic Product (GDP).

The analysis of the evolution of GBAORD in the period after the economic crisis (2007-2012) shows some differences. In nominal terms, the rate of growth of total GBAORD in Estonia was higher than the rate of growth of total EU GBAORD. In terms of R&D efforts, the rate of growth of GBOARD in Estonia, measured as a percentage of public government expenditure, evolved positively. In comparison, in the EU-27 the rate of growth of GBAORD, measured as a percentage of public government expenditure, evolved negatively. Finally, GBAORD as a share of GDP has evolved positively in Estonia even when it regressed at EU-28 level.

1.2. Project-based funding applying the core principles of international peer review

Concerning project-based funding, there are no official figures for Estonia. The main RD&I funders are MER and MEAC. Other ministries only count for less than 5 % of State funding. MER is mainly responsible for the funding of basic and applied research while MEAC is rather in charge of the funding of technology development and innovation. In 2012, the share of competitive versus institutional funding in the R&D national budget of MER was respectively 70 % (targeted financing and institutional research funding and European Training Foundation (ETF) grants and personal research funding) and 30 % (baseline funding and support to the maintenance of R&D infrastructures). Most of the funding from the MEAC budget is also competitive.

New (2012) competitive funding instruments are institutional research funding (EUR 22.97 million; 53 % of state budget) and personal research funding (EUR 7.22 million; 17 %). This means that, since 2013, only baseline funding (17 % of funding allocated directly to research institutions) was not based on competition, while support from European Union Structural Funds, being of temporary character, was not considered as a direct funding. Relevant

amendments were introduced in the Organisation of Research and Development Act in 2012. The implementation of the institutional research funding has however been challenging and still needs some adjustment. The MEAC funding instruments include a very high share from EU Structural funds. In 2011 and 2012, 64 % of all public sectors RDI funding was financed by Structural Funds, so the main regulation, which sets the rules is the 2007-2013 Structural Assistance Act and related acts and procedures, designed for special measures and funds. R&D national budget is channelled through four funding agencies. MER governs three of them: Archimedes Foundation, the Estonian Research Council (substituting the Estonian Science Foundation in March 2012) and the Innove Foundation, while MEAC governs the Enterprise Estonia Foundation. MEAC exerts also tutorship on Foundation KredEx, which offers financial services (loans, venture capital, credit insurance and guarantees with state guarantee) aimed at helping enterprises to develop quicker.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	89.4 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Estonia who responded to the survey and support project-based funding is higher than the EU average.

Allocated funds are mostly competitive and the evaluation on projects follows the international peer review core principles.

1.3. Institutional funding based on institutional assessment

Institutional part of public RDI funding from the state budget is rather limited in Estonia. In 2012, there were two main ‘block funding’: ‘baseline funding’ (EUR 7.16 million; 16 % of state budget) and ‘support to the maintenance of R&D infrastructures’ (EUR 6.07 million; 14 %). Criteria for allocating block funds for RDI institutions are set in the Organisation of Research and Development Act (introduced in 1997, last update in 2012).

Introduced in 2005, annual baseline funding is allocated to R&D institutions if they have received a regular positive evaluation using the following methodology: first 5 % is allocated to humanitarian research of national significance; the remaining 95 % is distributed according to the performance; 50 % in proportion with the number of high level publications in internationally-recognised journals, the number of high level research monographs and the number of registered patents and patent applications; 40 % in proportion with the amount of financing of R&D from other sources i.e. targeted research, commissioned by enterprises,

municipalities, ministries, etc. and 10 % in proportion with the number of doctoral graduates. Infrastructure expenses and institutional research funding are allocated to institutions whose R&D activities have received a regular positive evaluation in at least one field, as a threshold criteria giving right to present an application.

Annual baseline funding is allocated for strategic goals, co-financing foreign and domestic projects, opening up new research directions, etc. Since 2013, 'Support to maintenance of R&D infrastructures' has been included to institutional funding, entirely in the form of overhead expenses.

A regular evaluation of Estonian public organisations is carried out every 7 years by international experts. A threshold has been set to get access to the main research budgetary instruments. The evaluation is based on patents, publications, PhDs, etc. This applies to all institutions: universities, public research organisations and private organisations receiving institutional funding.

The Estonian Research Council manages the funding flows of the Ministry of Education and Research, such as institutional research funding for high-level R&D and related activities and personal and post-doctoral research funding for research activities of individuals or research groups. The Estonian Research Council is also responsible for national activities concerning the European Research Area (ERA), notably EURAXESS Services and serves as National Contact Point for Horizon 2020 and COST. Also governed by the Ministry of Education and Research, Archimedes Foundation is the implementing Agency of Structural Support for the periods 2007-2013 and 2014-2020 in the field of R&D. Enterprise Estonia Foundation and Foundation KredEx are operating under the premises of Ministry of Economic Affairs and Communication and provide support for innovation and technology programmes, for instance. The target groups of these foundations are mostly enterprises, but also public research performers are addressed in case of enterprise collaboration.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	5.5 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

The share of research funders in Estonia who responded to the survey and support institutional assessment for the allocation of institutional funding is lower than the EU average.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. Estonia launched the programme for the internationalisation of science in 2011 (EUR 10.4 million) with the aim to support joint activities such as sharing information, joint research agenda, joint calls, joint programming and also developing ex post evaluation procedures. Most joint-financing actions are regulated by the 2007-2013 Structural Assistance Act and by the Organisation of Research and Development Act. Joint financing is welcome and project partners are selected by excellence, not by country of origin. Universities and other R&D institutions are independent and can choose their partners from any country in the world.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	0.1 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	0.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Estonia allocated to transnationally coordinated R&D is lower than the EU average.

The share of responding funders' research and development budget in Estonia dedicated to jointly defined research agendas with other EU organisations is lower than the EU average.

Cooperation between the Institutions of Member States (MS), the Associated Countries and the third countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme (FP7), Estonia's share for contribution in total participation is 0.4 % and the country received 0.2 % of total EC contribution. FP funding represents EUR 61 per inhabitant (EU average EUR 72 per capita) for the period 2007-2013 and 6.7 % of the Gross Domestic

Expenditures on R&D (GERD) for the period 2007-2011 (last available data) (EU average 3.7 % of GERD for the same period).

Concerning joint programming initiatives, Estonia is participating in two of the 10 ongoing initiatives: Food Security, Agriculture and Climate Change and Cultural Heritage and Global change: a new challenge for Europe. Additional preparations for participation in several other initiatives are in progress.

In terms of programmes undertaken jointly by several MS (so called article 185 initiatives), Estonia was involved in three programmes: EMRP, Eurostars and BONUS. In Horizon 2020, the country is already involved in two of the four existing initiatives: EMPIR and Eurostars2.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 29 ERA-NETs, of which 11 are currently still running. The country also has participated in six ERA-NET Plus actions, of which 4 are still running, in areas with high European added value and additional EU financial support topping up their joint call for proposals.

International cooperation projects are funded by the Estonian Research Council in the framework of either bilateral (the PARROT programme with France, memoranda with the Russian Humanitarian Scientific Foundation and the US Civilian Research and Development Foundation) or pan-European initiatives (EUROCORES, ERA-NET, ARTEMIS, EMBO). There are agreements in place with Baltic and Nordic partners and several exchange programmes such as the Norwegian-Estonian Research Cooperation Programme for 2009-2014 and the Nordplus Programme of eight participating countries in the Baltic and Nordic regions.

Estonia has also concluded bilateral agreements in the field of education and research with the following EU and associated countries: Belgium, Bulgaria, Croatia, the Czech Republic, Cyprus, Denmark, France, Germany, Greece, Hungary, Italy, Poland, Romania, Slovenia, Spain, United Kingdom and Turkey. Trilateral agreements between Estonia, Latvia and Lithuania have been signed for the exchange of students, scientists and teachers (in force from 2012 to 2016) as well as a mutual understanding memorandum for cooperation in higher education, science and innovation (in force from 2013 to 2020).

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with third countries and regions, the country has not developed a specific policy. However, Estonia has the following bilateral agreements with third countries:

- With the United States: a general agreement on scientific and technological cooperation; specific agreements on cooperation in the fields of information technology and materials science and energy;

- With Russia in the field of humanities;

- With India in the field of biotechnology;

- With China in the fields of social sciences, physics condensed matter, genetic heredity, optics.

There are also bilateral agreements with Taiwan, Israel, Kazakhstan and Azerbaijan.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	0 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	Limited compliance to ERA cluster (national level)	0 %	2013	ERA survey 2014

Research funders in Estonia who responded to the survey indicated that they do not have measures supporting international cooperation with third countries.

Within the ERA compliant cluster in Estonia, the share of organisations' research and development budget originating from third countries is equal to 0.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

The mutual recognition of evaluations that complies with international peer-review standards is not supported.

The common funding principles proposed by the Commission for the implementation of Joint Programmes are not applied by the funding agencies in the country. In fact, Estonia has no directly relevant national legislation. Joint financing is welcome and project partners are selected by excellence, not by country of origin. Universities and other Research and Development institutions are independent and can choose their partners from any country in the world. Since 2002, world level research and cooperation is also promoted through the Centres of Excellence Programme.

Funding agencies do not implement Money follows cooperation, a scheme that enables small parts of a project funded by one of the participating research councils to be conducted in a different country. Although The Estonian Research Council has adhered to the Money follows researchers, a scheme that enables researchers to move 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, it has not yet been implemented since there have not been any relevant applications.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	46.8 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	0 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the	EU level	0.8 %	2013	ERA survey 2014

country				

The share of research funders in Estonia who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is higher than the EU average.

Research funders in Estonia who responded to the survey indicated that they do not allocate project-based funding based on peer-reviewed decisions made by non-national institutions.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Estonia participates in the following large international research infrastructures (RIs): European Space Agency (ESA) and European Fusion Development Agreement (EFDA). The country contributes 0.2 % of GBAORD to the activities carried out by Conseil Européen pour la Recherche Nucléaire (CERN), (Eurostat).

In terms of financial commitments to develop of these RIs included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap, Estonia is committed to fund six of them: CLARIN, ESS Survey, BBMRI, EATRIS, ELIXIR and the European Spallation Source.

With regards to participating in the European Research Infrastructure Consortium, Estonia is involved in four of the nine consortia that adopted the legal framework designed by the Commission to facilitate establishing and operating RIs of European interest involving several European countries: CLARIN-ERIC, EATRIS ERIC, ESS ERIC and BBMRI-ERIC.

In terms of support to develop and implement RIs, Estonia relies on its Research Infrastructures Roadmap 2010 (update planned for 2014), which is a long-term (10-20 years perspective) planning instrument. This roadmap lists RI units of national importance, which are either new or need modernising. It includes references to Estonia's participation in developing the RIs mentioned in the ESFRI roadmap. The budget for each component is provided in the investment plan for the sub-measure 'Modernising research infrastructure of national importance'. A number of RI investments supporting participation in international research infrastructures have been made from the Programme for the Internationalisation of Science.

3.2. Access to research infrastructures of pan-European interest

Regarding access to its RIs, Estonia has no national legislation that is directly applicable. The Estonian Research Infrastructures Roadmap 2010 itemises national interest in specific ESFRI projects, but does not deal with rules on access to facilities. In 2014, Estonia has created a funding instrument to support open access to national core facilities.

There are no large scale RI facilities with pan-European interest in Estonia and, therefore foreign researchers and R&D institution interests in using Estonian Research Infrastructures have not been great. For several years, Estonia has used the European Structural Funds for the development of Estonian R&D infrastructure. As a consequence of the substantial impact of this funding, quality improves every year. Thus, from the R&D infrastructure development investment plan, two facilities out of nine have been finalised, and from the Programme for the Internationalisation of Science, the development of three RIs were supported and there is the possibility of participating in several others.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Estonia in the Researchers' Report 2014
[http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Estonia_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 4 511 full time equivalent (FTE) researchers in Estonia in 2011. This represents 6.5 researchers per 1 000 labour force compared to 7.6 among the Innovation Union reference group (Innovation followers) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 51.1 in Estonia compared to 72.3 among the Innovation Union reference group and an EU average of 43.7.

In 2012, 63 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

The trend is to publish more on online platforms. According to the Organisation of Research and Development Act, §9 and University Act, §34, all regular teaching and research positions in R&D institutions have to be filled by public competition.

The selection criteria are published in the employment regulation rules of the universities, and are available on their websites. These rules are then referred to in the advert.

4.3. Attractive careers

In September 2011, the Rectors' Conference, representing all universities in Estonia, signed an 'Agreement on Good Practice Regarding Quality'. Point 10 of the Agreement refers to the implementation of the 'Charter & Code'.

In addition, in 2011, the Rectors' Conference participated in the second cohort of the European Commission Institutional Human Resources Strategy Group. The Estonian Research Council (previously Estonian Science Foundation) participates in the third cohort and four more R&D institutions are in the fourth cohort. The Estonian Research Council is conducting a national gap analysis which was under way in early 2014.

By May 2014, five Estonian organisations were involved in the Commission's Human Resources Strategy for Researchers.

