

The Researchers Report 2012

Country Profile: Spain



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1. Key data

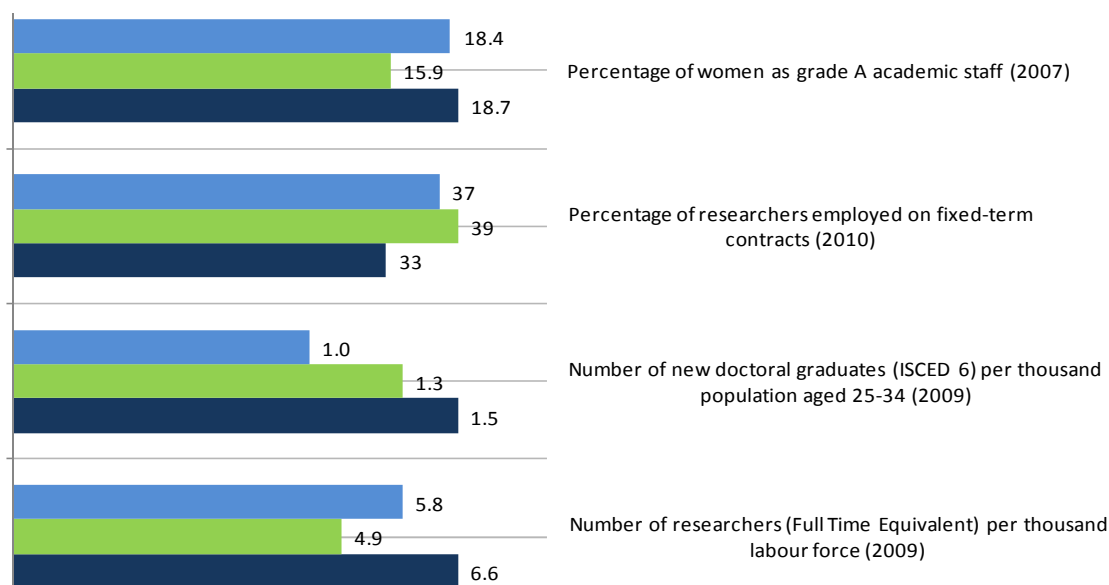
National R&D intensity target

“Spain’s R&D intensity has grown from 0.91% in 2000 to 1.38% in 2009, which is one of the highest increases of all EU Member States. This positive trend is due to an increase of both government and business enterprise funding to R&D. Spanish GBAORD (Government Budget Appropriations or Outlays on R&D) has increased steadily with an average annual growth rate of 14.1% between 2004 and 2009. Public funding to research and innovation decreased slightly in the 2010 national budget, but in 2011 the country protected R&I investment as compared to the rest of the budgetary expenses. For 2020, Spain has set a national R&D intensity target of 3%, which is achievable but would require an increase of the average annual growth rate, mainly of business R&D investment. Given the structure of the Spanish economy, reforms for a structural change would be needed towards a more knowledge-intensive economy. Compared to other countries, Spain has scope to increase both the R&D intensity in existing high-tech and medium-high-tech sectors (moving closer to the technology frontier) and to increase knowledge intensity in more traditional sectors of the economy. Efforts already made in this direction are reflected in some figures, such as the number of employees in the high and medium-high technology manufacturing sector, where Spain is the sixth country in the EU.”¹

