

**Deloitte.**

Researchers' Report 2014

**Country Profile:  
Luxembourg**



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## 1. Key data

### National R&D intensity target

“Public sector R&D intensity increased steadily from 0.12% in 2000 to 0.45% in 2011. This fourfold increase reflects the willingness of the Grand-Duchy to build up its public research capacities from a situation where, 25 years ago, the public research system was in fact non-existent. The first public research centres were created in 1987 and the University of Luxembourg was established in 2003. These efforts have continued in recent years as shown by an increase of 38% in real terms of the government budget for R&D between 2008 and 2011.

However, Luxembourg seems does not seem to be on track to reach its R&D intensity target for 2020 of 2.3-2.6% as R&D intensity is on a declining path. This is the result of a sharp decrease in business R&D intensity (from 1.53% of GDP in 2000 to 1% in 2011).

If Luxembourg is to reach its 2020 R&D intensity target, the contribution from the private sector needs to increase. Only 45% of Luxembourgish private investment in R&D is made in the manufacturing sector, compared to 23% in financial services and about 30% in other services<sup>1</sup>. The level of R&D investment in financial services tripled between 2003 and 2007; however thereafter it dropped by 27% between 2007 and 2009.

Private and public R&D investment can also receive support by co-funding from the European budget, in particular through successful applications to the seventh Framework Program for research and the Structural Funds. Up to early 2012, 124 Luxembourgish participants had been partners in an FP7 project, with a total EC financial contribution of EUR 31 million. This represents EUR 61 per head of population, which is 35% higher than the EU average. The success rate of Luxembourgish applicants is 19.5%, in line with the EU average success rate of 21.6%. Moreover, over the FEDER programming period 2007-2013, EUR 19 million (37.7% of the total FEDER fund for Luxembourg) was allocated to research, innovation and entrepreneurship in Luxembourg.”<sup>2</sup>

### Key indicators measuring the country’s research performance

The figure below presents key indicators measuring Luxembourg’s performance on aspects of an open labour market for researchers against a reference group and the EU average<sup>3</sup>.

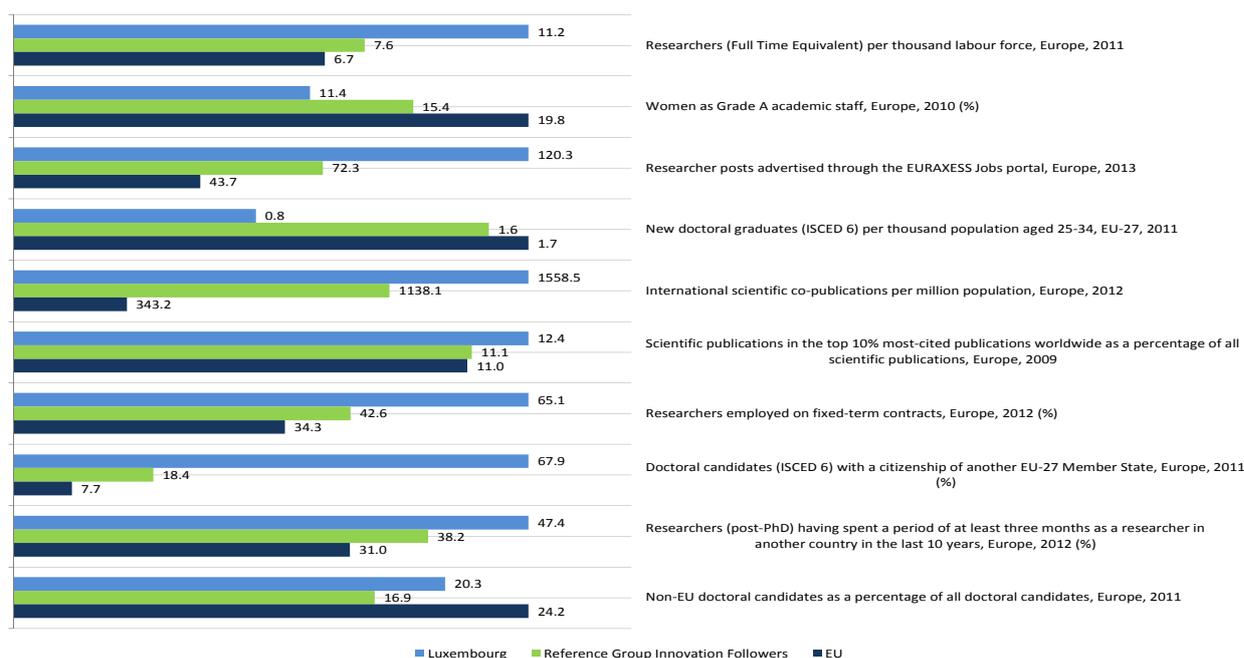
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<sup>1</sup> However it must be borne in mind that these other services include R&D services to the manufacturing sector.