In Estonia, funding has shifted from core to project-based funding. Therefore, the funding is oriented towards supporting high-level R&D to guarantee the consistency and sustainability of a research field in Estonia. The largest funding instruments are the institutional research funding and personal research funding. Institutional research funding enables R&D institutions to fund high-level R&D activities and to modernise and maintain the necessary infrastructure. Personal research funding is allocated for research activities of individuals or research groups. Both instruments are competition-based.

Doctoral candidates have access to health insurance, but are not eligible for sickness and unemployment benefits or pensions, unless they are hired by the university under an employment contract. In that case, they benefit from full social security coverage. Since 2012, the state has encouraged and supported universities in hiring doctoral students as early-stage researchers despite the fact that most of the doctoral candidates are already working, not necessarily as researchers, and receive full social security coverage as employees.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged between 25 and 34 was 1.3 in 2011 compared to 1.6 among the Innovation Union reference group and an EU average of 1.7.

The Estonian Government focuses on enhancing of the quality and efficiency of doctoral studies by organising doctoral schools, mobility opportunities for both incoming and outgoing researchers, and developing of entrepreneurship (by introducing economic courses and modules for non-business students in all three university circles).

Doctoral schools were set up in 2005. In 2009, 13 new doctoral schools were selected for the period 2009-15. Their aim is to improve the quality of doctoral candidate tutoring and to increase the efficiency of doctoral studies in Estonia through interdisciplinary, international and national cooperation. Apart from mobility opportunities, winter and summer schools and study programmes, doctoral schools propose transferable and social skills training to promote interdisciplinary research and enhance cooperation between universities and the private sector.

From 2010, students who have interrupted their doctoral studies are welcome to continue and finish their studies (i.e. they are given a second chance). Those resuming doctoral studies may participate in doctoral schools. These help them find supervisors and participate in summer schools, conferences and mobility activities provided by doctoral schools. At least two

partners need to be involved. They can be an Estonian university, an R&D institution, the public sector or companies. Doctoral schools are project-based and are funded by the European Social Fund.

The measures introduced by the Estonian Government in support of doctoral training during the 2013-2017 programming period covers activities up to 2015. New initiatives under the new R&D&I strategy are in the development phase, but doctoral studies will definitely be a key priority in research human resource policies.

4.5. International and inter-sectoral mobility

In 2011, the percentage of doctoral candidates with citizenship of another EU-27 MS was 5.6 % in Estonia compared to 18.4 % among the Innovation Union reference group and an EU average of 7.7 %. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 4.2 % in Estonia compared to 16.9 % among the Innovation Union reference group and an EU average of 24.2 %.

The DoRa Doctoral Studies and Internationalisation Programme (2008-15) targets Master and doctoral students and academic staff who are already working or studying at Estonian higher education institutions or are planning to do so:

- Activity 2: Encouraging short-term visits for outgoing Estonian teaching staff for 1-6 months (eligible expenditures include a salary, travel expenses and a relocation allowance);

- Activity 6: Developing international cooperation networks by supporting the mobility of Estonian doctoral students for 1-5 months (eligible expenses are living allowance, a travel grant);

- Activity 7: Strengthening the international dimension in higher education by supporting the mobility of Master's students for 1-6 months (eligible expenses are a living allowance and a travel grant);

Activity 8: Supporting the participation of young researchers in the international exchange of knowledge for 3-21 days (eligible expenses are the participation fee, travel expenses, living allowance, etc.)

The SPINNO Programme (2007-2013) was launched by MEAC to promote cooperation between R&D institutions and enterprises. It also supports knowledge- and technology transfer in Estonian research institutions. The programme is co-financed by the European Union Structural Funds through Enterprise Estonia . The total budget was EUR 7.7 million.

5. GENDER

5.1. Foster cultural and institutional change on gender

Gender equality in public research in Estonia falls under the Gender Equality Act (adopted in 2004, latest amendments in 2013), which promotes policies addressing gender balance and encourages the State, local governments, agencies, educational and research institutions, and

private companies to support gender equality. However, the Estonian Government has not introduced specific gender quotas in support of gender equality either in the public or in the private sector. Excellence remains the main criterion for researchers to receive funding and to participate in decision-making bodies. Gender equality in the research sector is not a sensitive issue in Estonia because of gender balance which is already satisfactory: there is almost the same number of women (49 %) and men (51 %) among researchers and engineers. However, in the Estonian Research and Development and Innovation Strategy 2014-2020 'Knowledge-based Estonia', the one goal is to pay more attention to guarantee equal opportunities in terms of gender, including positions, grant decisions and steering committees.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014

Research funders in Estonia did not indicate any existing support to national policies on gender equality in public research.

Even though a proactive gender equality research policy is missing in Estonia, female researchers are paid by the State during maternity leave. Since 2007, fathers have had the right to receive a 'parental benefit' once the child is seventy days old. However, if a researcher is part of a project team and the project ends during the parental leave, it is up to the host institution to find an available research position in which to employ the researcher. Additionally, there are some opportunities in financing system that support equal possibilities for women to apply for a grant. When awarding grants, periods when a person is on parental leave are taken into account when analysing the eligibility criteria as part of the total number of years after obtaining a PhD degree. For men, the time spent under military duty is also taken into consideration. There are also special measures for post-doctorate grants of ERMOS and Mobilitas, when the State is ready to support the holder of the grant also after the nominal time is ended, if the grant actions are not fulfilled or stopped for certain reasons like having a child.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations implementing recruitment and	ERA compliant cluster (EU	53.5 %	2013	ERA survey 2014

promotion policies for female researchers	level)			
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	11.8 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	3.2 %	2013	ERA survey 2014

Within the ERA-compliant cluster in Estonia, the share of research-performing organisations implementing recruitment and promotion policies for female researchers is lower than that within the EU's ERA-compliant cluster.

In terms of funding of initiatives on gender equality, the programme 'Advancing Gender Equality 2011-2013' was introduced and is still ongoing.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the inclusion of gender dimension in research content	National level	0 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	75.1 %	2013	ERA survey 2014

Share of responding research performing organisations which include the gender dimension in research content	Limited compliance to ERA cluster (national level)	0.2 %	2013	ERA survey 2014

The share of research funders in Estonia who responded to the survey and support gender dimension in research content/programmes is lower than the EU average.

Within the ERA-compliant cluster in Estonia, the share of research-performing organisations that include the gender dimension in research content is higher than that within the EU's ERA-compliant cluster.

5.2. Gender balance in the decision-making process

Regarding gender balance in public research decision making, the Estonian Government has not introduced any specific gender quotas.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	9.1 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	27.3 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	15 %	2013	ERA survey 2014
Share of gender-balanced research	EU level	35.8 %	2013	ERA survey

evaluation panels amongst responding research funding organisations				2014

Within the ERA-compliant cluster in Estonia, the share of gender-balanced recruitment committees for leading researchers in research-performing organisations is lower than that within the EU's ERA-compliant cluster.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Estonia is lower than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

In terms of support to open access, the legal basis ensuring open access and preservation of scientific information is set up in the Organisation of Research and Development Act under conditions for institutional and personal research funding (relevant amendments to the act in force since 2012), which state free access to the results of publicly-funded research. In the framework of the main research funding instruments, the conditions/requirements for open access are therefore set up and the open access policy is in place. It requires researchers to publish in open access; both the green and gold open access models are supported.

According to the regulations on institutional research funding (Estonian Ministry of Education and Research) and personal research funding (Estonian Research Council), any publication arising from supported research project or research grant is required to be deposited into the Estonian Research Information System (ETIS). The researchers are responsible for providing the publication metadata (i.e. journal name, title, author list, volume, issue, page numbers etc.) and an appropriate copy of the publication immediately. Self-archiving of the full texts of publications is mandatory but access can be restricted for internal use until the end of the publisher’s embargo. Impact factors of journals are not taken into account when evaluating research output of research institutions or individual researchers. The open access policy has therefore no direct impact on the researcher's career. Through the number of citations and H-factors, the impact of publications is however indirectly taken into account when evaluating applications.

Related to publications, access to scientific information is not a problem for Estonian scientists as the Consortium of Estonian Libraries Network (established in 1996, statute renewed in 2011) and the research libraries have created very good conditions and access to scientific journals and electronic databases for national researchers, which is probably why Estonian researchers do not feel the need for specific open access policies. In addition, the current research funding conditions favour publishing in journals with a high impact, but they are not usually open access journals.

The length of embargo depends on publisher and publication channels, and is currently not set by the funder. The academic freedom to choose appropriate publication channels is acknowledged, so there is no pressure to publish in so called Gold Open Access journals.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to publications	National level	96.9 %	2013	ERA survey 2014
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	20.5 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	4.9 %	2013	ERA survey 2014

The share of research funders in Estonia who responded to the survey and support open access to publications is higher than the EU average.

Within the ERA-compliant cluster in Estonia, the share of publicly-funded scientific publications in open access amongst research performing organisations is higher than that within the EU's ERA-compliant cluster.

Concerning open access to data, there is no specific policy, except for the Programme of Electronic Scientific Information (launched in 2009), which aims to supply the Estonian R&D institutions with scientific information and to acquire access to the scientific information and electronic publications for the Estonian research libraries and organisations. The programme period is 2010-2014. There are some plans to take into account open access to data, but it is not yet included as a criterion in the funding decisions and evaluations.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to data	National level	43.7 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	12.8 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	6.9 %	2013	ERA survey 2014

The share of research funders in Estonia who responded to the survey and support Open Access to data is higher than the EU average.

Within the ERA-compliant cluster in Estonia, the share of research-performing organisations making available online and free of charge publicly-funded scientific research data systematically is lower than that within the EU's ERA-compliant cluster.

The Estonian e-repository programme (launched in 2011) is an integrated e-environment created for long-term preservation and availability of digitised resources of the Estonian cultural heritage institutions: libraries, archives and museums. The e-repository enables to link national heritage collections with the pan-European library EUROPEANA.

The Estonian Research Information System (ETIS; established in 2006) is developed in a way that would allow it to be used as an open repository, so that the results of research receiving public funding are easily identifiable by appropriate technical means, including through meta-data attached to electronic versions of the research output.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to open innovation and knowledge transfer between public and private sectors, Estonia has developed a knowledge transfer strategy. The RDI Strategy 2007-2013 'Knowledge-Based Estonia' and Estonian Strategy for Competitiveness 'Estonia 2020' (launched in 2010) has given the framework for fostering open circulation of knowledge between companies and research organisations. With the support of the Enterprise Estonia Foundation, specific attention has been paid creating technology transfer capacity in universities.

Technology transfer is encouraged including the patenting of information into the evaluation and funding of the universities. The basic funding of research institutions is therefore based on performance indicators, also taking into account indicators for knowledge transfer, patent applications, patents and contract research.

A number of measures to facilitate the partnerships and productive interactions between research institutions and the private sector have been implemented since 2008-2009. Counselling on measures is also provided in county development centres. The following measures are funded by MEAC and implemented by the Enterprise Estonia Foundation:

- Cluster development programme;
- Knowledge and technology transfer baseline funding (SPINNO Programme);
- Programme 'Start-up Estonia' for new innovative enterprises.

For the next programming period, two strategies have been prepared in parallel, to ensure a coherent R&D policy. In October 2013, the new Entrepreneurship Growth Strategy 2014-2020 was launched, and in January 2014, the new RDI strategy for 2014-2020. Both focus even more on the co-operation between enterprises and R&D institutions.

Through technology transfer capacities in universities and county development centres, funding organisations support the professionalisation of knowledge transfer activities, a necessary condition to increase the rate of success of the strategy.

Strategic partnerships and/or the definition of joint collaborative research agendas between academia and industry are not supported by funding organisations in Estonia.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	83 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its	EU level	82.9 %	2013	ERA survey 2014

institutional and/or project-based funding				
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	3.7 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	1.8 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national level)	87.9 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	1.4 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having	ERA compliant	76 %	2013	ERA survey 2014

dedicated staff employed in knowledge transfer activities	cluster (national level)			
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	1.4 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	0.4 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	0.9 %	2013	ERA survey 2014

The share of research funders in Estonia who responded to the survey and support KT and OI, TTOs and Private Public interaction is higher than the EU average.

Within the ERA-compliant cluster in Estonia, the share of research performing organisations having funding originating from the private sector is lower than that within the EU's ERA-compliant cluster.

Within the ERA-compliant cluster in Estonia, the share of research-performing organisations having or using a structure for knowledge transfer activities is higher than that within the EU's ERA-compliant cluster.

Within the ERA-compliant cluster in Estonia, the share of research-performing organisations having dedicated staff employed in knowledge transfer activities is lower than that within the EU's ERA-compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation with the implementation of the Digital European Research Area (ERA), Estonia has not set up any strategy. However, on 1 May 2013, the Tiger Leap Foundation, the Estonian Education and Research Network and the Estonian Information Technology Foundation merged with the 'Estonian Information Technology Foundation for Education' (HITSA). The mission of HITSA is to provide a high-quality national network infrastructure for Estonia's research, educational and cultural communities. Its services include a permanent Internet connection, as well as webhosting, an e-mail, consultations in the event of security problems, etc.