Key indicators measuring the country’s research performance

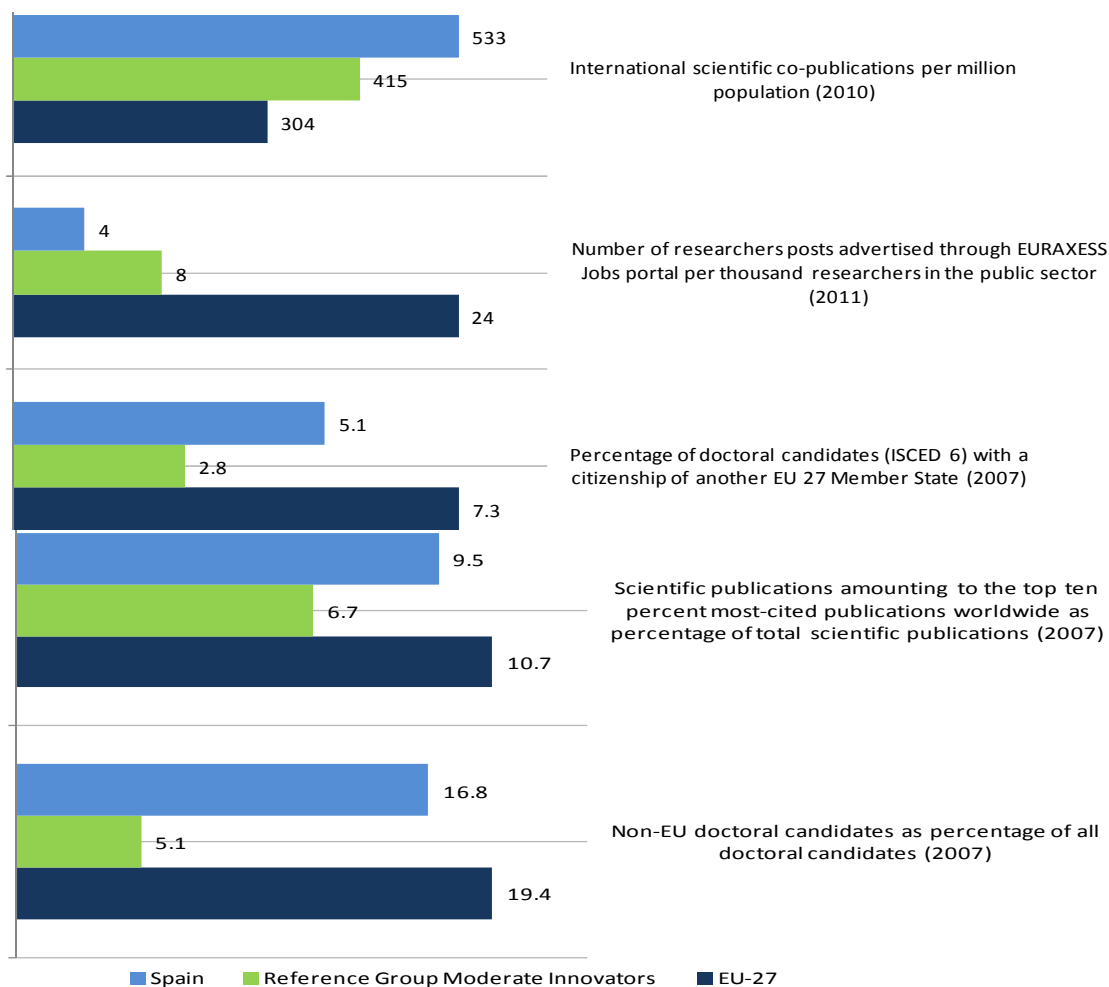
The figure below presents key indicators measuring Spain’s research performance against a reference group and the EU-27 average².

Figure 1: Key indicators – Spain



¹ European Commission (2011), “Innovation Union Competitiveness Report 2011”.

² The values refer to 2011 or the latest year available.



Source: Deloitte

Data: Eurostat, SHE Figures, EURAXESS Jobs Portal, Science Metrix/Scopus (Elsevier), Innovation Union Scoreboard 2010

Notes: Based on their average innovation performance across 24 indicators, Czech Republic, Greece, Hungary, Italy, Malta, Poland, Portugal, Slovakia and Spain show a performance below that of the EU27. These countries are the Moderate innovators³.

Stock of researchers

The table below presents the stock of researchers by Head Count (HC) and Full Time Equivalent (FTE) and in relation to the active labour force.

Table 1: Human resources – Stock of researchers

Indicator	Spain	EU Average
Head Count per 1 000 active labour force (2008)	9.53	9.45
Head Count (2008)	217 716	-
FTE per 1 000 active labour force (2009)	5.81	6.63
Full time equivalent (FTE) (2009)	133 803	-

Source: Deloitte

Data: Eurostat

2. National strategies

The Spanish Government has put in place a range of measures aimed at training enough researchers to meet its R&D targets and at promoting attractive employment conditions in public research institutions. The table below presents key programmes and initiatives intended to implement the strategic objectives to train enough

³ European Commission (2011), "Innovation Union Scoreboard 2010".

researchers to reach Spain’s R&D targets, to promote attractive working conditions, and to address gender and dual career aspects.