<sup>2</sup> European Commission (2013), “Research and Innovation performance in EU Member States and Associated countries. Innovation Union progress at country level 2013”

<sup>3</sup> The values refer to 2013 or the latest year available.

Figure 1: Key indicators – Luxembourg



Source: Deloitte

Data: Eurostat, SHE Figures, EURAXESS Jobs Portal, UNESCO OECD Eurostat education survey, Innovation Union Scoreboard 2014, MORE2. Notes: Based on their average innovation performance across 25 indicators, Austria, Belgium, Cyprus, Estonia, France, Ireland, Luxembourg, Netherlands, Slovenia and the UK show a performance above or close to that of the EU average. These countries are the “Innovation followers”<sup>4</sup>.

## Stock of researchers

The table below presents the stock of researchers in Luxembourg by Head Count (HC) and Full Time Equivalent (FTE).

Table 1: Human resources – Stock of researchers

Indicator	Luxembourg	EU Average/Total
<b>Head Count per 1 000 active labour force (2011)</b>	14.55	10.55
<b>Head Count (2011)</b>	3 438*	2 545 346
<b>FTE per 1 000 active labour force (2011)</b>	11.16	6.75
<b>Full time equivalent (FTE) (2011)</b>	2 636*	1 628 127

Source: Deloitte

Data: Eurostat

\* Trend extrapolations of the observed values for the same country.

## 2. National strategies

The government of Luxembourg 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.

In Luxembourg R&D policies are coordinated by two Ministries: the Ministry of Economy (*Ministère de l’Economie*) and the Ministry of Higher Education and Research (*Ministère de l’Enseignement Supérieur et de la Recherche*). The former is in charge of research in the private sector while the latter is responsible for research in the public sector. The Higher Research and Innovation Committee contributes to the development of national R&D policy by advising the government of Luxembourg.

The table below presents key programmes and initiatives intended to implement the strategic objectives to train enough researchers to reach Luxembourg’s R&D targets, to promote attractive working conditions, and to address gender and dual career aspects.

<sup>4</sup> European Commission (2014), “Innovation Union Scoreboard 2014”