In addition, the 'Estonian higher education information and communications technology and R&D activities State programme 2011-2015' is a cooperation programme implemented by HITSA, between universities, the information and communication technology (ICT) sector and the State aimed at raising the quality of ICT and developing cooperation between different partners.

Concerning digital services, Estonia provides Cloud services and Premium services (Consultancy, NREN service implementation support, and others). Access to digital research services is possible via 'E-teadusinfo' (launched in 2009) and access to publications is possible in all public libraries by using usernames and passwords. EENet is the Estonian National Research and Education Network, a specialised Internet service provider dedicated to supporting the needs of research and education communities within the country.

From a more general point of view, e-identity systems are very well developed in Estonia; identification is ensured through the ID card and it is quite widely applied.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	76 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud	Limited compliance to ERA	6.3 %	2013	ERA survey 2014

services, research collaboration platform, etc.)	cluster (national level)			

Within the ERA-compliant cluster in Estonia, the share of research-performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than that within the EU's ERA-compliant cluster.

6.4. Uptake of federated electronic identities

EENet is the Estonian National Research and Education Network, a specialised Internet service provider dedicated to supporting the needs of the research and education communities within the country. Since 2013, EENet has become part of the HITSA. Functioning via EENet, the Estonian Academic Authentication and Authorization Infrastructure (TAAT) enables electronic identities (user accounts) issued by education or research institutions to be used to access several web-based services. In June 2013, the policy document of eduGAIN, a service intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GEANT (GN3plus) Partner federations, was signed by EENet on behalf of TAAT and Estonia became a partner of eduGAIN.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	76 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	5 %	2013	ERA survey 2014

Within the ERA-compliant cluster in Estonia, the share of research-performing organisations providing federated electronic identities for their researchers is higher than that within the EU's ERA-compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 16 research performing organisations in Estonia answered the 2014 ERA survey, which represents 60.3% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Estonia shows that 20.0 % of them are in the 'ERA compliant' cluster, 66.7 % can be classified in the 'limited compliance to ERA' cluster and 13.3 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 88.1 % for the 'ERA compliant' cluster, 10.0 % for the 'ERA limited compliant' cluster and 1.9 % for those organisations where ERA principles are not applicable.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Project-based funding applying the core principles of international peer review			
Reform of national funding schemes	2012	X	
Conditions and Procedure for Evaluation of Research and Development Institutions	2009		
The Research and Development Organisation Act - amended in 1997, 2009 and 2012	1995		
Institutional funding based on institutional assessment			
Conditions and procedure for applying for, awarding and amending the amount of institutional research funding	2011		
Quality Agreement of Estonian Universities	2011		
Personal Research Funding	2012	X	

Improving the competitiveness of Estonian R&D through the research programmes and modernisation of higher education and R&D institutions	2007		
New RDI Strategy ("Knowledge-based Estonia") for 2014-2020	2014	X	X
Organisation of Research and Development Act (last amendment in 2012)	1997		
Research and Innovation Policy Monitoring Programme 2011-2015 (TIPS Programme)			
Information Technology Foundation for Education	2013	X	X
Organisation of Research and Development Act - amendment 1997 and 2009	1995		
Detailed conditions and procedure for applying for, conducting and approving the result of regular evaluation of research and development	2012	X	
Implementing joint research agendas			
The Programme for the Internationalisation of Science	2011		
Implementation Plan for achieving the objectives of Estonian Research and Development and Innovation Strategy 2007-2013 "Knowledge-based Estonia" in 2012-2013	2011		
Swiss-Estonian Research Cooperation Programme for 2009-2014	2009		
Nordplus Programme	2012	X	
Centres of Excellence Programme	2012	X	
Norwegian-Estonian Research	2009		

Cooperation Programme for 2009-2014			
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
Estonian Research Infrastructures Roadmap 2010 (to be updated in 2014)	2010		
Attractive careers			
Universities Act	2012	X	
Programme for Cooperation and Innovation between Higher Education Establishments	2012	X	
Programme Mobilitas	2008		
The conditions of and procedure for the election of academic research professors	2002		
Agreement on Good Practice in the Internationalisation of Estonia's Higher Education Institutions	2007		
Programme ERMOS	2010		
Aliens Act (amended 2013)	1996		
EURAXESS Service Centres - Agreement of good practice			
Standard of Higher Education (amendment in 2012)	2008		
Gender balance in the decision-making process			
Gender Equality Act - amended in 2012	2004		
Programme "Advancing Gender Equality"	2011		
Open access to publications and data resulting from publicly funded research			
Organisation of Research and	2012	X	

Development Act			
Estonian e-repository programme	2011		
Principles for the preparation of a uniform collection plan for research libraries and the procedure for application for financing the acquisition of research information for research libraries, for the review of applications and for making financing	2012	X	
The Programme of Electronic Scientific Information	2009		
Innovation voucher grant	2009		
Estonian Research Information System	2006		
Open innovation and knowledge transfer between public and private sectors			
Programme "Start-up Eesti"	2011		
Knowledge and technology transfer baseline funding (SPINNO Programme)	2008		
Cluster development	2009		
Harmonise policies for public e-infrastructures and associated digital research services			
Consortium of Estonian Libraries Network (statute renewed in 2011)	1996		
State Program 2011-2015 on higher education information and communication technology and research and development activities	2011		
Uptake of federated electronic identities			
E-teadusinfo	2009		
eduGAIN (Membership)	2013	X	X

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

Research and innovation (R&I) policies are the responsibility of the General Secretariat for Research and Technology (GSRT), a policy design and implementation agency, and the National Council of Research and Technology (NCRT).

The Ministry of Education, Life Long Learning and Religious Affairs is the main R&D policy body. Within the Ministry, the design and implementation of the research, technology development and innovation (RTDI) policy is carried out by the GSRT that is also responsible for supporting, supervising and financing the research activities of research institutes and of its productive industry, of representing the country within the European Union, promoting cooperation in the areas of research and technology, and monitoring the national research institutions. The GSRT is also the main research funding organisation in Greece.

NCRT is the supreme State body for formulating and implementing the national policy for research, technology and innovation. NCRT proposes main R&D guidelines in the area of research and technology, assesses candidacies for directorship appointments in national research organisations, gives opinions to the Ministry of Education and Religious Affairs on the selection of directors in national research organisations, as well as on issues raised by the Ministry of Education and Religious Affairs.

An Innovation Council was created in December 2013.

The NDC is the national organisation for the documentation, information and support in the areas of research, science and technology. Notably, the centre is responsible for creating and disseminating Greek scientific databases online, structuring and disseminating the National Archive of PhD theses, developing and providing software for the electronic operation of national libraries and their web links with Greek and international scientific databases and creating a Library Network.

The R&I policy is planned for a period of seven years following the cycle of the European Structural Funds. Universities are key players followed by research centres, and the business sector plays a limited role.

Greece’s research and technology system is centralised and dominated by the public sector in terms of funding and performance.

The responsibility of funding research is divided between the Ministry of Education and Religious Affairs and the Ministry of Development and Competitiveness, the latter having the overall responsibility for supporting regional development in general, including entrepreneurship and partly (recently) innovation. The Ministry of Development and Competitiveness is currently managing the National Strategic Reference Framework (NSRF), which is the main funding source for R&I. Funds coming from the Regional Operational Programmes is typically under the responsibility of the Regional Councils.

Frequent changes in research, development and innovation (RDI) legislation indicates a weak governance. Yet another RDI law is about to be released following a public consultation in December 2013, aimed at addressing existing weaknesses. The law defines the bodies that will be responsible for designing the new RTDI strategy and establishing a new department within the Ministry of Education and Religious Affairs for designing and monitoring actions related to the national RTDI strategy and its implementation and coordination. Also, a new simplified administrative management system is foreseen in the period 2014-2020.

In 2007, the country adopted a national strategy for R&I, following the Structural Fund programming cycle 2007-2013. It is described in the 'Strategic Development Plan for Research, Technology and Innovation' (SDP) and the operational programme (OP) 'Competitiveness and Entrepreneurship'. Further to a consultation process in 2012 the GSRT and the National Council are elaborating the new National Strategic Framework for Research, Technological Development and Innovation that would run up to 2020.

The GSRT is developing a new National Strategy for Research and Innovation, that will build on the competitive advantage of Greece in certain research areas at European and international level and will try to maximise its potential, through R&D investment on strategic, national priority areas, and will foster innovation and entrepreneurship.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Greece represented EUR 66 per inhabitant in 2012, less than half the EU-28 average (EUR 179). In 2013, GBAORD per inhabitant declined slightly (EUR 64). In 2012, total GBAORD corresponded to 0.7 % of total government expenditures and 0.4 % of Gross Domestic Product (GDP)(Eurostat).

The analysis of the evolution of GBAORD in the period after the economic crisis (2007-2012) shows some differences. In nominal terms, the rate of growth of total GBAORD in Greece is higher than the rate of growth of total EU GBAORD. In terms of R&D efforts, the rate of growth of GBOARD in Greece, measured as a percentage of public government expenditure, evolved negatively, but less negatively than the evolution observed at EU-27 level. Finally, GBAORD as a share of GDP has regressed more in Greece than the regression observed in the EU-28.

Most of the government funding in 2012 was directed to the higher education sector (EUR 377.3 million) and to public research organisations (EUR 257.3 million). Funding from the BES (Business Enterprise Sector) was at EUR 414.8 million at the end of 2012, compared to EUR 455.5 million at the end of 2011 (8.9 % decrease). In the same period, funding from higher education institutions (HEIs) decreased by 17 %.

A significant feature of the Greek national R&D system is the high share of funding from abroad amounting to about 16% of GERD (2012). This funding comes from the Seventh Framework Programme for Research (FP7) and Structural Funds, the former contributing slightly more than the latter.

The main bulk in research takes place within the higher education sector.

There has been a systematic increase of competitive funding compared to block funding. All competitive research programmes are supported by the EU Structural Funds.

1.2. Project-based funding applying the core principles of international peer review

The GSRT manages the project-based funding. One of its units, namely the 'Special Service for Coordination and Implementation of R&D and Innovation measures', issues the calls for proposals and evaluates them.

Law 3777/2009 (art.18), amending Presidential Decree 274/2000 on 'Terms, conditions and process of funding (subsidy or aid) of projects and programmes submitted by industrial or other production units' set the principles for competitive funding.

Competitive funding in the programming period 2007-2013 was channelled by the NSRF, which is co-financed by the Structural Funds. The two concrete instruments for project funding are the following:

- Research programmes: Heraclitus II funding PhDs (total budget EUR 39.6 million); Thales funding research networks (total budget EUR 120 million); Archimedes III focusing on TEIs (total budget EUR 21 million), post-doctorate research (EUR 30 million) and research projects implemented by a primary investigator (EUR 60 million); Collaboration supports collaborative research by private companies and public research organisations (EUR 229 million); 'Support for R&D in groups of small and medium-sized enterprises (SMEs)' finance research projects implemented by groups of SMEs collaborated with public research organisations, technology transfer organisations and technology suppliers (EUR 23.7 million); 'Support for R&D in new firms' finance small to medium research projects implemented by new companies with subcontracting to public research organisations (EUR 11.3 million).

- Research networks: includes the support of the existing Innovation Poles and the creation of new ones, the Innovation Zone in Thessaloniki and the research funding within the Microelectronics Cluster 'Corallia' (EUR 33 million).

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	75.5 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Greece who responded to the survey and support project-based funding is higher than the EU average.

The core principles of international peer review are applied by all research funding institutions in Greece. These principles are excellence, impartiality, transparency, appropriateness for purpose, efficiency and speed.

Research proposals and the assessment of the research programs are evaluated using the peer review system by the GSRT. The evaluators are scientists selected either from an official registry or the 'Web of Science'. All non-block funding is distributed via calls for proposals from the GSRT and all these calls are competitive and evaluated by national and international experts. The beneficiaries are selected on the basis of the ranking after the evaluation.

The new research, development and innovation (RD&I) law proposes new evaluation methods for research organisations.

1.3. Institutional funding based on institutional assessment

Institutional funding for Higher Education Institutions is not systematically allocated based on an institutional assessment. It is mostly based on an algorithm that takes into consideration quantitative aspects, such as the number of HEIs and Research Organisations (Ros) students. There are no laws or soft law measures requiring that institutional funding is allocated on a competitive basis. There is also no information available regarding the percentage of institutional funding allocated on a competitive basis.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	National level	0 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

Research funders in Greece who responded to the survey indicated that they do not have measures supporting institutional assessment for the allocation of institutional funding .

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives.

Common research agendas are mainly driven by EU-supported schemes. Greek research teams participate extensively in several EU initiatives and often play an important role in research agendas for grand challenges. Policy actions supporting joint activities are implemented in the context of INCOERAnets.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	1.9 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	0.9 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Greece allocated to transnationally coordinated R&D is lower than the EU average.

The share of responding funders' research and development budget in Greece dedicated to jointly defined research agendas with other EU organisations is lower than the EU average.

Cooperation between institutions of Member States (MS), Associated Countries and third countries is fostered by the Framework Programme (FP). In the Seventh Framework Programme (FP7), the share of participation of Greece in total participation is 3.2 % and the country received 2.5 % of total EC contribution. FP funding represents EUR 83 per inhabitant (EU average EUR 72 per capita) for the period 2007-2013.