Table 2: National strategies

Measure	Description
At national level	
Climate Change and Clean Energy Strategy – Horizon 2007-2012-2020 (<i>Estrategia Española de Cambio Climático y Energía Limpia</i>) (2007)	This strategy includes measures to achieve energy consumption patterns compatible with sustainable development as well as to promote research, development and innovation in matters of climate change and clean energy.
Comprehensive Industrial Policy Plan 2020 – PIN 2020 (<i>Plan Integral de Política Industrial 2020</i>) (2010)	The 2020 Industrial Policy Plan aims at fostering the internationalisation of Spanish SMEs through innovation practices with 124 actions structured around five pillars.
Law on a Sustainable Economy (<i>Ley de Economía Sostenible</i>) (2011)	The Law on a Sustainable Economy promotes R&D and innovation through the implementation of public procurement processes. It facilitates access to research patents and to commercial exploitation of research results. It also simplifies administrative procedures and promotes technical and professional training.
Law on Science, Technology and Innovation (<i>Ley de la Ciencia, la Tecnología y la Innovación</i>) (2011)	The Law on Science, Technology and Innovation describes a stable and predictable science career for researchers as well as a more efficient and effective R&D system. The law contains provisions to foster partnerships between academia and industry and regulates mobility patterns between public entities and the private sector.
National R&D&I Plan 2008-2011 (<i>Plan Nacional de I+D+i 2008-2011</i>)	The National R&D&I Plan 2008-2011 is the basic programming tool of the Spanish STI system to achieve the goals set out in the National Strategy for Science and Technology. The Spanish National R&D&I Plan is assessed annually by the Spanish Foundation for Science and Technology (FECYT) ⁴ . For the latest report, see ‘The Integrated Monitoring and Evaluation System (SISE) report 2010’ ⁵ .
State Innovation Strategy (<i>La Estrategia Estatal de Innovación</i>) (2010)	The State Innovation Strategy aims to align all existing resources so as to favour innovation. The Strategy’s objectives are to: <ul style="list-style-type: none"> – Double private expenditure in R&D by 2015 (in 2010, private expenditure in R&D was EUR 7 534 743 000); – Double the number of innovative companies over the period 2010-15 (in 2010, the number of innovative companies was 24 645); – Increase the number of jobs in medium and high technology by 500 000 over the period 2010-15 (in 2010, the number of jobs in medium and high technology was 1 196 100).
Strategy for the Sustainable Economy (<i>Estrategia para la Economía Sostenible</i>) (2009)	The Strategy for the Sustainable Economy is a key government tool for achieving economic growth compatible with sustainable development. Key priorities of this national strategic reform programme were to increase investments in R&D and design a new innovation strategy.
University 2015 Strategy ⁶ (<i>Estrategia Universidad 2015</i>) (2010)	University 2015 strategy (EU 2015) is a Spanish Government initiative for modernizing universities in Spain through the coordination of the autonomous regional university systems and the development of a modern Spanish University System. This initiative, launched in 2008, is the outcome of an open, participative process and is an example of coordination between administrations, the university community and social and economic agents.
At regional level⁷	
Plan for the Researcher’s Career in Catalonia (<i>Pla per a la carrera investigadora a Catalunya</i>) (2005)	The Plan for the Researcher’s Career is an initiative at regional level aiming at developing strategies and instruments to increase the number of researchers in Catalonia, encourage researchers’ career development in both the public and private sector, and researchers’ mobility between countries and between

⁴ The Spanish Foundation for Science and Technology (FECYT) is a State Public Sector Foundation, incorporated on June 5, 2001. FECYT is an instrument of the Secretariat of State for R & D & I of the Spanish Ministry of Economy and Competitiveness to strengthen the value chain of knowledge, boosting science and innovation and promoting its integration into and closeness with society, responding to the needs and expectations of the Spanish Science, Technology and Business System (SECTE). Among its activities is the follow up of indicators, policies and strategies of R&D&I.

⁵ Available at: [http://icono.publicaciones.fecyt.es/contenido.asp?dir=05\)Publi/AA\)SISE](http://icono.publicaciones.fecyt.es/contenido.asp?dir=05)Publi/AA)SISE)

⁶ Available at: <http://www.educacion.gob.es/dctm/eu2015/2010-eu2015-ingles.pdf?documentId=0901e72b804260c4>

⁷ The autonomous communities of Asturias and Catalonia are indicated as two examples of regional action throughout the country file.

Measure	Description
At national level	
	academia and business.
The 2010-2013 Research and Innovation Plan (PRI), Catalonia (<i>El Pla de Recerca i Innovació 2010-2013</i>), Catalunya	The Research and Innovation Plan is an initiative at regional level aiming at planning, promoting and coordinating Catalonia's research and innovation. The Plan is also the fundamental instrument for maintaining the development of the 2008 Catalan Agreement on Research and Innovation (PNRI) ⁸ over this four-year period.

Source: Deloitte

3. Women in the research profession

Measures supporting women researchers in top-level positions

In 2007, the percentage of women grade A academic staff was 18.4% in Spain compared with 15.9% among the Innovation Union reference group and an EU average of 18.7%⁹.

The Spanish Government has not implemented any concrete policy measures to increase the number of women in top-level positions and decision-making bodies. However, gender equality provisions are included in national laws and universities and research institutions are obliged by the law to prepare and put in practice relevant action plans.

The Spanish government created the “Women and Science Unit” aimed to promote gender aspects in science, technology and innovation by:

- Promoting the presence of women in all the spheres of science, technology and innovation, based on their merits and skills, establishing mechanisms for eliminating bias, barriers and disincentives;
- Promoting the inclusion of gender as a transverse category in scientific research, as well as specific research in the field of gender and women's studies;
- Promoting the inclusion of gender as a transverse category in technological developments and innovation.

Quotas to ensure a representative gender balance

Under the new Spanish Law on Science, Technology and Innovation and the Equality Law (*Ley de Igualdad, 2007*) gender balance is foreseen in the nomination of evaluation committees, councils and bodies. Universities and public research institutions are bound by the Law to prepare and implement gender Action Plans. Incentives are given to institutions that can prove an improvement in gender balance figures.