Table 2: National strategies

Measure	Description
<b>Law on Public Research Institutions (in the proposal stage)</b>	<p>A proposal for a new Law on Public Research Institutions is under discussion in the Luxembourg Parliament. The future law will:</p> <ul style="list-style-type: none"> <li>– Propose attractive employment and career development conditions for doctoral candidates;</li> <li>– Provide for 40% at least of members of boards to be of the underrepresented sex; and</li> <li>– Promote gender equality.</li> </ul>
<b>National Plan for Innovation and Full Employment - National Reform Programme of the Grand Duchy of Luxembourg as part of the Lisbon Strategy (2009)</b>	<p>The National Plan for Innovation and Full Employment covers the higher education and national education systems, research and innovation, energy policy and transportation and telecommunications infrastructures. The National Plan reinforces synergies between the University of Luxembourg and the public research establishment by promoting mobility of research and teaching personnel. It encourages the organisation of colloquia, conferences and other activities with the aim of bringing together research professionals, decision makers and professionals to discuss issues such as the link between research, development and innovation, competitiveness, technology transfers, initial and continuing education, etc.</p>
<b>National Research Fund – FNR (Fonds National de la Recherche Luxembourg) (since 1999, revision of the law foreseen for 2014)</b>	<p>The FNR is a public body with scientific, financial and administrative autonomy. Under its current funding activities for public research, the FNR serves a three-pronged strategic objective:</p> <ul style="list-style-type: none"> <li>- support researchers to build up scientific quality and excellence;</li> <li>- improve Luxembourg’s research environment and institutional framework;</li> <li>- promote scientific culture, particularly among the young.</li> </ul> <p>The FNR supports researchers throughout their career. At PhD and postdoc level, the AFR Grant Scheme (<i>Aides à la Formation-Recherche</i>) introduced in 2008 is the main national funding instrument. In addition, excellence schemes are in place for incoming researchers. These are at junior level (ATTRACT) and at senior level (PEARL) – see chapter 6 “Working Conditions”. They are similar to ERC Grants. The FNR has also developed a broad range of institutional schemes or multiannual research programmes, including international collaboration with other funding agencies.</p> <p>The proposal for the revision of the law in 2014 foresees a support system for research institutions to finance doctoral schools alongside the individual researchers’ support system.</p>
<b>Performance contracts (2008)</b>	<p>As a result of an OECD study (2005) on the strengths and weaknesses of the Luxembourg research system, the government adopted a national R&amp;D policy and agenda. This resulted in 2008 in the introduction of performance contracts between all public research centres and the government, as well as between the National Research Fund (FNR) and the Government, and the National Agency for Innovation and Research (Luxinnovation) and the Government. The objective of the Performance Contracts was to provide institutions with a large measure of autonomy in defining and implementing a three-year research development strategy by 2013. There has been no evaluation of results, but it is known that some have made very good progress and have aligned their strategy with the HRS4R requirements. Priorities included human resource development for researchers, including provisions for career development, personal evaluation, recruitment procedures (involving international selection committees) and training procedures.</p> <p>A follow-up study will be undertaken in spring 2014 focusing on the implementation of the 2005 recommendations and the remaining gaps to be filled in the policy aspects of the Luxembourg research system.</p> <p>A review of the Performance Contract instrument undertaken in 2013 by the Ministry of Higher Education and Research together with national stakeholders confirmed the validity of the current framework of the performance contracts. A new set of performance contracts will be signed with the research institutions and agencies for the period 2014-2017.</p>

Source: Deloitte

### 3. Women in the research profession

#### Measures supporting women researchers in top-level positions

In 2010, the percentage of women grade A academic staff was 11.4% in Luxembourg compared with 15.4% among the Innovation Union reference group and an EU average of 19.8%<sup>5</sup>.

In Luxembourg, gender equality is highlighted in the performance contracts signed between the Ministry of Higher Education and Research and the university or the public research centres. Gender equality has to be promoted at all stages of the research career and especially for nominations to the board of the research institutions.

#### Quotas to ensure a representative gender balance

Luxembourg is to introduce a quota in the form of a requirement that a minimum of 40% of the board members of public research centres and the National Research Fund be of the underrepresented sex (see chapter 2 “National Strategies”). In addition, gender equality is highlighted in all performance contracts signed between the Ministry of Higher Education and Research and the University of Luxembourg or the public research centres.

#### Parental leave

Women researchers interrupting their career to go on maternity leave enjoy the social security coverage provided by their employment contract.

Under the National Research Fund’s AFR PhD and postdoc grant schemes, researchers receive employment contracts with full social security, covering maternity leave and parental leave, thus providing support to women in the early stages of their career.

### 4. Open, transparent and merit-based recruitment

#### Recruitment system

The University of Luxembourg and the public research centres are in the process of developing a human resources policy, including recruitment measures, under the provisions of the ‘Charter & Code’. The EURAXESS portal is regularly used by the University of Luxembourg, public research institutions and by an increasing number of private institutions for job announcements. English is the preferred language for non-administrative posts. Finally, there are no legal, institutional or cultural barriers (at national/regional/local level) to the openness and transparency of the national recruitment system.

#### Open recruitment in institutions

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

The proposal for the revised law on the Public Research Centres calls on the Boards of the Centres to define clear recruitment procedures in the internal regulations.