Concerning joint programming initiatives, the country participates in five of the 10 on-going initiatives. These initiatives are Neurodegenerative diseases (Alzheimer), Cultural Heritage and Global Change: a new challenge for Europe, Antimicrobial resistance - An emerging threat to human health, Water Challenges for a Changing world, and Healthy and Productive Seas and Oceans.

In terms of programmes undertaken jointly by several MS (so called Article 185 initiatives), the country was involved in five programmes. In Horizon 2020, the country is already

involved in two of the four existing initiatives: EMPIR, Eurostars2. In addition, Greece would like to join AAL2.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular the preparation and implementation of joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 54 ERA-NETs, of which 20 are currently still running. The country has also participated in two ERA-NET Plus actions, of which one is still running, in areas with high European added value and additional EU financial support topping up their joint calls for proposals.

Concerning research agreements with EU MS and/or Associated Countries, Greece has bilateral agreements, notably with France, Israel, Germany, Turkey and Cyprus.

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with third countries and regions, Greece has bilateral agreements with China and Israel.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	1 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	1.6 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing	Limited compliance to ERA	0.3 %	2013	ERA survey 2014

organisations originating from third countries	cluster (national level)			

The share of responding funders' research and development budget in Greece allocated to collaboration programmes carried out with third countries is lower than the EU average.

Within the ERA compliant cluster in Greece, the share of organisations' research and development budget originating from third countries is higher than within the EU ERA compliant cluster.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

Greece has policies in place to facilitate the cross-border interoperability of national programmes. Foreign natural and legal persons are eligible to perform projects, carry out studies and implement programs and actions to promote research, technological development and innovation in Greece. The funding conditions and procedures are defined on an ad-hoc basis by a Presidential Decree prepared with the help of the GSRT.

A mutual recognition of evaluations that conform to international peer-review standards is supported in Greece by Law 3653/2008, notably in ERANETsplus, EUREKA and other activities coordinated by the EC. There are provisions to ensure the mutual recognition of evaluation results in all the bilateral agreements that Greece has with MS and Associated Countries.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	National level	98.1 %	2013	ERA survey 2014
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the	National level	5 %	2013	ERA survey 2014

country				
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

The share of research funders in Greece who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is higher than the EU average.

The share of responding funders' project-based research and development budget in Greece allocated through peer review carried out by institutions outside the country is higher than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

EL participates in the following large international research infrastructures (RIs): Europeean Space Agency (ESA), Conseil Européen pour la Recherche Nucléaire (CERN), European Fusion Development Agreement (EFDA), and European Molecular Biology Laboratory (EMBL). In 2012, the country contributed 2.2 % of GBAORD to the activities carried out by CERN, EMBL, the European Southern Observatory (ESO), the European Synchrotron Radiation Facility (ESRF), the Institut Laue-Langevin (ILL) and the European Commission's Joint Research Centre (JRC) (Eurostat).

In terms of participation to the development of RIs included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap, the country participates in the preparatory phase of 25 of them.

In terms of financial commitments to developing these RIs, Greece is committed to fund 14 of them. They are: CESSDA, CLARIN, DARIAH, SHARE-ERIC, EMSO, EURO ARGO, LIFEWATCH, HIPER, BBMRI, EATRIS, INFRAFRONTIER, ELI, KM3NeT, PRACE (ex HPC).

With regards to participating in the European Research Infrastructure Consortium, Greece is involved in four of the seven consortia that adopted the legal framework designed by the Commission to facilitate establishing and operating Ris of European interest involving several European countries. Greece is member of SHARE-ERIC, CLARIN ERIC, EURO-ARGO ERIC and BBMRI-ERIC.

Greece has a national strategy of RIs that addresses the need for upgrading the existing infrastructures and identifying new ones.

In 2013, GSRT launched a call for creating a National Roadmap of Research Infrastructures, that includes identifying RIs of national interest and ESFRI projects. The process is expected to be concluded in 2014. Financial commitments are expected to be formulated soon after.

The annual budget allocated to Ris of pan-European interest is EUR 310.5 million, whereas the allocation to ESFRI-related roadmaps is EUR 27.87 million (XFEL EUR 4 million; DARIAH, BBMRI and EATRIS EUR 5.7 million; CESSDA EUR 0.87 million; EMSO EUR 3.7 million; EURO-ARGO EUR 0.8 million; INFRAFRONTIER EUR 3.9 million; PRACE EUR 3.5 million; LIFEWATCH EUR 3.7 million; HIPER EUR 2 million and ELI EUR 3.4 million).

3.2. Access to research infrastructures of pan-European interest

Among the research infrastructures coordinated by Greece, access to 14 of them has been funded by the European Commission.

Financial support is provided for inward cross-border access to RI through the programme 'Career offer to Greek-speaking researchers from abroad' that gives grants to foreigner Greek speakers, and through the programme for incorporating foreign PhD researchers into the Greek RTD system. In addition, Law 2004/2011 enables national researchers to take a sabbatical leave for up to three years to participate in research projects abroad. An estimated 10 % of researchers make use of this opportunity.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

A detailed report can be found in the country profile for Greece in the Researchers' Report 2014 [http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Greece Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 24 674 FTE researchers in Greece in 2011. This represents 5.0 researchers per 1000 labour force compared with 5.3 among the Innovation Union reference group (Moderate Innovators) and an EU average of 6.7.

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 80.7 in Greece compared with 39.9 among the Innovation Union reference group and an EU average of 43.7

In 2012, 45 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).

In Greece, the major remaining barrier to the openness and transparency of the recruitment system is the language. Until recently, higher education institutions published job vacancies only in Greek and on their own websites without making use of the EURAXESS Jobs portal. Language is an issue not just because of publishing vacancies in English but also because in the universities, knowledge of the Greek language is compulsory (in research institutes it is not always the case). However, thanks to the efforts of EURAXESS-GR, with the help of the General Secretariat for Research and Technology, there has been a great improvement within the last two years

4.3. Attractive careers

In October 2010, the 65th Rectors' Assembly unanimously adopted the 'Charter & Code' encouraging all Greek higher education institutions to sign it and recognise it as the tool to promote their human resource strategies. The Law 4009/2011 strongly promotes the 'Charter and Code' principles on excellence and innovation. In practice, eight Universities (University of Crete, University of Ioannina, University of Thessaly, University of Macedonia, University of Patras, University of the Aegean, the International Hellenic University and the Aristotle University of Thessaloniki), the Greek Rectors' Conference, two Research Centres (the National Hellenic Research Foundation and the Centre for Research and Technology Hellas) as well as the Euroscience Association and the Marie Curie Fellows Association have already signed and are currently implementing the 'Charter & Code' principles.

By May 2014, 9 organisations were involved in the Commission's Human Resources Strategy for Researchers of which 2 had received the "HR Excellence in Research" logo for their progress in implementing the Charter & Code.

The planned new Law for Research, Technology and Innovation develops mechanisms for the career development of researchers, and especially, women.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged 25-34 was 1.1 in 2011 compared with 1.2 among the Innovation Union reference group and an EU average of 1.7.

Higher education institutions have the possibility to increase the quality of doctoral training trough collaboration with national and international higher education and research institutions (Part IV of Law 4009/2011). Some PhD programmes explicitly follow the 'Principles for Innovative Doctoral Training' while many comply implicitly with some of the seven principles.

4.5. International and inter-sectoral mobility

Data on the percentage of doctoral candidates with citizenship of other countries is not available.

In November 2012, the Ministry for Education, Religious Affairs, Culture and Sports launched a call for Higher Education Institutions in Greece for a pilot programme for the

mobility of young researchers of the Mediterranean Office for Youth (MOY). The Programme aims to develop joint higher educational programmes, with the participation of at least two higher education institutions from participating countries, at a postgraduate or a doctorate level, and is expected to enhance transnational mobility. Inward mobility remains limited, while the system is in principle open. Both Greek and foreign researchers employed in higher education institutions and research institutions abroad can apply for a researcher's position within a Greek institution. The Greek language constitutes a barrier for inward mobility of researchers.

Under Presidential Degree 274/2000 and Law 3777/2009, close collaboration between the universities and the private sector is encouraged. Researchers from public research centres can be recruited by private companies under specific agreements decided by the Research Centre's Administrative Board. Distinguished scientists employed in the business or public sector can be called upon by national research centres to conduct a specific research project or cooperate on a partial employment basis. The Innovation Vouchers for SMEs scheme fosters exchange of expertise and consultant services between 'innovation agents' (i.e. universities, research centres) and companies. It targets SMEs active in the manufacturing sector, software industry and research and development firms and public laboratories of universities, technological colleges, research centres and institutes, sectoral companies as suppliers of services of high added value and knowledge intensity. In spite of these measures, better translation of the scientific research strengths into marketable goods and services remains a key policy challenge. Efforts are also needed to foster technology transfer and address bureaucratic obstacles.

5. GENDER

5.1. Foster cultural and institutional change on gender

Greece has specific gender provisions in the field of public research.

The National Programme for Gender Equality 2010-2013, adopted in 2010, aims to create a legal framework for providing equal opportunities to women in the workplace and in life. The programme acknowledged amendments to legislation, while specific project actions were undertaken by the General Secretariat of Gender Equality and interventions in other Ministries and public authorities. There are no explicit policies by funding agencies to foster cultural and institutional change on gender .

In 2006, GSRT created the Periktioni network for women researchers and scientists in Greece and the whole Mediterranean, Balkan and Black Sea region.

The National Documentation Centre (NDC), within the National Hellenic Research Foundation (NHRF), participates in GENDERA (Gender Debate in the European Research Area) and SHEMERA (Euro-Mediterranean research cooperation on gender and science) and has developed a database of good practice for equal opportunities of genders in research (practices related to recruitment, selection and promotion).

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	EU level	82.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	24.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	3.2 %	2013	ERA survey 2014

The share of research funders in Greece who responded to the survey and support national policies on gender equality in public research is lower than the EU average.

Within the ERA compliant cluster in Greece, the share of research performing organisations that have adopted Gender Equality Plans is lower than within the EU ERA compliant cluster.

The National Programme for Gender Equality 2010-2013, adopted in 2010, aims to create a legal framework to provide equal opportunities to women in the workplace and in life. The programme acknowledged amendments to legislation, while specific project actions were undertaken by the General Secretariat of Gender Equality and interventions in other Ministries and public authorities.

By law, Greece supports women returning to the same position after parental leave. However, female researchers are entitled to maternity leave only if they have signed a contract with a research institution.

Law 2839/2000 introduced provisions for a balanced participation of men and women in the Public Sector, Public and Private Law entities, as well as in municipalities. Law 3653/2008 addressed gender imbalances in the decision-making process in the research sector for the recruitment from National Bodies, Research and Technology Committees, provided that the candidates have the same qualifications.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	26.1 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	4 %	2013	ERA survey 2014

Within the ERA compliant cluster in Greece, the share of research performing organisations implementing recruitment and promotion policies for female researchers is lower than within the EU ERA compliant cluster.

There are no specific initiatives or funding to strengthen the gender dimension in research programmes.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting the inclusion of gender dimension in research content	National level	0 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014

Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	0.8 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	Limited compliance to ERA cluster (national level)	3.4 %	2013	ERA survey 2014

The research funders in Greece who responded to the survey indicated no specific support to gender dimension in research content/programmes.

Within the ERA compliant cluster in Greece, the share of research performing organisations that include the gender dimension in research content is lower than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

Concerning gender balance in decision making, the country has set up quotas for the under-represented sex to participate in decision-making bodies of Research Performing Organisations.

Gender equality is encouraged in the research profession by guaranteeing female representation in all top-level positions and decision-making bodies in a ratio of at least one-third (based on Article 16 of the Greek Constitution and Law 3653/2008 Article 57). However, the number of women researchers, in particular in senior positions, is limited.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	4 %	2013	ERA survey 2014

Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	14 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	50 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	EU level	35.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Greece, the share of gender-balanced recruitment committees for leading researchers in research performing organisations is lower than within the EU ERA compliant cluster.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Greece is lower than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

In terms of support to open access, since 2013 the GSRT was appointed national point for open access matters and has the mandate to elaborate a national policy framework for open access to scientific publications and research data, on the preservation and re-use of scientific information, and its implementation and monitoring on related e-infrastructures. The institution set up a working group to provide input to harmonise and implement open access in Greece. Open access will be made mandatory for scientific publications resulting from publicly funded research. Relevant changes to the legislative framework of funding terms are in progress.

The National Documentation Centre (NDC), within the NHRF, actively encourages open access. Two Greek institutions have an explicit open access mandate (Panteion University and Archimedes Centre for Modeling, Analysis and Computation at the University of Crete).

The NDC project Mediterranean Open Access Network (MEDOANET) is meant to enhance existing strategies and structures for open access and contribute towards implementing new ones in six Mediterranean countries, namely Greece, Italy, France, Spain, Portugal and Turkey.

The national research strategy of the new programming period, currently being developed, will place emphasis on open access, especially in the context of digital agenda.