Apart from the legislation, published reports provide information about gender statistics (e.g. ‘Statistics on public tenders in R&D broken down by gender’) while the Ministry of Economy and Competitiveness in 2011 published a White Paper on the situation of women in Spanish science (*Libro Blanco sobre la situación de las mujeres en la ciencia española*). The White Paper points out that gender equality in all spheres of social life and within the science and technology sector is a major issue for the Spanish economy and society. Despite the fact that there are more women university students than men and they do better academically, they make up fewer than 30% of those employed in some professions, such as engineering and experimental sciences.

Maternity leave

As is the case with social security benefits (see chapter 6 “Working conditions” for information on social security benefits), provisions for maternity leave are also included in all public R&D calls.

4. Open, transparent and merit-based recruitment

Recruitment system

The Spanish researchers’ recruitment system is rather segmented due to the fact that the Autonomous Communities have their own competencies for R&D issues.

⁸ The Catalan Agreement on Research and Innovation (Pacte Nacional per a la Recerca i la Innovació - PNRI), sponsored by the Minister for Innovation, Universities and Enterprise, is envisioned as a long-term and far-reaching agreement, with broad consensus among social, economic and political agents, designed to shape a competitive economy in a knowledge society founded on progress created by talent, science, technology and innovation.

⁹ See Figure 1 “Key indicators – Spain”.

Open recruitment in institutions

The table below presents information on open recruitment in higher education and public research institutions.

Table 3: Open recruitment in higher education and public research institutions

Do institutions in the country currently have policies to ...?	Yes/No	Description
– publish job vacancies on relevant national online platforms	-	-
– publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)	Yes	-
– publish job vacancies in English	Yes	-
– systematically establish selection panels	No	-
– establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.)	Yes	-
– publish the composition of a selection panel (obliging the recruiting institution)	No	-
– publish the selection criteria together with job advert	Yes	-
– regulate a minimum time period between vacancy publication and the deadline for applying	Yes	-
– place the burden of proof on the employer to prove that the recruitment procedure was open and transparent	Yes	-
– offer applicants the right to receive adequate feedback	Yes	-
– offer applicants the right to appeal	Yes	-

Source: Deloitte

EURAXESS Services Network

In 2011, the number of researchers posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was four in Spain compared with eight among the Innovation Union reference group and an EU average of 24¹⁰. Information on entry conditions, transfer of social security and pension contributions, accommodation, administrative assistance, etc is available on the Guide for Foreign Researchers in Spain 2011, which can be found on the EURAXESS Spanish portal¹¹ as well as at the thirty Local Contact Points. The latter can also provide newly arrived researchers with welcome information packages.

The EURAXESS Network covers Spain through its sixteen Service Centres (present in most Autonomous Communities). In Spain, most institutions possess their own on-line research job advertisement system but it is always related to the information provided on the EURAXESS jobs portal. Job vacancies are published online on the European EURAXESS job portal.

5. Education and training

Measures to attract and train people to become researchers

In the past, the Spanish Government organised International Olympics in Physics and Mathematics as well as Spanish Olympics in Informatics targeting secondary school children. Currently, the initiatives of the Government are limited to organising summer campuses on university campuses under the auspices of the International Campus of Excellence (CEI) Programme.

In order to increase the number of students taking science to a doctoral level, the Spanish government has implemented the Master Plan of Mentoring and Guidance of Students. The Spanish government has not adopted specific policies to increase female representation. However, some Autonomous Communities have

¹⁰ See Figure 1 “Key indicators – Spain”.

¹¹ Available at: <http://www.euraxess.es/eng/services/guide-for-foreign-researchers>

adopted measures to increase the number of women with doctorates. For example, in Asturias 64% of all PhD students are women.

Under the new Law on Science, Technology and Innovation, all universities and public research institutions are required to implement Gender Balance Plans (see chapter 3 “Women in the research profession”) by setting concrete targets for pre-doctoral researchers (of both sexes).

Doctoral graduates by gender

The table below shows the number of doctoral graduates in Spain by gender as a ratio of the total population.

Table 4: Doctoral graduates by gender

Indicator	Spain	EU average
New doctoral graduates (ISCED 6) per 1 000 population aged 25-34 (total) (2009)	1.0	1.5
Female Graduates (ISCED 6) per 1 000 of the female population aged 25-34 (2009)	1.0	1.4
Male Graduates (ISCED 6) per 1 000 of the male population aged 25-34 (2009)	1.0	1.6

Source: Deloitte

Data: Eurostat

Funding of doctoral candidates

The table below presents the two different funding paths accessible to Spanish doctoral candidates.