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

Do institutions in the country currently have policies to ...?	Yes/No	Description
– <b>publish job vacancies on relevant national online platforms</b>	Yes	Most institutions regularly publish job vacancies on national and international portals.
– <b>publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)</b>	Yes	All public research institutions, including the University of Luxembourg, are members of the national EURAXESS network. All institutions publish job vacancies on the EURAXESS portal.
– <b>publish job vacancies in English</b>	Yes	English is the preferred language for non-administrative job vacancies.
– <b>systematically establish selection panels</b>	Yes	Institutions establish selection panels for top research positions in accordance with provisions in the

<sup>5</sup> See Figure 1 “Key indicators – Luxembourg”

Do institutions in the country currently have policies to ...?	Yes/No	Description
		performance contracts between the government and the research institutions.
– <b>establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.)</b>	Yes	The University of Luxembourg and public research centres establish the composition of selection panels.
– <b>publish the composition of a selection panel (obliging the recruiting institution)</b>	No	Institutions do not publish the composition of a selection panel.
– <b>publish the selection criteria together with job advert</b>	No	Institutions do not publish the selection criteria together with job advert.
– <b>regulate a minimum time period between vacancy publication and the deadline for applying</b>	No	Institutions do not regulate a minimum time period between vacancy publication and the deadline for applying.
– <b>place the burden of proof on the employer to prove that the recruitment procedure was open and transparent</b>	No	Institutions do not place the burden of proof on the employer to prove that the recruitment procedure was open and transparent.
– <b>offer applicants the right to receive adequate feedback</b>	No	Institutions do not offer applicants the right to receive adequate feedback.
– <b>offer applicants the right to appeal</b>	No	Institutions do not offer applicants the right to appeal.

Source: Deloitte

### EURAXESS Services Network

In 2013, the number of researchers posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 120.3 in Luxembourg compared with 72.3 among the Innovation Union reference group and an EU average of 43.7<sup>6</sup>.

Information on entry conditions, transfer of social security and pension contributions, accommodation, administrative assistance, etc. is published on the “*De Guichet*”<sup>7</sup> as well as on the national EURAXESS portal and in the Foreign Researcher’s Guide to Luxembourg<sup>8</sup>. All job announcements are also published on the EURAXESS portal.

The EURAXESS Services Centre organises training sessions for the EURAXESS network on specific themes, such as entry conditions, accommodation, communication and social security. These workshops aim to improve recruitment procedures and remove obstacles to researchers and their families’ mobility.

In 2013, the EURAXESS Services Centre published a new information guide “Foreign Researchers’ Guide to Luxembourg” for both private companies and researchers, as well as a user-friendly leaflet with five steps to finding a job and settling in Luxembourg (for researchers) and six steps to finding the perfect researcher for your project (for an R&D institution).

The EURAXESS Services Centre has recently set up an online application system for housing requests.

In 2013, euraxess.lu recorded:

- a 15% increase in visits (to 36 815);
- an increase of 9 to 181 countries and regions of origin;
- a 0.20% increase in pages viewed (to 79 554);
- a 20.93% increase in unique visitors (27 625);
- a 2.99% increase in new visitors to 73.54%;
- a 1.5% increase in visits from Asia to 10%, but a 4.6% drop in visits from Europe (to 77.6%) and a slight 0.1% drop in visits from America (to 6.9%).

<sup>6</sup> See Figure 1 “Key indicators – Luxembourg”

<sup>7</sup> <http://www.guichet.public.lu>

<sup>8</sup> [http://www.euraxess.lu/var/ezwebin\\_site/storage/images/home/guide\\_euraxess.pdf](http://www.euraxess.lu/var/ezwebin_site/storage/images/home/guide_euraxess.pdf)

## 5. Education and training

### Measures to attract and train people to become researchers

The table below summarises the key measures aimed to attract and train young people to become researchers.