Related to open access to publications, the majority of open access papers in Greece in the period 2008-2011 were green and hybrid (452 papers, almost 80 % of total open access papers).

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	0.9 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	4.2 %	2013	ERA survey 2014

Within the ERA compliant cluster in Greece, the share of publicly-funded scientific publications in open access amongst research performing organisations is lower than within the EU ERA compliant cluster.

Concerning open access to data, the current EC-funded project RECODE will provide policy recommendations for open access to research data in Europe.

There are 19 research data repositories.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to data	National level	1.9 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014

Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	47 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	13.3 %	2013	ERA survey 2014

The share of research funders in Greece who responded to the survey and support Open Access to data is lower than the EU average.

Within the ERA compliant cluster in Greece, the share of research performing organisations making available on-line and free of charge publicly-funded scientific research data systematically is higher than within the EU ERA compliant cluster.

With respect to repositories, there are 27 open access repositories in Greece, in 10 Universities, two research organisations, the NDC and the Hellenic Managing Authority of the Operational Programme 'Education and Lifelong Learning'.

Five of the Greek open access repositories are OpenAIRE.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to open innovation and knowledge transfer between public and private sectors, Greece has not developed a specific knowledge transfer strategy. However, it fosters open circulation of knowledge between companies and research organisations through various measures.

The Presidential Degree 274/2000 and Law 3777/2009 encourage collaboration between universities and the private sector. Researchers from public research centres can be recruited by private companies and vice versa.

The NDC/NHRF and the PRAXI-Network which is supervised by the Foundation for Research and Technology Hellas (FORTH, supervised by GSRT) supports the development of research collaborations and exploitation of results between the public and private sectors.

Initiatives to encourage the collaboration between industry and academia are performed mainly through bilateral cooperation programmes. In the last years new programmes have been established: the Hellenic Mobile Clusters Programme (2007-2013), the Cooperation 2011 Programme, the Creation Programme (2007-2013), Innovation Vouchers for SMEs (2009-2015), Collaboration (-2015), and a scheme to support business with the employment of highly-qualified scientific personnel under the Human Resources Development operational programme (2007-2013).

In 2012, competitive calls were announced, focusing on developing human capital for research in a knowledge economy (including support to excellent researchers, researcher mobility towards enterprises and for training innovation activities), with a total financing in excess of EUR 150 million for the period 2011-2013.

In addition to direct support measures, developing an entrepreneurial and innovation-friendly culture in the higher education sector will facilitate collaboration. To this end, EUR 101 million were budgeted for developing offices in universities and Technical Education Institutions that combine career development counselling activities with promoting business planning competitions, creating entrepreneurship clubs and developing courses on entrepreneurship. The 2011 law for HEIs recognises these offices and gives them the status of 'Innovation and Liaison Offices', which are also responsible for Intellectual Property Rights (IPR).

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	National level	98.1 %	2013	ERA survey 2014
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the	ERA compliant cluster (national	3.8 %	2013	ERA survey 2014

private sector	level)			
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	7.8 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national level)	23.2 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	41.4 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (EU level)	66.3 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (national level)	23.2 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	41.4 %	2013	ERA survey 2014
Share of research personnel whose	ERA	2.9 %	2013	ERA survey

primary occupation is in the private sector (in headcount)	compliant cluster (EU level)			2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	0 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	4.9 %	2013	ERA survey 2014

The share of research funders in Greece who responded to the survey and support KT and OI, TTOs and Private Public interaction is higher than the EU average.

Within the ERA compliant cluster in Greece, the share of research performing organisations having funding originating from the private sector is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Greece, the share of research performing organisations having or using a structure for knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Greece, the share of research performing organisations having dedicated staff employed in knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Greece, the share of research personnel whose primary occupation is in the private sector (in full time equivalents) is equal to 0 .

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation to implementing the Digital ERA, Greece has not set up a strategy for its implementation, but the national research strategy of the new programming period will place emphasis on open access, in the context of the digital agenda. The country has implemented a research and education network, essential to make digital services possible.

GRNet is the Greek National Research and Education Network (NREN), a specialised Internet service provider dedicated to supporting the needs of the research and education communities within the country.

Concerning digital services, the country provides federated services, cloud services, and collaboration support.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	23.2 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	Limited compliance to ERA cluster (national level)	50 %	2013	ERA survey 2014

Within the ERA compliant cluster in Greece, the share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Greece was not a member of an identity federation in 2013. The county is a member of eduGAIN through GRNet, a service intended to enable the trustworthy exchange of information related to identity, authentication and autorisation between the GÉANT (GN3plus) Partners' federations.

There is no national policy on e-identity.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014

Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	14.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	40.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Greece, the share of research performing organisations providing federated electronic identities for their researchers is lower than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 22 research performing organisations in Greece answered the 2014 ERA survey, which represents 15.3% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Greece shows that 30.0 % of them are in the 'ERA compliant' cluster, 60.0 % can be classified in the 'limited compliance to ERA' cluster and 10.0 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 46.7 % for the 'ERA compliant' cluster, 53.2 % for the 'ERA limited compliant' cluster and 0.2 % for those organisations where ERA principles are not applicable.

One major research performing organisation and some major research performing organisations have not responded to the survey, which explains the low percentages for some of the indicators.

For the indicator 'Share of gender-balanced recruitment committees for leading researchers in research performing organisations', it should be noted that major universities and research centers have not responded to the survey.

For the indicator 'Share of publicly funded scientific publications in OA amongst research performing organisations', it should be noted that major research performing organisations, that tend to publish a lot, did not respond to the survey.

For the indicators 'Share of research performing organisations having or using a structure for knowledge transfer activities' and 'Share of research performing organisations having dedicated staff employed in knowledge transfer activities', it should be noted that the shares would have been higher if more technical universities and research centers had answered to the survey.

For the indicator 'Share of research personnel whose primary occupation is in the private sector', the share is 0% and this is in part due to the legal framework in place.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Project-based funding applying the core principles of international peer review			
A legislative act on the elaboration of the restructuring of the research system and creation of a flexible organization structure for research and technology organizations (ongoing)			
New administrative management system on RDI for the new programming period 2014-2020 (in preparation) Structural Funds			
Strategic Development Plan for Research, Technology and Innovation under the 2007-2013 National Strategic Reference Programme	2007		
Institutional funding based on institutional assessment			
Presidential Decree 274/2000 on “Terms, conditions and process of funding (subsidy or aid) of projects and programs submitted by industrial or other production units”, as amended by Law 3777/2009, Article 18 “Amendment of Presidential Decree 274/2000” (t	2009		
Interoperability, mutual recognition of evaluation results and other schemes			
New bilateral R&D agreements			

(on-going)			
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
National Roadmap of Research Infrastructures	2013	X	X
National strategy for research infrastructures (on-going)	2013	X	X
Open, transparent and merit-based recruitment of researchers			
Support of Postdoctoral Researchers	2010		
New measures within the new programming period 2014-2020			
Attractive careers			
Euraxess in Greece			
Call for Request for Proposals for participation in the Pilot Programme for the mobility of young researchers of the Mediterranean Office for Youth (MOY) .	2012	X	
Law 4009/2011 -Structure, operation, quality assurance of academic studies and internationalisation of HEIs	2011		
Specific Actions in the framework of the NSRF (2007-2013)	2007		
Presidential Degree 128/2008 Adaptation of Greek Legislation to Council Directive 2005/71/EC of 12 October 2005 on a specific procedure for admitting third-country nationals for the purposes of conducting scientific research.	2008		
Foster cultural and institutional change on gender			
PD176/1997, Measures for the enhancement of security and health of pregnant women and new mothers in the	1997		

workplace, in accordance with 92/85/EC			
Law 2839/2000, Provisions related to issues of the Ministry of Internal Affairs, Public Administration and Decentralisation and other provisions	2000		
Law 3488/2006, Implementation of the principle of equal treatment of men and women in their access to employment, professional training and promotion, in employment terms and conditions and other related provisions	2006		
Law 3996/2011, Reform of the labor inspectorate, arrangements for social security and other provisions	2011		
National Programme for Gender Equality 2010-2013	2010		
Gender balance in the decision-making process			
Periktioni network for women researchers and scientists in Greece and the whole Mediterranean, Balkan and Black Sea region	2006		
Law 3653/2008 (article 57)	2008		
Open access to publications and data resulting from publicly funded research			
National strategy for Research and Innovation in the new programming period 2014-2020 supports OA in the context of the digital agenda	2014	X	X
NDC hosted a workshop on National Policies for Open Access in the context of Mediterranean Open Access Network (MEDOANET)	2012	X	
Greece signed the Alhambra Declaration for the enhancement of open access policies through the creation of national	2010		

task force committees.			
RECODE - Policy RECommendations for Open Access to Research Data in Europe	2013	X	X
New measures to support research and innovation activities	2014	X	X
Operational Program for Research and Innovation in the new programming period 2014-2020 (Structural Funds)			
National policy framework for open access to scientific publications and research data, on preservation and re-use of scientific information, and their implementation and monitoring on related e-infrastructures (on-going)	2013	X	X
Open innovation and knowledge transfer between public and private sectors			
Hellenic Mobile Cluster Programme	2013	X	X
PAVET 2013 in the framework of NSRF (2007-2013)	2013	X	X
Action "Supporting enterprises for recruiting high level scientific personnel"			
New measures to support enterprises in the new programming period 2014-2020	2013	X	X
Clusters Programme (Competitiveness and Entrepreneurship Operational Programme- 2007-2013)			
COOPERATION 2011 – Partnerships between businesses and research bodies in specific research and technological sectors (on-going)			

Innovation Vouchers for SMEs (2009-2015)	2009		
CREATION – Support to new innovative (notably highly knowledge-intensive) enterprises (spin-offs and spin-outs) (2007-2013)	2007		
Harmonise policies for public e-infrastructures and associated digital research services			
Greek Open Knowledge Foundation Network (OKFN)	2013	X	X
Uptake of federated electronic identities			
eduGAIN			

1. MORE EFFECTIVE NATIONAL SYSTEMS

1.1. Research and innovation system

Research and innovation (R&I) policies are mainly the responsibility of the Ministry of Economics and Competitiveness (MINECO). The MINECO, assisted by the State Secretary for Research, Development and Innovation (SSRDI), is responsible for drafting and managing the main research, development and innovation (RDI) instruments: the multiannual 'strategies' and 'plans'. MINECO allocated 76.7% of the Spanish State Budget on RDI and innovation in 2013, considerably increasing its share (68.9% in 2012).

The Executive Committee for Science, Technology and Innovation policy (CDCTI) is an inter-ministerial body responsible for the planning, evaluating and coordinating of the main Spanish instruments for RDI 'plans' and gathers all Ministries with RDI responsibilities.

Two main consultative bodies support the design and implementation of the RDI strategies and plans: the Council of Science, Technology and Innovation (CPCTI) in charge of the coordination with regional governments and other actors in the research and development (R&D) system; and the Advisory Council of Science, technology and Innovation (CACTI) that represents the research community, enterprises and trade-unions.

The main funding bodies involved in the implementation of RDI policies are: the Spanish Research Agency (to be created), which will be an autonomous entity that will assign R&D funds on scientific merit grounds; and the Centre for Industrial Technological Development (CDTI), which is a public corporate entity mainly promoting innovation and technological development for companies. Other institutions, such as the Carlos III Health Institute (ISCIII) also fund research.

Other institutions complete the R&D Spanish landscape: the Information system of Science, Technology and Innovation (SICTI), responsible for the data collection and analysis for the monitoring of all policy programmes and instruments of the RDI policy; and the Committee of Ethics in Research, an advisory body on ethics of research and technology.

The Spanish National Research Council (CSIC), one of the most important research performers of the country, with about the 15%of the national scientific production from 2003 to 2011, has suffered large budget cuts from the government.

Spain has a quasi-federal political system and its RDI-related policies are decentralised to the regions. In the past, most regions developed similar R&D plans and launched similar and often overlapping instruments, programmes and agencies. Some recent developments, and in particular two new institutions, aim to improve the coordination of national and regional RDI policies: the above-mentioned Council of Science, Technology and Innovation (CPCTI) and the Spanish Research Agency, both foreseen in the 2011 Law of Science, Technology and Innovation (LCTI).

The main RDI policy instruments are the Spanish Strategy for Science, Technology and Innovation (EESTI) (2013-2020) and the Spanish State Plan for Scientific and Technical

Research and Innovation (PECTI) (2013-2016). The strategies are multiannual schemes that set the rationale, objectives and indicators. The plan implements the strategies setting its priorities, programmes, coordination mechanisms, costs and sources of funding.

The implementation of the new policy framework is suffering from delays in important policy R&D programmes (e.g. call for proposals of the R&D plan on fundamental research projects 'Promotion of R&D and Innovation towards societal challenges and Research Training (FPI)'), significant reductions (e.g. Research Training – FPI and FPU – with a reduction of 200 grants) and cancellations.

Spain adopted a national strategy for R&I in 2013 for 2013-2020. The strategy sets the rationale, objectives and indicators of the Spanish R&D and innovation policy. The Spanish State Plan for Scientific and Technical Research and Innovation (PECTI) (2013-2016) is a multiannual plan that implements the EESTI by setting its priorities, programmes, coordination mechanisms, costs and sources of funding.