Table 5: Funding opportunities for doctoral candidates

Foundation	Description
Stipend/Grant	
Ministry of Education	The Ministry of Education runs the FPU (<i>Formación de Personal Universitario</i>) grant scheme to train university teachers, including the presentation of a doctoral thesis. The average number of FPU grants/year in 2007-2009 was 873, or 1.33% of all doctoral candidates ¹² .
Regional funding schemes	Pre-doctoral grants, e.g. the Severo Ochoa programme in the Autonomous Community of the Principality of Asturias, with an average of 56 pre-doctoral grants per year. In 2009, 64 pre-doctoral grants were awarded.
Secretariat of State for Research, Development and Innovation, Ministry of the Economy and Competitiveness	The Secretariat of State for Research, Development and Innovation of the Ministry of the Economy and Competitiveness runs the FPI (<i>Formación de Personal Investigador</i>) grant scheme targeting PhD students. The average number of FPI grants/year in the three-year period 2007-2009 was 995, or 1.51% of all doctoral candidates ¹³ .
The Spanish National Research Council (CSIC)	The CSIC offers a four-year <i>Junta para la Ampliación de Estudios</i> (JAE) grant to enable students to complete their doctoral thesis. The average number of JAE grants per year in 2007-2009 was 268 or 0.41% of all doctoral candidates ¹⁴ .
Other	Grants associated with research projects.
Employment contract	
The first three national schemes mentioned above are based on a two year grant + two year contract. The regional grant programmes (such as the <i>Severo Ochoa</i> programme) are often accompanied by an employment contract. The new Spanish Law on Science, Technology and Innovation envisages replacing all grants with four-year employment contracts by 2014.	

Source: Deloitte

Measures to increase the quality of doctoral training

The new framework for doctoral studies I includes quality assurance, monitoring and follow up activities for the doctoral students. In an effort to increase the quality of doctoral training, the Spanish government makes awards to PhD programmes for excellence; it funds participation in international doctoral schools (within the CEI Programme); it also promotes public-private collaboration agreements, including training provisions for research staff.

¹² Ibid.

¹³ Average per year (2007-09): 65 813.

¹⁴ Ibid.

Skills agenda for researchers

The Spanish Government has adopted the European Qualifications Framework (EQF). The Spanish Framework of Qualifications for Education (MECES) aims at structuring learning qualifications throughout the different levels of education. The framework is based on the Dublin Descriptors, which define the level of learning required for each stage of the higher education system (Bachelor, Master, and Doctorate).

At regional levels, training initiatives have been also developed to improve researchers' employment skills and competencies, e.g. the Future Researchers' Workshops and the Project Management Workshops implemented by the Autonomous Community of Catalonia.

6. Working conditions

Measures to improve researchers' funding opportunities

The following table presents measures aimed at promoting researchers' funding opportunities at national and regional level.

Table 6: Measures for funding opportunities for researchers

Measure	Description
At national level	
State Innovation Strategy (2010)	One of the objectives of the Strategy is to double private investment in R&D by 2015 and double the number of innovative enterprises in the period 2010-15.
The Law on Science, Technology and Innovation (2011)	The Law on Science, Technology and Innovation establishes two financing agencies: <ul style="list-style-type: none"> – The State Agency for Research (<i>Agencia Estatal de Investigación</i>): to promote new knowledge in scientific and technological research (planned); – The Centre for Industrial Technology Development (<i>Centro para el Desarrollo Tecnológico Industrial</i>): to promote innovation and experimental developments. <p>The law also covers the promotion of researchers' mobility between universities, public research institutions and regional organisations. Researchers are allowed to work for up to five years in other public or private, national or international organisations.</p>
The Law on a Sustainable Economy (2011)	The Law on a Sustainable Economy promotes public procurement calls related to the promotion of R&D&I activities.
At regional level	
Asturias Science, Technology and Innovation Plan (2006-2009) (<i>Plan de Ciencia Tecnología e Innovación del Principado de Asturias (2006-09)</i>)	This Plan in the Asturias Autonomous Community supported researchers' career development, including remuneration and working conditions.
Catalan Mobility Support Node	The Catalan Mobility Support Node is a EURAXESS Service Centre which aims to coordinate initiatives that foster the attraction of R&D&I talent and facilitate the mobility of talented researchers. The Node acts as a platform for the university institutions and research centres to help researchers and their families.
Procedure for the authorisation of the signed host agreements with foreign researchers, Catalonia	The procedure requires research organisations wishing to sign host agreements with foreign researchers to be previously authorised by the State or the Autonomous Community of Catalonia. The procedure aims in this way to improve researchers' working conditions.
Strategic Agreement to Promote Internationalisation of the Catalan Economy, the Strengthening of its Competitiveness and the Quality of Employment (2008-11)	The Strategic Agreement includes provisions related to researchers' salaries, the recruitment of international research staff and the return to Catalonia of Catalan researchers.

Source: Deloitte

Remuneration

Since 1984, researchers in public higher education institutions have been considered to be public sector employees and therefore have similar remuneration packages. They can also receive complements to their salary depending on their productivity (*complemento de productividad*). As performance evaluation criteria have been lacking, the new Spanish Law on Science, Technology and Innovation incorporates criteria for evaluating researchers' merits. Researchers are also eligible to further increase their income by receiving royalties from patents.

Researchers' Statute

Since 2006, the *Real Decreto 63/2006* has guaranteed an in-training statute for researchers (*Estatuto del personal investigador en formación*). The new Spanish Law on Science and Technology creates a more coherent researcher statute. Under the same law, institutions are also required immediately to employ researchers at all levels of study by signing four-year employment contracts. Finally, the new law foresees the creation of special contracts for recruiting distinguished and well-known researchers to come and work in Spanish host institutions.