Table 4: Human Resources – Key programmes and initiatives

Measure	Description
<b>AFR PhD and Postdoc Grant Scheme</b>	
The AFR grant scheme is the main national funding instrument to support researchers during doctoral or postdoctoral research-training. The success rate in 2013 was 35% at PhD level and 47% at postdoc level and dropped to 20% for the first call in 2014. Some EUR 24 million EUR were awarded in 2013 (of which EUR 1 million was covered through the Marie Curie COFUND scheme). As of December 31, 2013, 415 AFR-funded projects (328 PhDs and 87 Postdocs) were running.	
<b>Promotion of scientific culture</b>	
<b>Financial Support</b>	The FNR's "Promoting Science to the Public" programme funds: <ul style="list-style-type: none"> <li>– researchers to disseminate their knowledge to schoolchildren, students and the general public, and to initiate a dialogue with them;</li> <li>– teachers, private individuals and non-profit organisations to deliver projects for schoolchildren, students and the general public giving an insight into science and the work of scientists.</li> </ul>
<b>Networking activities</b>	The FNR runs a "Go for Science" network - where participants from the University, secondary schools, primary schools, after-school care, museums and non-profit associations meet to exchange ideas and to get ideas for study workshops, hands-on experiments and school project weeks.
<b>Public events</b>	The FNR finances and organises and/or co-organises the biennial "Science Festival" and "Researchers' Night" in Luxembourg. The FNR also brings researchers into secondary schools once per year to exchange experiences with teachers and pupils. In addition, the FNR's very own "Mister Science" promotes science in a regular show on national radio and the main national TV channel.
<b>Workshops</b>	The FNR runs workshops in close collaboration with schools and researchers. In FNR workshops, researchers learn how to present their complex projects intelligibly to children, teenagers and to a lay public, and also talk about their careers.
<b>Website</b>	<a href="http://www.science.lu">www.science.lu</a> is a website targeting the general public, where children, young people and adults can find information on science and research in Luxembourg and worldwide. It is a combined effort of Luxembourg science and research organisations which offers scientists and science communicators a means of reaching a broad public with information on their projects. Nearly 30 organisations are behind the project, including the FNR, museums, research centres, professional associations, educational institutions and youth organisations.
<b>Other accompanying measures</b>	
<b>Support for Research Communication</b>	The FNR supports communication between researchers to promote scientific outcomes and exchanges and awards grants for <ul style="list-style-type: none"> <li>– international scientific conferences in Luxembourg;</li> <li>– exploratory workshops in Luxembourg;</li> <li>– lecture series in Luxembourg;</li> <li>– summer schools in Luxembourg;</li> <li>– scientific monographs.</li> </ul>

Source: Deloitte

AFR data for 2013 show that of all successful applicants in 2013 the percentage of women was 37% (compared to 44% of women at the application stage). The need to introduce a specific funding initiative to encourage a higher proportion of female researchers would be at the level of advanced career stages, such as tenured assistant or full professorships, but so far there is no specific support measure in place.

Neither the Government of Luxembourg nor the FNR have implemented any specific measures to increase the number of doctoral graduates in science, technology, engineering and mathematics (STEM), but the AFR grant scheme does cover these domains, and there was a significant increase in successful applications between introduction of the scheme in 2008 and 2013. Moreover, the FNR has a range of support measures to promote STEM among children and young adults, including collaboration with schools.

### Doctoral graduates by gender

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

Table 5: Doctoral graduates by gender

Indicator	Luxembourg	EU Average
New doctoral graduates (ISCED 6) per 1 000 population aged 25-34 (2011)	0.8	1.7
Graduates (ISCED 6) per 1 000 of the female population aged 25-34 (2011)	0.7	1.6
Graduates (ISCED 6) per 1 000 of the male population aged 25-34 (2011)	0.9	1.8

Source: Deloitte

Data: Eurostat

### Funding of doctoral candidates

In 2013, there were an estimated total of 650 PhDs in Luxembourg (including those still studying and those concluding their PhDs in 2013). The main source of funding for doctoral candidates in Luxembourg is the AFR PhD individual grant scheme (some 45% of PhD candidates). This is followed by funding from the institutions (some 30% of PhD candidates). Other sources are FNR-funded multi-annual research projects and funding from external sources (e.g. own funding, the EU, companies and other sources). The majority of PhD candidates in Luxembourg are covered by an employment contract with full social security. Only about 10% have other stipends with no employment contracts or meet the costs of the PhD themselves, often as part-time PhDs registered at the University of Luxembourg.

The AFR scheme is a competitive funding scheme and an international expert panel selects the candidates, and ensures that only the best are retained. The FNR awards up to 90 new AFR grants for PhDs every year. The funding period covered by the AFR is three years, with a possibility of a one-year extension for finalisation of the PhD.

### Measures to increase the quality of doctoral training

The University of Luxembourg has been implementing doctoral schools since 2012. The currently proposed reform of the FNR law foresees the implementation of a new funding instrument to allocate collective AFR PhD grants to Luxembourg public research units based on criteria such as scientific excellence, and quality of doctoral training and supervision. The FNR is developing a quality framework for doctoral training in parallel. This defines a basic set of requirements for the management, quality and academic standards of the training of FNR-funded PhDs across all Luxembourg institutions. The implementation of this quality framework will be part of the assessment exercise for the new AFR collective grant scheme (foreseen in 2015).