The most significant changes introduced by the strategy are an increased emphasis on innovation, public-private R&D collaboration, research excellence and other emerging topics, such as promoting RDI on societal challenges or the role of public procurement to promote R&D and innovation. The new strategy provides sets of indicators to measure the impact of RDI policy.

The strategy and the plan recognise the importance of increasing the role of private investments in R&D, but they do not set a specific target of Business Enterprise Research and Development (BERD)/Gross Domestic Expenditures on R&D (GERD) or BERD/gross domestic product (GDP).

The plan implementing the strategy gives special attention to the European Research Area (ERA) and in particular to the promotion of: (a) excellent basic research; (b) technological, industrial and firm leadership; and (c) scientific and technical R&I capabilities on grand challenges.

In terms of R&I funding, the Government Budget Appropriations or Outlays for Research and Development (GBAORD) in Spain represented EUR 132 per inhabitant in 2012, below the EU-28 average (EUR 179). In 2012, total GBAORD corresponded to 1.3 % of total government expenditures and 0.6 % of GDP (Eurostat).

In 2013 there was a reduction of approximately EUR 460 million in the budget. The budget for 2014 envisages an increase of EUR 213.9 million (3,61 %).

Important public budget cuts have seriously affected national and regional budgets for RDI and public R&D investments went back to the levels of 2005-2006. In the last few years the share of loans has increased in contrast to that of subsidies, which implies, de facto, an even greater decrease.

The cuts indicate that it will be very difficult for Spain to reach the target of 3 % GERD per GDP set by the Europe 2020 strategy. Consequently, the new Spanish Strategy for Science,

Technology and Innovation (EESTI) (2013-2020) has set a new lower target of 2 % GERD per GDP for 2020.

Four regions accounted in 2012 for 69.7 % of all R&D expenditures: Madrid (25.6 %), Catalonia (22.3 %), Andalusia (11.1 %) and the Basque Country (10.7 %). In relative terms, the leading regions are the Basque Country, Navarre, Madrid and Catalonia with a GERD by GDP of 2.2 %; 1.9 %, 1.8 % and 1.5 % respectively. The Basque Country is the only region that has increased its yearly R&D Intensity over the last three years (2 %, 2.1 % and 2.2 %).

The Spanish system of tax incentives (indirect government funding through three types of R&D tax incentives for firms) for RDI has been one of the most generous among the Organisation for Economic Cooperation and Development (OECD) countries for the past few years. However, the bureaucratic procedure for benefitting from these deductions was until recently complex and uncertain.

The percentage of Structural Funds devoted to RDI is increasing. The percentage of these funds devoted to R&D rose from 14 % (EUR 3 810 million) in 2000–2006 to 31 % (EUR 6 641 million) in the period 2007–2013. The Spanish participation in the EU Framework Programme (FP) is of around 8.3 % and Spain aims to increase it to 9 %.

1.2. Project-based funding applying the core principles of international peer review

Competitive project funding through public tenders gained importance in the last years. The provisional budget for RDI distributed by the State Secretary of Research Development and Innovation for 2013 was EUR 3 864.2 million, of which 72.3 % was distributed through low interest credits and 27.7 % through subsidies (MINECO, 2013). The PECTI states that most of the funds will be distributed through competitive funding mechanisms.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as project-based funding	National level	64.6 %	2013	ERA survey 2014
Share of responding funders' total budget allocated as project-based funding	EU level	66.2 %	2013	ERA survey 2014

The share of research funders in Spain who responded to the survey and support project-based funding is lower than the EU average.

The core principles of international peer review to be applied in Spain according to the PECTI are transparency, efficiency, and scientific quality.

The Law of Science, Technology and Innovation (LCTI) describes the core principles of international peer review, but it does not impose the use of peer review. Instead the LCTI states that the international standards of peer review are to be followed where appropriate.

The allocation of competitive funds usually follows the proposal peer-evaluation process, usually carried out by domestic experts. International peer evaluation is less frequent. The new strategy EESTI (2013-2020) includes international evaluation of competitive funding as one of its five basic principles (number three). In addition, one of its six articulation mechanisms (number 5) considers the 'harmonisation of criteria and practices of evaluation – ex ante and ex post', including international peer review. The new PECTI (2013-2016), as it implements the Strategy, also aims to increase the role of competitive funding and 'international peer review'.

The evaluation is performed by specific organs, which may include international evaluators, under the principles of independence, neutrality and specialisation, basing the analysis on the available scientific and technical knowledge.

The Spanish Foundation for Science and Technology (FECYT) carried out yearly monitoring exercise of the R&D public calls for proposals from 2006-2012 and the CDTI evaluates most of the business-oriented instruments, and most reports are publicly available on the FECYT website.

1.3. Institutional funding based on institutional assessment

Institutional assessment is seldom allocated based on institutional assessment and most institutional funding is based on block funding. In addition, research institutions have a low level of autonomy to allocate funds.

Block funding is provided to public research organisations and to universities. Universities receive the salaries for the lectures that devote 66 % of their time to research and this amount can be considered as institutional funding. Public research organisations received in 2013 EUR 1 234.7 million (7.73 % lower than 2012), which accounted for 19.6 % of GBOARD.

There are some exceptions where institutional funds are allocated based on performance, like for instance, funding programmes concerning the procurement and grants for researchers. In addition, the University Strategy 2015 foresees performance-based funding. Concretely, it aims to define criteria for explicit resource allocation, primarily based on achieving measurable results in each of the key areas of university activities: teaching, research and technological development, and transfer of knowledge and innovation.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' total budget allocated as institutional funding based on institutional	National level	0.4 %	2013	ERA survey 2014

assessment and/or evaluation				
Share of responding funders' total budget allocated as institutional funding based on institutional assessment and/or evaluation	EU level	24 %	2013	ERA survey 2014

The share of research funders in Spain who responded to the survey and support institutional assessment for the allocation of institutional funding is lower than the EU average.

2. TRANSNATIONAL COOPERATION

2.1. Implementing joint research agendas

The country is involved in transnational cooperation. It supports also bilateral and multilateral initiatives. Addressing societal challenges is receiving growing attention in Spain. The EESTI (2013-2020) and PECTI (2013-2016) follow the efforts of previous measures and increase their focus on promoting RDI within societal challenges. The EESTI includes the 'promotion of RDI towards societal challenges' as one of its four general objectives. The new PECTI gives special emphasis to its integration into the ERA and to the promotion of: a) excellent basic research; b) technological, industrial and firm leadership; and c) scientific and technical research and innovation capabilities on grand challenges.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders' total budget allocated to transnationally coordinated R&D	National level	0.6 %	2013	ERA survey 2014
Share of responding funders' total budget allocated to transnationally coordinated R&D	EU level	4.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	National level	0.1 %	2013	ERA survey 2014
Share of responding funders' research and development budget dedicated to jointly defined research agendas with non-national EU organisations	EU level	1.7 %	2013	ERA survey 2014

The share of responding funders' total budget in Spain allocated to transnationally coordinated R&D is lower than the EU average.

The share of responding funders' research and development budget in Spain dedicated to jointly defined research agendas with other EU organisations is lower than the EU average.

Cooperation between institutions of Member States (MS), Associated Countries and Third Countries is fostered by the FP. In the Seventh Framework Programme (FP7), the share of participation of Spain in total participation is 9.4 % and the country received 7.8 % of total EC contributions. FP funding represents EUR 61 per inhabitant (EU average EUR 72 per capita) for the period 2007-2013 and 4 % of the GERD for the period 2007-2011 (last available data) (EU average 3 % of GERD for the same period).

Concerning joint programming initiatives, the country participates in 10 of the 10 on-going initiatives, coordinating one of them. These initiatives are Neurodegenerative diseases (Alzheimer), Food Security, Agriculture and Climate Change, Cultural Heritage and Global Change: a new challenge for Europe, Healthy Diet for Healthy Life, the Demographic change (More Years, Better Life), Antimicrobial resistance - An emerging threat to human health, Connecting Climate Knowledge for Europe (Clik'EU), Water Challenges for a Changing world, Healthy and Productive Seas and Oceans, and Urban Europe - Global Challenges, Local Solutions.

In terms of programmes undertaken jointly by several MS (so called Article 185 initiatives), the country was involved in four programmes. In Horizon 2020, the country is already involved in all four existing initiatives: AAL2, EDCTP2, EMPIR, Eurostars2.

ERA-NETs facilitate the coordination and collaboration of national and regional research programmes, in particular preparing and implementing joint calls for transnational research proposals between national and/or regional programmes. The country has participated in a total of 107 ERA-NETs, of which 33 are currently still running. The country also has participated in eight ERA-NET Plus actions, of which four are still running, in areas with high European added value and additional EU financial support topping up their joint call for proposals.

Spain is currently involved in several EU-supported joint research agendas (Joint Programming Initiatives, Article 196/185; ERA-NETs; ERA-NET PLUS) and has issued joint calls with European countries involving several stakeholders addressing grand challenges.

2.2. Openness for international cooperation with third countries and regions

In terms of international cooperation with Third Countries and regions, Spain has not developed a specific policy. In the context of its traditional relationship with Latin America, Spain has several cooperation programmes with this region. One of the most outstanding ones is the 'Iber-American Programme of Science and Technology for Development.' Moreover, the Spanish government has several general bilateral cooperation agreements with Third Countries, such as Canada, China, India, Korea, United States and Japan. Besides these general programmes, Spain also has bilateral cooperation programmes in some specific fields

with Brazil (biotechnology, renewable energies, process engineering, nano technology and health) and Argentina (biomedical, forensic and vegetal genomics and bioinformatics). It is not known whether the country monitors the implementation of cooperation programmes.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	National level	0.5 %	2013	ERA survey 2014
Share of responding funders' research and development budget allocated to collaboration programmes carried out with third countries	EU level	2.4 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (EU level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	ERA compliant cluster (national level)	0.8 %	2013	ERA survey 2014
Share of organisations' research and development budget amongst responding research performing organisations originating from third countries	Limited compliance to ERA cluster (national level)	0.3 %	2013	ERA survey 2014

The share of responding funders' research and development budget in Spain allocated to collaboration programmes carried out with third countries is similar to the EU average.

Within the ERA compliant cluster in Spain, the share of organisations' research and development budget originating from third countries is similar to the EU ERA compliant cluster.

2.3. Interoperability, mutual recognition of evaluation results and other schemes

The common funding principles proposed by the Commission for implementing Joint Programmes are not specifically addressed by the EESTI in Spain.

However, some measures facilitate the interoperability. According to the Law of Science, Technology and Innovation, joint European measures in the field of intellectual property rights (IPR) are supported. The international programming website of the Ministry of Economy and Competitiveness also lists the open and closed joint calls.

Funding agencies do not implement Money follows Cooperation, a scheme which allows small parts of a project funded by one of the participating research councils to be conducted in a different country.

Funding agencies do not implement Money follows Researchers, a 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.

Mutual recognition of evaluations that conform to international peer review standards is not systematically supported but often takes place in bilateral or multilateral programmes. Funders do not systematically apply the so called 'Lead agency' procedure, which foresees that funding authorities 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.

Strategies and plans are increasingly based on some sort of evaluation analysis. Under the mandate of the MINECO, the FECYT carried out yearly evaluations of the R&D public calls for proposals from 2006-2010. Currently, the Ministry has decided to carry out evaluations with a longer time frame. The CDTI evaluates most of the business-oriented instruments, but these evaluations are not publically available for 2012-2013.

The new plan implementing the Spanish Strategy for Science, Technology and Innovation (PECTI) foresees increasing international peer review through programmes of support to R&D centres of excellence.

The ANECA (National Agency of Evaluation, Quality and Accreditation) is a national agency, which aims to monitor and evaluate the quality of the university system. According to its website, the agency has signed mutual recognition agreements with several international agencies, such as the ones from Austria, France, The Netherlands, Flanders, Poland, and Costa Rica.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national	National level	88.9 %	2013	ERA survey 2014

institutions				
Share of responding funders which can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions	EU level	38.5 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	National level	0.6 %	2013	ERA survey 2014
Share of responding funders' project-based research and development budget allocated through peer review carried out by institutions outside the country	EU level	0.8 %	2013	ERA survey 2014

The share of research funders in Spain who responded to the survey and can base their project-based research and development funding decisions on peer reviews carried out by non-national institutions is higher than the EU average.

The share of responding funders' project-based research and development budget in Spain allocated through peer review carried out by institutions outside the country is lower than the EU average.

3. RESEARCH INFRASTRUCTURES

3.1. Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest

Spain participates in the following large international research infrastructures (RI): the European Space Agency (ESA), Conseil Européen pour la Recherche Nucléaire (CERN), European Fusion Development Agreement (EFDA), European Molecular Biology Laboratory (EMBL), European Southern Observatory (ESO), European Synchrotron Radiation Facility (ESRF), EU.XFEL and Institut Laue-Langevin (ILL). In 2012, the country contributed 1.5 % of GBAORD to the activities carried out by CERN, EMBL,ESO, ESRF, ILL and the European Commission’s Joint Research Centre (JRC) (Eurostat).