'European Charter for Researchers' & 'Code of Conduct for the Recruitment of Researchers'

The new Spanish Law on Science, Technology and Innovation includes provisions on the adoption and implementation of the 'Charter and Code'. Additionally, the EURAXESS Network in Spain through its sixteen Service Centres (present in most Autonomous Communities), and its more than thirty Local Contact Points, actively promotes the EURAXESS Rights initiative on the implementation of the 'Charter & Code'.

Autonomy of institutions

The Spanish System of Science and Technology (SECyT) is an aggregation of systems of the general administration of the State and the Autonomous Communities, with the regional governments having competence for R&D. Under the new Spanish Law on Science, Technology and Innovation, the different national and regional policies will be better coordinated. The law accords the Autonomous Communities the right to:

- sign agreements between public and private agents;
- subscribe collaboration, cooperation and shared-management agreements with the State;
- have their staff access benefits derived from industrial property;
- participate in Scientific and Technological Policy Councils.

Currently, few higher education institutions enjoy full autonomy to recruit their personnel despite the fact that they belong to the regional Autonomous Communities. This is the case of the research centres in Catalonia (CERCA Centres).

Career development

The new Spanish Law on Science, Technology and Innovation creates a clear researchers' career scheme by regulating the contractual agreements signed between the researchers and the 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 career¹⁵.

In Spain, the career of researchers in public universities and research institutions begins through a first temporary pre-doctoral contract of up to four years ending with a PhD degree. Subsequently, researchers may sign contracts to access the SECyT and stay in the SECyT for up to five years. At that point, the researcher undergoes two performance evaluations. A positive evaluation will provide the researcher with access to a fixed contract and thus access to the lower levels of the civil service through internal promotion. Under the

¹⁵In Spain, a researcher can be employed by an institution under one of the following schemes:

- Grants outside the Researchers In-training Statute (*Estatuto del personal investigador en formación, EPIF*);
- Grants/contracts within the Researchers In-training Statute (*Estatuto del personal investigador en formación*);
- Under regional pre-doctoral grants/contracts (2 year grant + 2 year contract) - sometimes also, under a 1+ 3 or 0 + 4 arrangements;
- Under temporary contracts up to 5 years;
- Under fixed employment contracts;
- As a civil servant.

new law, when applying for public positions in Spain, candidates from all EU countries have the right to be assessed in English and not in Spanish/other recognised regional languages.

Apart from this new law, which is applicable at national level, Autonomous Communities can develop individual plans related to the researchers' career (e.g. the Researchers' Career in Catalonia (*La carrera investigadora*)).

Shift from core to project-based funding

Researchers who are involved in research based on projects have access to publicly funded contracts with clear descriptions and activities' planning. This is the case of the pre-doctoral FPI programmes (*Formación de Personal Investigador*) and the post-doc Ramon y Cajal Programme. Both were developed by the Ministry of the Economy and Competitiveness.

Social security benefits (sickness, unemployment, old-age)

Researchers under employment contracts or receiving funding are granted social security coverage, including sickness and unemployment benefits. Old-age benefits are only available for PhD students under employment contracts, but not for pre-doctoral students receiving grants.

7. Collaboration between academia and industry

The following table summarises programmes designed to boost collaboration between academia and industry, and to foster doctoral training in cooperation with industry.

Table 7: Collaboration between academia and industry

Measure	Description
At national level	
Feder - Innterconecta Programme (ongoing)	The Feder-Innterconecta Programme finances large-scale integrated experimental development projects in forward-looking technological areas. The Programme is funded through the Operational Programme 'Research, Development and Innovation for and by Enterprises - Technology Fund' and aims to create more jobs in Spanish SMEs.
INNCORPORA sub-programme	This sub-programme includes the Torres Quevedo Programme, funds hiring of R&D personnel by the private sector (companies, technology centers, support centers of technological innovation, business associations and science and technology parks) and subsidises their training in Innovation Management. The total budget allocated for 2011 was EUR 342 million. The competitive aids are multi-year grants and subsidized loans (2011-14). The sub-programme is co-financed by the European Social Fund.
INNFLUYE sub-programme (ongoing)	INNFLUYE funds the creation and strengthening of Spanish Technology Platforms, i.e. public-private groups which work on developing and updating agendas of R&D and innovation priorities for their particular sector. The total budget allocated for 2011 was EUR 6.1 million. The competitive aids are multi-year grants (2011-13).
INNFACTO sub-programme (ongoing)	INNFACTO fosters steady cooperation between research organisations and firms. It supports collaborative R&D&I projects focused on market demand. The total budget allocated for 2011 was EUR 952 million. The competitive aids are multi-year grants and subsidized loans (2011-2014). The sub-programme is co-financed by the European Regional Development Fund.
Innpronta Programme (ongoing)	The Innpronta Programme falls under the Centre for the Development of Industrial Technology (<i>Centro para el Desarrollo Tecnológico Industrial</i>). It offers grants to promote stable public-private cooperation in R&D. The programme finances large industrial research projects of a strategic nature in the following priority areas: energy, the environment and climate change, biotechnology, health and food. The grants are for the development of new technologies in forward-looking areas with economic and commercial prospects at international level. The budget is EUR 102 million for 2011.
The CENIT Programme (ongoing)	<p>The CENIT Programme is part of the INGENIO 2010 initiative launched by the government in 2006 to stimulate cooperation in R&D&i among businesses, universities, public or private research and technology centres.</p> <p>CENIT has the following characteristics: i) industrial research projects with mandatory and contractual cooperation between companies and public, private or other research groups; ii) at least four independent firms (two of them SMEs) and two public research institutions; iii) minimum commitment of four years; iv) minimum budget of EUR 20 million; and v) at least 20% of the budget must be developed by research organisations or technology centres under</p>