The performance contract the Government concluded with the FNR also foresees that the FNR will monitor the employment situation of previously funded PhD candidates (through a career tracking tool)<sup>9</sup>.

### Skills agenda for researchers

The University of Luxembourg together with the public sector research centres have, when appropriate, set up doctoral schools<sup>10</sup> for PhD candidates in order to improve researchers' employment skills and competencies.

AFR beneficiaries are entitled to a "training allowance" of EUR 2,000 per year (EUR 6,000 per PhD grant) to participate in training seminars, summer schools and international conferences.

Moreover, the FNR offers training in project management to starting AFR beneficiaries and career orientation training "From Learning to Earning" to AFR candidates in the end-phase of their PhD or Postdoc. Moreover the University of Luxembourg has a set of training courses to promote researchers' transferable skills, including communication, writing, IPR and entrepreneurship, etc.

<sup>9</sup> The Government concludes multi-annual performance contracts with the research institutions and the FNR in Luxembourg. For the previous performance contract 2011-2013, the institutions were requested to define a PHD supervision policy within their HR development strategy. The PHD supervision policy together with the research institutions' policies for recruitment and career development will be evaluated by the Government in 2014. The PHD funded proposals will continue to be evaluated by external selection committees set up by the FNR.

<sup>10</sup> For general information on the aims of the Doctoral Schools of the University of Luxembourg, see:

[http://www.uni.lu/research/doctoral\\_schools/](http://www.uni.lu/research/doctoral_schools/);

- Doctoral school in Educational Sciences, available at: [http://www.wfr.uni.lu/flshase/doctoral\\_school/](http://www.wfr.uni.lu/flshase/doctoral_school/);

- Doctoral School in Systems and Molecular Biomedicine, available at:

[http://www.wfr.uni.lu/recherche/fstc/life\\_sciences\\_research\\_unit/doctoral\\_school/](http://www.wfr.uni.lu/recherche/fstc/life_sciences_research_unit/doctoral_school/);

- Doctoral Schools in Economics and Finance, available at:

[http://www.wfr.uni.lu/recherche/fdef/crea/doctoral\\_school\\_in\\_economics\\_and\\_finance](http://www.wfr.uni.lu/recherche/fdef/crea/doctoral_school_in_economics_and_finance)

The proposed new AFR collective grant scheme (see above) will support the further development of high-quality doctoral training programmes offering scientific and non-scientific skills.

## 6. Working conditions

### Measures to improve researchers' funding opportunities

The table below summarises the key funding programmes available to all researchers in Luxembourg.

Table 6: Funding programmes and grants

Measure	Description
<b>FNR research programmes (partly or completely funded by FNR)</b>	
<b>ATTRACT Programme - Opportunities for Outstanding Young Researchers in Luxembourg (2008-2017)</b>	The ATTRACT Programme aims to build on the dynamic research environment in Luxembourg by attracting highly talented researchers with proven experience in a professional research context. The programme is designed for researchers not yet established in Luxembourg by offering them the opportunity to set up an independent research team within a public-sector research institution in Luxembourg.
<b>CORE and CORE Junior Programme (2008-2017)</b>	The main objective of the CORE Programme is to foster scientific quality in defined priority thematic domains and to promote the deployment of research results to ensure socio-economic benefits. The programme also promotes research training for doctoral candidates. Finally, the CORE programme aims to increase the competitiveness of Luxembourg research at international level, including scientific publications. Included in the CORE programme is a CORE junior strand specifically targeting early postdoc level researchers (maximum 8 years post-PhD) who apply for their own position in the framework of an independent research project at one of the research institutions in Luxembourg.
<b>INTER Programme - Promotion of International Cooperation (2006-2017)</b>	The general aim of the INTER Programme is to enhance international cooperation as well as promote research projects between researchers from Luxembourg and abroad. INTER helps build synergies between research centres in and outside Luxembourg, and thus increase the research competitiveness of Luxembourg worldwide.
<b>PEARL programme – Excellence Award for Research in Luxembourg (2011-2017)</b>	The dual objective of the PEARL programme is first to offer institutions a flexible tool to recruit and integrate distinguished Investigators in important R&D activities in Luxembourg and second to help institutions implement their strategic development.
<b>FNR - AFR Grant Scheme (Aides à la Formation-Recherche)</b>	
<b>PhD Grants (ongoing)</b>	The AFR PhD programme targets holders of a university degree, allowing them to embark on doctoral training. The grant has no thematic limitations and is open to all researchers, regardless of their nationality, desirous of engaging in research training in Luxembourg. AFR also funds PhD projects abroad, but there are some eligibility restrictions.
<b>Post-doc Grants (ongoing)</b>	The AFR post-doc grant scheme is co-funded by the European Commission under the Marie-Curie COFUND scheme. The programme targets holders of a PhD diploma and offers them postdoc research training in a country different from that in which the applicant has been working for past 24 months (mobility clause). Similarly to the PhD grant, the postdoc grant has no thematic limitations and is open to all researchers, regardless of their nationality, providing they want to undertake research in Luxembourg. A number of postdocs are funded abroad, subject to some eligibility restrictions.  The currently proposed reform of the FNR will provide for intersectoral mobility as an option under the AFR Postdoc funding scheme instead of geographic mobility.