In terms of participating in the development of Ris included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap, Spain participates in the preparatory phase of 38 of them (80 %). The country coordinates one of them: EU-SOLARIS .

In terms of financial commitment to developing these Ris, Spain is committed to funding 12 of them. They are: LIFEWATCH, IFMIF/EVEDA, EATRIS, ECRIN, ELIXIR, INSTRUCT, ESRF UPGRADE, ESSneutrons, XFEL, ILL 20/20, PRACE (ex HPC).

With regards to its participation in the European Research Infrastructure Consortium (ERIC), Spain is involved in two of the seven consortia, which adopted the legal framework designed by the Commission to facilitate the establishment and operation of Ris of European interest involving several European countries. Spain is member of ECRIN-ERIC and observer in EATRIS ERIC.

In terms of support for developing and implementing RIs, the EESTI considers the 'sustainability and use of scientific and technological infrastructures' as one of its specific objectives (sub-objective 2). And the PECTI follows the strategy and devotes one of its sub-programmes (number four) to research infrastructures.

The Spanish roadmap of Unique Scientific and Technological Infrastructures (ICTS) for national and regional RIs of pan-European interest was adopted in 2010 and provided an annual budget of EUR 22 million for the 2010-2013 period.

At least three large ESFRI installations will be hosted in the country: the construction in Catalonia of one of the five supercomputers in Europe of the Partnership for Advanced Computing; the solar research infrastructure (EU-SOLARIS) at the Advanced Technological Centre for Renewable Energy in Almeria; and the European Spallation Source (ESS) in the Basque Country, an advanced centre for researching the atomic and molecular arrangement for materials.

The budget cuts are causing delays in the payment of Spain's financial contribution to some international RIs.

The Conference of Presidents of the Spanish regions agreed to create 24 new singular scientific Ris in the period 2007-2015.

3.2. Access to research infrastructures of pan-European interest

The Law of Science, Technology and Innovation (LCTI) from 2011 includes a provision to remove legal barriers to access RIs, to conform with EU provisions.

On e-infrastructures, FECYT and the Spanish Public Universities and Research Libraries Network (REBIUN) launched a national joint programme called RECOLECTA or Recolector de Ciencia Abierta (Open Science Harvester). RECOLECTA is a platform that gathers all the national open access scientific repositories and provides services to repository managers, researchers and decision-makers.

The objectives of RECOLECTA are:

- To promote and coordinate the national infrastructure of open access digital scientific repositories in an interoperable manner based on the standards adopted by the global community,

- To foster, support and facilitate the adoption of open access policies by all researchers from R&D centers and universities, the main producers of scientific knowledge in Spain,

- To give greater visibility and both domestic and international application of the results from research carried out in Spain.

No concrete information was found on defining common rules to access RIs remotely, to access confidential data and regarding IPRs.

4. OPEN LABOUR MARKET FOR RESEARCHERS

4.1. Introduction to open labour market for researchers

4.2. Open, transparent and merit-based recruitment of researchers

In 2013, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 10.6 in Spain compared with 39.9 among the Innovation Union reference group and an EU average of 43.7.

In 2012, 52 % of university-based researchers were satisfied with the extent to which research job vacancies are publicly advertised and made known by their institution (More2 survey, 2012).Ttransparency in recruitment is governed by Law 19/2013 ‘on transparency, access to public information and good governance.’ This law is of application in public universities, independent organisations and State agencies belonging to the general, regional or local administration. Any organisation receiving public subsidies above EUR 100 000, or corresponding to more than 40 % of its annual income, is obliged to make its procedures public (active dissemination of information) and ensure free access to the related information.

In 2013, 904 positions in Spanish organisations were published on the EURAXESS Jobs Portal. This represents 2.25 % of the total number of jobs published that year.

A detailed report can be found in the country profile for Spain in the Researchers’ Report 2014
[http://ec.europa.eu/euraxess/pdf/research_policies/country_files/Spain_Country_Profile_RR2014_FINAL.pdf].

The following text provides an overview of the current situation and recent progress made in several key areas.

Stock of researchers

There were 130 235 full time equivalent (FTE) researchers in Spain in 2011. This represents 5.6 researchers per 1 000 labour force compared to 5.3 among the Innovation Union reference group (Moderate Innovators) and an EU average of 6.7.

4.3. Attractive careers

The Law on Science, Technology and Innovation includes provisions on adopting and implementing the Charter and Code. Additionally, the EURAXESS Network in Spain, through 76 Service Centres (present in most Autonomous Communities), actively promotes the EURAXESS Rights initiative on implementing the Charter and Code.

By May 2014, 21 Spanish organisations were involved in the Commission's Human Resources Strategy for Researchers of which eight had received the 'Human Resource Excellence in Research' logo for their progress in implementing the Charter and Code.

The Law on Science, Technology and Innovation creates a clear researcher career path by regulating the contractual agreements signed between the researchers and host institutions. Under this scheme, researchers are considered as civil servants, but the specificities of the research profession are taken into account. Moreover, researchers always have the option of choosing a non-civil servant career path.

4.4. Supporting structured innovative doctoral training programmes

The number of new doctoral graduates per thousand population aged between 25-34 was 1.2 in 2011 compared to 1.2 among the Innovation Union reference group and an EU average of 1.7.

In order to increase the number of students taking science to a doctoral level, the Spanish government has implemented the Master Plan for Mentoring and Guidance of Students. The Spanish government has not adopted specific policies to increase female representation. However, some autonomous communities have adopted measures to increase the number of women with doctorates. For example, in the Asturias 64 % of all PhD students are women.

The Secretariat of State for Research, Development and Innovation of the Ministry of the Economy and Competitiveness supports researcher training, including the presentation of a doctoral thesis. Until 2013, this was known as the Formación de Personal Investigador (FPI) programme, but is now known as 'Ayudas para contratos predoctorales para la formación de doctores', i.e. grants for pre-doctoral contracts for doctoral training. In December 2013, EUR 6.7 million was approved for four years (2013-2016) for five centres in total to allow centres of excellence (those recognised under the FP7) to hire predoctoral researchers ('Ayudas para contratos predoctorales Severo Ochoa para la formación de doctores 2013').

4.5. International and inter-sectoral mobility

In Spain in 2011, the percentage of doctoral candidates with citizenship from another EU-27 MS was 5.2 % compared to 4.2% among the Innovation Union reference group and an EU average of 7.7 %. The percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 18 % in Spain compared to 5.2 % among the Innovation Union reference group and an EU average of 24.2 %.

The CLARIN programme aims to attract researchers currently working in foreign institutions to pursue a research career in the Autonomous Community of the Principality of Asturias.

The ongoing subprogramme of specialisation in international organisations funds researchers, technologists, and science and technology managers to spend one to two years in an international scientific institution in another country. Following this period, the beneficiary has to develop a one-year project in a Spanish public research centre or technology-based enterprise.

The ongoing EMPLEA programme is designed to promote talent and employability through incentives for hiring and training RDI managers in a wide range of entities. This includes hiring experts in transferring and adding value to knowledge, including the preparation of proposals, provision of advice, management and provision of ongoing impetus to Horizon 2020 projects. The support takes the form of low-interest loans and a subsidy towards the cost of training these experts.

5. GENDER

5.1. Foster cultural and institutional change on gender

Spain has set up specific laws or actions to implement EU legislation in the field of research. Furthermore, the national authorities request the adoption and implementation of gender equality plans in research performing organisations.

The Strategic Plan for equal opportunities (2008-2011) includes gender issues in research. The Strategic Plan for Equal Opportunities (2014-2016) defines the objectives and priority measures to eliminate any discrimination on grounds of gender to achieve equal opportunities for women and men. It includes specific measures addressing research performing organisations (RPOs) and research policy.

The Law of Science, Technology and Innovation (LCTI 2011), the Spanish Strategy for Science, Technology and Innovation (EESTI) and the plan (PECTI) implementing it, support positive changes regarding gender equality and mainstreaming in research. Notably, the LCTI introduces a provision according to which public research bodies should adopt within two years ‘gender balance plans’ that will be monitored yearly.

There are national and regional institutes for women that promote gender equality and the gender dimension.

The Women's Institute, founded in the early 1980s, is an autonomous body, responsible for promoting and fostering the conditions that enable gender equality and women's participation in political, cultural, economic and social life.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting gender equality in research	National level	77 %	2013	ERA survey 2014
Share of responding funders	EU level	82.2 %	2013	ERA survey

supporting gender equality in research				2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (EU level)	64 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	ERA compliant cluster (national level)	47.2 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample which have adopted Gender Equality Plans	Limited compliance to ERA cluster (national level)	14.2 %	2013	ERA survey 2014

The share of research funders in Spain who responded to the survey and support national policies on gender equality in public research is lower than the EU average.

Within the ERA compliant cluster in Spain, the share of research performing organisations that have adopted Gender Equality Plans is lower than within the EU ERA compliant cluster.

Spain has measures supporting return after paternal leave. The LCTI guarantees the recognition of unemployment benefits and maternity leave for researchers, but only provided they have a permanent contract.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (EU level)	53.5 %	2013	ERA survey 2014
Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	ERA compliant cluster (national level)	25.7 %	2013	ERA survey 2014

Share of responding research performing organisations implementing recruitment and promotion policies for female researchers	Limited compliance to ERA cluster (national level)	4.5 %	2013	ERA survey 2014

Within the ERA compliant cluster in Spain, the share of research performing organisations implementing recruitment and promotion policies for female researchers is lower than within the EU ERA compliant cluster.

Spain has set up provisions to integrate the gender dimension in research programmes and/or projects.

As foreseen in the LCTI, the EESTI includes 'gender equality' and 'gender dimension in research' as one of its five basic principles and the PECTI mentions gender as a horizontal measure. However, there is not a specific programme to tackle these issues.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding funders supporting the inclusion of gender dimension in research content	National level	1.9 %	2013	ERA survey 2014
Share of responding funders supporting the inclusion of gender dimension in research content	EU level	48.5 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (EU level)	44 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	ERA compliant cluster (national level)	27.6 %	2013	ERA survey 2014
Share of responding research performing organisations which include the gender dimension in research content	Limited compliance to ERA cluster (national	0.5 %	2013	ERA survey 2014

	level)			

The share of research funders in Spain who responded to the survey and support gender dimension in research content/programmes is lower than the EU average.

Within the ERA compliant cluster in Spain, the share of research performing organisations that include the gender dimension in research content is lower than within the EU ERA compliant cluster.

5.2. Gender balance in the decision-making process

Concerning gender balance in decision making, the LCTI establishes that the evaluation and selection committees of the research system should follow the gender balance principle so that no gender group will account for no more than 60 % or less than 40 %.

TThe LCTI also addresses the issue monitoring gender balance at organisation level with two specific requirements: (1) the Information System of Science, Technology and Innovation (SICTI) should collect, treat and disseminate data disaggregated by gender, including indicators on the share of women and productivity and (2) Public Research Bodies should adopt within two years gender balance plans that will be monitored yearly, as mentioned above.

The Law for Equality (2007), the Law of Universities (2007) and the Equality Plan in the Public Administration (2011) also require a gender-balanced representation when composing committees.

At least 14 universities have plans on gender equality, according to the Women's Institute.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (EU level)	33.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research performing organisations	ERA compliant cluster (national level)	66.6 %	2013	ERA survey 2014
Share of gender-balanced recruitment committees for leading researchers amongst responding research	Limited compliance to ERA cluster	18.4 %	2013	ERA survey 2014

performing organisations	(national level)			
Share of gender-balanced research evaluation panels amongst responding research funding organisations	National level	44.4 %	2013	ERA survey 2014
Share of gender-balanced research evaluation panels amongst responding research funding organisations	EU level	35.8 %	2013	ERA survey 2014

Within the ERA compliant cluster in Spain, the share of gender-balanced recruitment committees for leading researchers in research performing organisations is higher than within the EU ERA compliant cluster.

The share of gender-balanced research evaluation panels amongst responding research funding organisations in Spain is higher than the EU average.

6. KNOWLEDGE CIRCULATION

6.1. Open access to publications and data resulting from publicly funded research

The EESTI includes as an 'Articulation mechanism' the promotion of open access to data, publications and research results financed by public funds, including guidelines to create shared archives. The PECTI includes the promotion of open access through technological forums and platforms.

Regarding open access to publications, the Law of Science, Technology and Innovation (LCTI) (2011) indicates that publicly-funded research publications have to be made publicly available after, at the latest, an embargo period of 12 months. These publications have to be included in an open access repository. Also, universities and public research organisations should promote the development of open access institutional repositories.

There are some regional regulations (e.g. Asturias, Madrid and Catalonia) that promote open access to peer-reviewed scientific publications at regional level.

Moreover, up to 26 national research organisations and universities have developed their own open access to publications policy.

RECOLECTA is a platform that gathers all the national scientific repositories and provides services to repository managers, researchers and decision-makers. Since 2007, it is the result of the collaboration between the Spanish Foundation for Science and Technology (FECYT) and the Network of Spanish University Libraries (REBIUN) run by the Conference of Vice-Chancellors of Spanish Universities (CRUE). Today RECOLECTA has 60 institutional open access repositories.