Measure	Description
At national level	
	contract.
	Managed by the CDTI, CENIT is a competitive program with grants of until 50% of the budget of the projects. There were 6 calls during the period 2006-2010 with EUR 1 072 million of grants. Last projects will be finished in 2014.
At regional level	
Programa Talent Empresa (TEM Grants), Catalonia	The TEM Grants target Catalonia's SMEs, technology parks, etc. to encourage them to employ researchers to work for industry.

Source: Deloitte questionnaire and Ministry of Economy and Competitiveness website: www.micinn.es/stfls/MICINN/Investigacion/FICHEROS/PROGRAMA_TRABAJO_011_12-01-11.pdf

8. Mobility and international attractiveness

Measures aimed at attracting and retaining 'leading' national, EU and third country researchers

In 2007, the percentage of doctoral candidates (ISCED 6) who were citizens of another EU-27 Member State was 5.1% in Spain compared to 2.8% among the Innovation Union reference group and an EU average of 7.3%¹⁶. In the same year, the percentage of non-EU doctoral candidates as percentage of all doctoral candidates was 16.8% in Spain compared to 5.1% among the Innovation Union reference group and an EU average of 19.4%¹⁷.

The table below summarises key measures aimed at attracting and retaining leading national, EU and third-country researchers.

Table 8: Measures to attract and to retain leading national, EU and third-country researchers

Measure	Description
Ikerbasque – Basque Foundation for Science (Basque Country) (ongoing)	The Basque Foundation launches calls for attracting and retaining distinguished researchers, regardless of their nationality.
Programa "Clarín" de ayudas postdoctorales del Principado de Asturias (Movilidad B) (ongoing)	The Clarín programme aims to attract researchers currently working in foreign institutions to pursue a researcher career in the Autonomous Community of the Principality of Asturias.
Programa ICREA (Catalonia) (ongoing)	The ICREA programme aims to attract researchers from around the world, based on their scientific talent, to move to and work in Catalonia.
Ramón y Cajal and Juan de la Cierva Programas (ongoing)	See chapter 8 "Mobility and international attractiveness".

Source: Deloitte

Finally, the Spanish Government is planning to create a programme at national level (an extension of the existing *Severo Ochoa Programa*) which will be targeted at high-level scientists, regardless of their nationality.

Inward mobility (funding)

In Spain, the major obstacles to researchers' mobility are either legal problems related to visa acquisition or language barriers, especially in connection with administrative procedures. In 2009, the government implemented the scientific visa Directives via the Spanish Immigration Act 2/2009.

The table below summarises key measures aimed at supporting researchers' inward mobility.

Table 9: Measures supporting researchers' inward mobility

Measure	Description
Acción Estratégica de Salud Sara Borrell¹⁸ (ongoing)	The Sara Borrell Action is part of the Strategic Health Programme. It supports health research centres wanting to employ national or foreign doctors with experience in health research for a maximum three-year period.
Acción Estratégica de Salud Río	The Río Hortega Action is part of the Strategic Health Programme and aims at

¹⁶ See Figure 1 "Key indicators – Spain".

¹⁷ Ibid.