Source: Deloitte

### Remuneration

Researchers working at the University of Luxembourg and in public research centres, including the AFR Grant scheme beneficiaries, are considered as 'private employees', similar to researchers in the private sector. They all have employment contracts (even at doctoral level) ensuring full social security. Their salary and benefits are embedded in the institutional remuneration policy.

For further information, see the country profile on remuneration of researchers from the MORE2 study on the EURAXESS website.<sup>11</sup>

<sup>11</sup> <http://ec.europa.eu/euraxess/index.cfm/services/researchPolicies>

## Researchers' Statute

In Luxembourg, researchers' rights and obligations do not fall under a concrete and predetermined statute.

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

The University of Luxembourg, four public sector research institutions and the National Research Fund (FNR) have endorsed the 'Charter & Code'. The AFR Grant Schemes are also in line with the principles advocated in the 'Charter & Code'. In addition, one research institution<sup>12</sup> has received HRS4R acknowledgment. Under the future new law on public research institutions, the implementation of the 'Charter & Code' will become mandatory.

## Autonomy of institutions

The public sector research centres and the University enjoy full autonomy in their recruitment policy.

Both public sector research centres and the University of Luxembourg enjoy full autonomy in defining their remuneration policies and therefore in the differentiation of researcher salaries. Nevertheless, in the framework of the performance contracts they have signed with government, public sector research centres must develop an evaluation strategy for their staff based mainly on academic performance.

## Career development

Luxembourg institutions do not actively promote career development provisions except that the AFR grant selection criteria at postdoc level include career prospects. Neither the University of Luxembourg nor public sector research centres provide tenure track possibilities. All new positions at the University of Luxembourg are open to external researchers.

The only exception is the ATTRACT scheme of the FNR: in order to attract excellent researchers to Luxembourg, the FNR has made it mandatory for applicants to receive a guarantee from their institutions based on an objective performance review. This paves the way to them receiving an unlimited contract at the end of their grant with the prospect of advancing to the corresponding level of seniority with the same rights and obligations as the other permanent researchers in the institution.

## Shift from core to project-based funding

The shift from core to project-based research funding has no specific impact on researchers' working conditions in Luxembourg.

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

All beneficiaries of FNR projects or institutional funding, including AFR fellows, are taken on under employment contracts with the host institution. These employment contracts offer researchers full social security coverage, including health and pension insurance, during the research training period.

## 7. Collaboration between academia and industry

The government actively promotes inter-sectoral mobility by focusing via the Performance Contracts with the research institutions on the creation of spin-offs by the public sector research centres, on a comprehensive financial support package through state aids which foster public-private collaboration. The cluster initiative of Luxinnovation, the National Agency for Innovation, fosters concrete operational cooperation between industry and public sector research institutions.

The AFR-PPP scheme also offers funding for PhDs and postdocs working in collaborative public-private research projects. In 2013, 12 new AFR-PPPs received funding, amounting to a total of 38 AFR-PPPs running at the end of 2013.

**Table 7: Collaboration between academia and industry**

Measure	Description
<b>Public-Private Partnerships under the AFR (AFR-PPP)</b>	The AFR scheme supports researchers in carrying out their PhD and/or post-doc training in collaboration with a private company in Luxembourg. The AFR contribution to

<sup>12</sup> Centre de Recherche Public-Santé (CRP-Santé).