Spain was one of the leading countries to sign the Alhambra Declaration (2010) along with a group of open access stakeholders (e.g. editors, librarians, funding agencies, university rectors and authors) from South European countries (Spain, Portugal, France, Italy, Greece and Turkey), whose main languages are different from English, to promote open access to scientific publications.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to publications	National level	74.6 %	2013	ERA survey 2014
Share of responding funders supporting open access to publications	EU level	51 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (EU level)	18 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	ERA compliant cluster (national level)	8.8 %	2013	ERA survey 2014
Share of publicly funded scientific publications in OA amongst responding research performing organisations	Limited compliance to ERA cluster (national level)	5.5 %	2013	ERA survey 2014

The share of research funders in Spain who responded to the survey and support open access to publications is higher than the EU average.

Within the ERA compliant cluster in Spain, the share of publicly funded scientific publications in open access amongst research performing organisations is lower than within the EU ERA compliant cluster.

Concerning open access to data, the EESTI specifically promotes open access to data. FECYT represents Spain in the consortium of OpenAIRE Plus. It is a 30 month project, funded by the FP7, and its mission is to facilitate access to the ERA's open access scientific production of the , providing cross-links from publications to data and funding schemes.

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting open access to data	National level	5.6 %	2013	ERA survey 2014
Share of responding funders supporting open access to data	EU level	33.5 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (EU level)	54.2 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	ERA compliant cluster (national level)	31.7 %	2013	ERA survey 2014
Share of responding research performing organisations making scientific research data available on-line and free of charge	Limited compliance to ERA cluster (national level)	13.6 %	2013	ERA survey 2014

The share of research funders in Spain who responded to the survey and support open access to data is lower than the EU average.

Within the ERA compliant cluster in Spain, the share of research performing organisations making available online and free of charge publicly-funded scientific research data systematically is lower than within the EU ERA compliant cluster.

With respect to repositories, OpenDoar, a website directory of academic open access repositories, indicates that Spain has 109 open-access repositories.

Latindex and Dialnet are repositories for research publications done in Spanish and Portuguese-speaking countries.

The FECYT (Fundación Española para la Ciencia y la Tecnología – Spanish Foundation for Science and Technology) facilitates access to bibliographic research information (Web of Knowledge and Scopus) for researchers working at national research organisations. At regional and institutional level, purchases by consortia of university libraries are common. REBIUN provides access to the archives of 74 public universities and exchanges.

Regarding e-infrastructures, the national joint programme called RECOLECTA provides a free open access platform and support to Spanish repositories so that they comply with international standards of interoperability and sustainability.

6.2. Open innovation and knowledge transfer between public and private sectors

In relation to open innovation and knowledge transfer between public and private sectors, Spain has not developed a specific knowledge transfer strategy. However, the LCTI, EESTI and PECTI encourage open circulation of knowledge between companies and research organisations.

The LCTI introduced changes in the IPR domain so that researchers can benefit from their patent earnings. It also introduced other changes to facilitate knowledge transfer: (1) increasing the value of transfer activities, (2) promoting the 'units of excellence', or (3) developing an open-access archive with research results. The LCTI encourages the creation of Technology Based Enterprises (EBTs) by allowing researchers to work part-time in private firms created by the organisations in which they are working and eliminating restrictions to the maximum share ownership of a private company (10 %) and being a board member in private companies.

Two calls provide funding (EUR 267 million) to promote the collaboration between research centers and universities and the private sector in R&I projects

One of the specific objectives of the PECTI is to increase public-private cooperation in RDI. The plan does not refer to specific agreements, but to specific projects. In this context, Spain has recently designed support schemes. The 'Business leadership programme' provides public funding (EUR 831.9 million) through its three sub-programmes: (1) private RDI; (2) enabling technologies; and (3) collaborative RDI. The Torres Quevedo Programme (EUR 22.5 million) provides funding to recruit doctors with a proven working track record in companies. The Torres Quevedo Programme (EUR 22.5 million) provides funding to the recruitment of doctors with a proven working track record in companies.

Spain is a member of EDUgain through SIR. RedIRIS is the Spanish National Research and Education Network (NREN), a specialised Internet service provider dedicated to supporting the needs of the research and education communities within the country.

Concerning open innovation, Spain has decided to focus on preparing an annual plan that will facilitate the knowledge management (more than knowledge transfer).

Indicator	Level/cluster	Value	Year	Source
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based	National level	99.9 %	2013	ERA survey 2014

funding				
Share of responding funders supporting the implementation of knowledge transfer as part of its institutional and/or project-based funding	EU level	82.9 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (EU level)	6.8 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	ERA compliant cluster (national level)	11.5 %	2013	ERA survey 2014
Share of responding research performing organisations' research and development budget financed by the private sector	Limited compliance to ERA cluster (national level)	3.5 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (EU level)	75 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	ERA compliant cluster (national level)	58.5 %	2013	ERA survey 2014
Share of responding research performing organisations having or using a structure for knowledge transfer activities	Limited compliance to ERA cluster (national level)	30.9 %	2013	ERA survey 2014
Share of responding research performing organisations having	ERA compliant	66.3 %	2013	ERA survey 2014

dedicated staff employed in knowledge transfer activities	cluster (EU level)			
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	ERA compliant cluster (national level)	57.1 %	2013	ERA survey 2014
Share of responding research performing organisations having dedicated staff employed in knowledge transfer activities	Limited compliance to ERA cluster (national level)	30.5 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (EU level)	2.9 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	ERA compliant cluster (national level)	5.2 %	2013	ERA survey 2014
Share of research personnel whose primary occupation is in the private sector (in headcount)	Limited compliance to ERA cluster (national level)	0.3 %	2013	ERA survey 2014

The share of research funders in Spain who responded to the survey and support KT and OI, TTOs and Private Public interaction is higher than the EU average.

Within the ERA compliant cluster in Spain, the share of research performing organisations having funding originating from the private sector is higher than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Spain, the share of research performing organisations having or using a structure for knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Spain, the share of research performing organisations having dedicated staff employed in knowledge transfer activities is lower than within the EU ERA compliant cluster.

Within the ERA compliant cluster in Spain, the share of research personnel whose primary occupation is in the private sector (in full time equivalents) is higher than within the EU ERA compliant cluster.

6.3. Harmonise policies for public e-infrastructures and associated digital research services

In relation to implementing the Digital ERA, Spain has not set up a strategy for its implementation. The country has implemented a research and education network, essential to make digital services possible.

RedIRIS is the Spanish National Research and Education Network (NREN), a specialised Internet service provider dedicated to supporting the needs of the research and education communities within the country.

Concerning digital research services, FECYT provides access to bibliographic research databases (Web of Science and Scopus) to Spanish researchers. In addition, FECYT offers to researchers a Normalised Curriculum Vitae (CVN), that is a national standard between institutions that facilitates the data interchange and the research evaluation processes.

The country provides federated services, like the services offered by FECYT to access to the main bibliographic research database (Web of Science), cloud services, and collaboration support.

The Digital Agenda for Spain is a soft action adopted in 2013 that provides a framework reference and a roadmap for the Digital Agenda strategy for 2013-2015 in order to develop the digital economy and society. One of its main objectives is to increase the efficiency of information technology investments in RDI.

Indicator	Level/cluster	Value	Year	Source
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (EU level)	80.8 %	2013	ERA survey 2014
Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	ERA compliant cluster (national level)	59.7 %	2013	ERA survey 2014

Share of responding research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.)	Limited compliance to ERA cluster (national level)	34.4 %	2013	ERA survey 2014

Within the ERA compliant cluster in Spain, the share of research performing organisations providing digital research services (i.e. cloud services, research collaboration platform, etc.) is lower than within the EU ERA compliant cluster.

6.4. Uptake of federated electronic identities

Spain was not a member of an identity federation in 2013. The county is member of EDUgain through SIR, a service intended to enable the trustworthy exchange of information related to identity, authentication and authorisation between the GÉANT (GN3plus) partner federations.

Indicator	**Level/cluster**	**Value**	**Year**	**Source**
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (EU level)	38.5 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	ERA compliant cluster (national level)	41.8 %	2013	ERA survey 2014
Share of responding research performing organisations in the sample providing federated electronic identities for their researchers	Limited compliance to ERA cluster (national level)	13.9 %	2013	ERA survey 2014

Within the ERA compliant cluster in Spain, the share of research performing organisations providing federated electronic identities for their researchers is higher than within the EU ERA compliant cluster.

7. NOTES ON THE 2014 ERA SURVEY RESULTS

7.1. Comments

A total of 128 research performing organisations in Spain answered the 2014 ERA survey, which represents 18.7% of the total number of researchers in the country (total number of researchers in the country as of 2011).

The principal component and clustering analysis of research performing organisations in Spain shows that 39.5 % of them are in the 'ERA compliant' cluster, 48.4 % can be classified in the 'limited compliance to ERA' cluster and 12.1 % of organisations in the 'ERA principles are not applicable' cluster. However, when the organisations are weighted by the number of researchers in each organisation, the results significantly vary. Indeed, the shares of 'weighted' organisations are 59.2 % for the 'ERA compliant' cluster, 39.0 % for the 'ERA limited compliant' cluster and 1.8 % for those organisations where ERA principles are not applicable.

However, it should be noted that some regional authorities, which fund research, did not responded to the survey.

Also, one very important research performing organisations is amongst the 'ERA limited compliance group' and this makes some indicators lower.

For the indicator 'Share of institutional funding allocated based on institutional assessment and/or evaluation', it should be noted that the majority of respondents to this question did not specify how much was based on an institutional assessment.

For the indicator 'Share of funder's research and development budget dedicated to jointly defined research agendas with non-national EU organisations', it should be noted that the low percentage is due to the fact that foreseen calls were not launched on time, due to budgetary restrictions.

For the indicator 'Share of gender-balanced recruitment committees for leading researchers in research performing organisations', it should be noted that the result is considerably higher than the EU average, due to the existence of binding legislation.

For the indicator 'Share of publicly funded scientific publications in OA amongst research performing organisations', it should be noted the existence of the new law, but it has not yet been enforced.

Policy measures in support of ERA implementation

Initiative	Adopted in	Adopted since 2012	New measure since 2013
Project-based funding applying the core principles of international peer review			
National Agency for Research	2013	X	X
Spanish Strategy for Science,	2013	X	X

Technology and Innovation (EESTI) (2013-2020)			
Spanish State Plan for Scientific and Technical Research and Innovation (PECTI) (2013-2016)	2013	X	X
Research and Innovation Strategy for the Smart Specialisation of the regions	2013	X	X
Implementing joint research agendas			
Joint Programming Initiatives Article 185 initiatives			
Bilateral and multilateral agreements in research			
Financial commitments for the construction and operation of ESFRI, national and regional research infrastructures of pan-European interest			
National research infrastructure roadmap - Update	2013	X	X
Law of Science, Technology and Innovation - LCTI 2011	2011		
Conference of Presidents of the Regions (agreement to create new research infrastructures)	2007		
Access to research infrastructures of pan-European interest			
Law of Science, Technology and Innovation - LCTI 2011	2011		
Open, transparent and merit-based recruitment of researchers			
Statute for Research Interns	2006		
Attractive careers			
Human resources training programme "Salvador de Madariaga"			
Ramon y Cajal Programme (RyC) posdoctoral senior grants	2005		

Juan de la Cierva Programme	2004		
Euraxess in Spain	2004		
Accreditation and grants 'Centros de Excelencia Severo Ochoa'	2013	X	X
International and inter-sectoral mobility			
Blueprint of a Law to support entrepreneurs and their internationalisation	2013	X	X
Foster cultural and institutional change on gender			
The Women's Institute	1980		
Gender balance in the decision-making process			
Law of Science, Technology and Innovation - LCTI 2011	2011		
Law of Science, Technology and Innovation - LCTI 2011	2011		
Strategic Plan for equal opportunities	2008		
14 University plans on gender equality			
National and regional Institutes for women promote gender equality and the gender dimension			
Strategic Plan for Equal Opportunities (2014-2016)	2014	X	X
Law for Equality	2007		
Law of Universities	2007		
Equality Plan in the Public Administration (2011)	2011		
Open access to publications and data resulting from publicly funded research			
Digital Agenda for Spain	2013	X	X
Law of Science, Technology and Innovation - LCTI 2011	2011		

Spanish State Plan for Scientific and Technical Research and Innovation" (PECTI) (2013-2016)	2013	X	X
Alhambra Declaration on Open Access	2010		
RECOLECTA	2007		
Latindex and Dialnet provide open access to publicationsdone in Spanish or Portuguese			
REBIUN (Spanish Public Universities and Research Libraries Network) provides access to searches to the archives of 74 institutions	2002		
Open innovation and knowledge transfer between public and private sectors			
Subprogramme of Institutional Strengthening in the PECTI	2008		
INNPACTO subprogramme	2010		
Law of Science, Technology and Innovation (LCTI 2011)	2011		
Business leadership programme	2013	X	X
Harmonise policies for public e-infrastructures and associated digital research services			
RECOLECTA	2007		
Uptake of federated electronic identities			
IRIS Network	1988		
eduGAIN			