¹⁸ Ministry of Economy and Competitiveness

Measure	Description
Hortega¹⁹ (ongoing)	engaging health professionals in research teams to obtain experience in research.
Línea Incorporación -Torres Quevedo²⁰ (ongoing)	This budget line grants a subsidy to private companies, technology centres, business associations or scientific parks for a maximum of three years in order to employ national or foreign researchers for experimental developments, viability studies or industrial research. After the period of three years, the contract must become permanent.
Programme I3 - Incentives for the incorporation and strengthening of research activity (Programa de Incentivación de la Incorporación e Intensificación de la Actividad Investigadora - Programa I3) (ongoing)	Programme I3A supports research Institutions to permanently employ national or foreign post-docs students.
Subprogramme on Mobility of Foreign University Lecturers or Researchers in Spanish Centres²¹ (Subprograma de movilidad de profesores o investigadores extranjeros en centros españoles) (ongoing)	This programme comes under the Ministry of the Economy and Competitiveness. It targets foreign researchers and lecturers coming to Spain, either during a sabbatical year (for senior researchers or professors) or by signing employment contracts (for young doctors) for a period of nine to eighteen months.
Subprogramme: Juan de la Cierva²² (ongoing)	The Juan de la Cierva subprogramme promotes a contract for post-doc juniors to be integrated and work in research teams for a maximum of three years.
Subprograma de contratación de doctores de la "Junta para la Ampliación de Estudios" (CSIC-JAE-Doc)²³ (ongoing)	Under the CSIC-JAE-Doc programme, the Spanish National Research Council (CSIC) offers three-year postdoctoral contracts to national and foreign post-doctoral researchers, including the preparation of a PhD thesis.
Subprogramme: Ramón y Cajal²⁴ (ongoing)	The Ramón y Cajal subprogramme promotes a contract for post-doc seniors to be integrated and work in research teams for a maximum of five years.
1. Contrato de acceso al Sistema Español de Ciencia, Tecnología e Innovación (ongoing) 2. Contrato de investigador distinguido (ongoing)	These are two types of contract – access to the SECyT and the distinguished researcher contract - developed under the new Spanish Law on Science, Technology and Innovation. They are open to both nationals and foreign researchers. The first is for researchers who obtained their PhD less than five years ago.

Source: Deloitte

Outbound mobility

The table below presents measures aimed at encouraging researchers to spend some time in another country.

Table 10: Measures supporting researchers' outbound mobility

Measure	Description
At national level	
FPI, FPU and JAE pre-doctoral grants	See chapter 5 "Education and training".
Human Resources Subprogramme Salvador Madariaga (Subprograma Salvador Madariaga) (ongoing)	This sub-programme is for graduate students and early stage researchers wanting to do a PhD at the European University Institute in Florence, Italy, in the fields of Economics, History and Civilization, Law or Political and Social Sciences. The funding is for 48 months (24 month grant and another 24 month employment contract).
Subprogramme: postdoctoral mobility in foreign centres (Subprograma de estancias de movilidad posdoctoral en	This subprogramme for post-doctorates covers a maximum stay of one month per year. It includes post-doc positions offered by the Fulbright Commission, the Cátedras Príncipe de Asturias (Prince of Asturias Chairs) and the International Computer Science Institute.

¹⁹ Ibid.

²⁰ Ibid.

²¹ National Human Resources Mobility Programme, Ministry of Economy and Competitiveness.

²² Part of the National Programme for Recruitment and Incorporation of Human Resources - Programa Nacional de Contratación e incorporación de RRHH, Ministry of Economy and Competitiveness.

²³ Spanish National Research Council (CSIC).

²⁴ Ibid.

Measure	Description
centros extranjeros) (ongoing)	
Subprogramme: mobility of Spanish university lecturers and researchers in foreign centres (Subprograma de movilidad de profesores e investigadores españoles en centros extranjeros) (ongoing)	This sub-programme is for senior researchers with permanent positions in a public research institution, who can apply to spend three to twelve months at a foreign research institution. Young doctors with a temporary or permanent contract in a Spanish public research institution can also apply for a four to ten month stay at a foreign research institution.
Subprogramme of specialisation in International Organisations (Subprograma de Especialización en Organismos Internacionales) (ongoing)	This subprogramme 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.
At regional level	
Programa "Clarín" de Ayudas Postdoctorales del Principado de Asturias (Modalidad A) (ongoing)	The Clarin programme of the Principality of Asturias funds post-doctoral researchers to spend a maximum of 24 months in foreign centres of excellence to further develop their specialisation.
Programa "Severo Ochoa" del Principado de Asturias (ongoing)	The Severo Ochoa Programme of the Principality of Asturias funds pre-doctoral students (two year grant and a two year contract) with additional funding for annual short stays of a maximum of 60 days.

Source: Deloitte

Promotion of 'dual careers'

The Spanish Government does not actively promote researchers' dual careers.

Portability of national grants

Publicly funded R&D grants and fellowships provided by the Ministry of the Economy and Competitiveness are always linked to Spanish R&D centres. The legal and grant beneficiaries are the Spanish institutions and consequently, the grants are not portable to other EU countries. However, the research can be carried out in foreign countries, subject to the terms of the relevant call.

Access to cross-border grants

All relevant calls published by the Ministry of Economy and Competitiveness are open to researchers from all around the world without any restriction to nationality. The only prerequisite is that the host R&D centre needs to be Spanish.

The percentage of foreign researchers winning an R&D Call in 2010 was:

- Ramón y Cajal programme: 25%;
- Juan de la Cierva programme: 31%;
- Formación de Personal Investigador programme: 16%;
- Torres Quevedo (postdoctoral contracts in private companies) programme: 13%.

Measures encouraging inter-sectoral mobility

The *Inncorpora* programme allows for mobility between the public and the business sector. The aim of the Programme is to engage highly-skilled staff in private companies (as well as technology centres, science parks and business associations) and support knowledge transfer between academia and the business sector.