Measure	Description
<b>scheme) (ongoing)</b>	<p>employment contracts comes to EUR 39 175 per year for PhDs (supplemented by EUR 3 781 for a PPP) and EUR 55 208 per year for postdocs (supplemented by EUR 4 386 for a PPP). The research project is developed jointly by the AFR candidate, the private company and the public partner, and it needs to be innovative and create “new knowledge”. The AFR scheme provides for:</p> <ul style="list-style-type: none"> <li>– Researchers to be trained in companies and to carry out their research training projects in collaboration with the company;</li> <li>– Companies to contribute to the training of the researchers and benefit from their expertise.</li> </ul>

Source: Deloitte

## 8. Mobility and international attractiveness

In 2011, the percentage of doctoral candidates (ISCED 6) who were citizens of another EU-27 Member State was 67.9% in Luxembourg compared with 18.4% among the Innovation Union reference group and an EU average of 7.7%<sup>13</sup>. In the same year, the percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 20.3% in Luxembourg compared with 16.9% among the Innovation Union reference group and an EU average of 24.2%<sup>14</sup>.

### Measures aimed at attracting and retaining ‘leading’ national, EU and third country researchers

The table below summarises the funding measures to attract and retain leading researchers.

Table 8: Measures to attract and retain leading researchers

Measure	Description
<b>ATTRACT Programme - Opportunities for Outstanding Young Researchers in Luxembourg (2006-2013)</b>	See chapter 6 “Working conditions”.
<b>ERCIM Grants (European Research Consortium in Informatics and Mathematics) (2 calls/year; Grant duration: generally 24 months) (ongoing)</b>	ERCIM grants are intended to attract young researchers of post-doctoral level from anywhere in the world to work on a research problem (in informatics or mathematics) at two research centres in the ERCIM network <sup>15</sup> .
<b>Inter Mobility Scheme (ongoing)</b>	The FNR’s Inter Mobility Scheme supports the mobility of researchers based in Luxembourg to move abroad as well as the mobility of foreign researchers moving to Luxembourg (up to 1 year), thus establishing collaborative links between Luxembourg and foreign research institutions.
<b>PEARL Programme – Excellence Award for Research in Luxembourg (2011-2013)</b>	See chapter 6 “Working conditions”.

Source: Deloitte

Luxembourg has implemented the Hosting Agreement (‘Scientific Visa’) scheme, which facilitates the inward migration of third country researchers. This has most certainly helped attract non-EU researchers to both the public and private sectors. Since the implementation of the scheme in 2009, the EURAXESS Service Centre has informed incoming researchers about the Scientific Visa, and encourages research institutions in industry to sign the accreditation and to employ non-EEA nationals under hosting agreements.

### Inward mobility (funding)

In Luxembourg, there are no known obstacles to mobility affecting researchers in or coming into the country. However, under a recent amendment to the law<sup>16</sup>, researchers coming to Luxembourg from non-EU countries need to meet specific entry criteria. In Luxembourg, both national and foreign candidates are entitled to funding (see chapter 5 “Education and training” and chapter 6 “Working conditions”).

<sup>13</sup> See Figure 1 “Key indicators – Luxembourg”

<sup>14</sup> Ibid

<sup>15</sup> The ERCIM consortium brings together research institutes from 20 European countries in the field of information technology and applied mathematics.

<sup>16</sup> ‘Loi sur la libre circulation et l’immigration’ of 10.09.2008; modified 8.12.2011 and 3.2.2012. This law encompasses all aspects of immigration, not only for researchers. The Scientific Visa directive was transposed via this law.

### **Outbound mobility**

The FNR's INTER Mobility Scheme (see above) is dedicated to the support of both inward and outward mobility (from one month up to one year).

### **Promotion of 'dual careers'**

Neither the FNR nor the research institutions actively promote researchers' dual careers.

### **Portability of national grants**

AFR Grants are portable to other EU countries on condition that the project objectives and deliverables remain the same abroad.

### **Access to cross-border grants**

AFR grants are open to non-residents on condition that they have an employment contract at a Luxembourg-based research institution and spend at least 50% of their research time in this Luxembourg-based research institution. The AFR also funds PhDs and Postdocs abroad, but this is limited to Luxembourg nationals and Luxembourg residents (>5 years).