

The Researchers Report 2012

Country Profile: Luxembourg



Deloitte.

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1. Key data

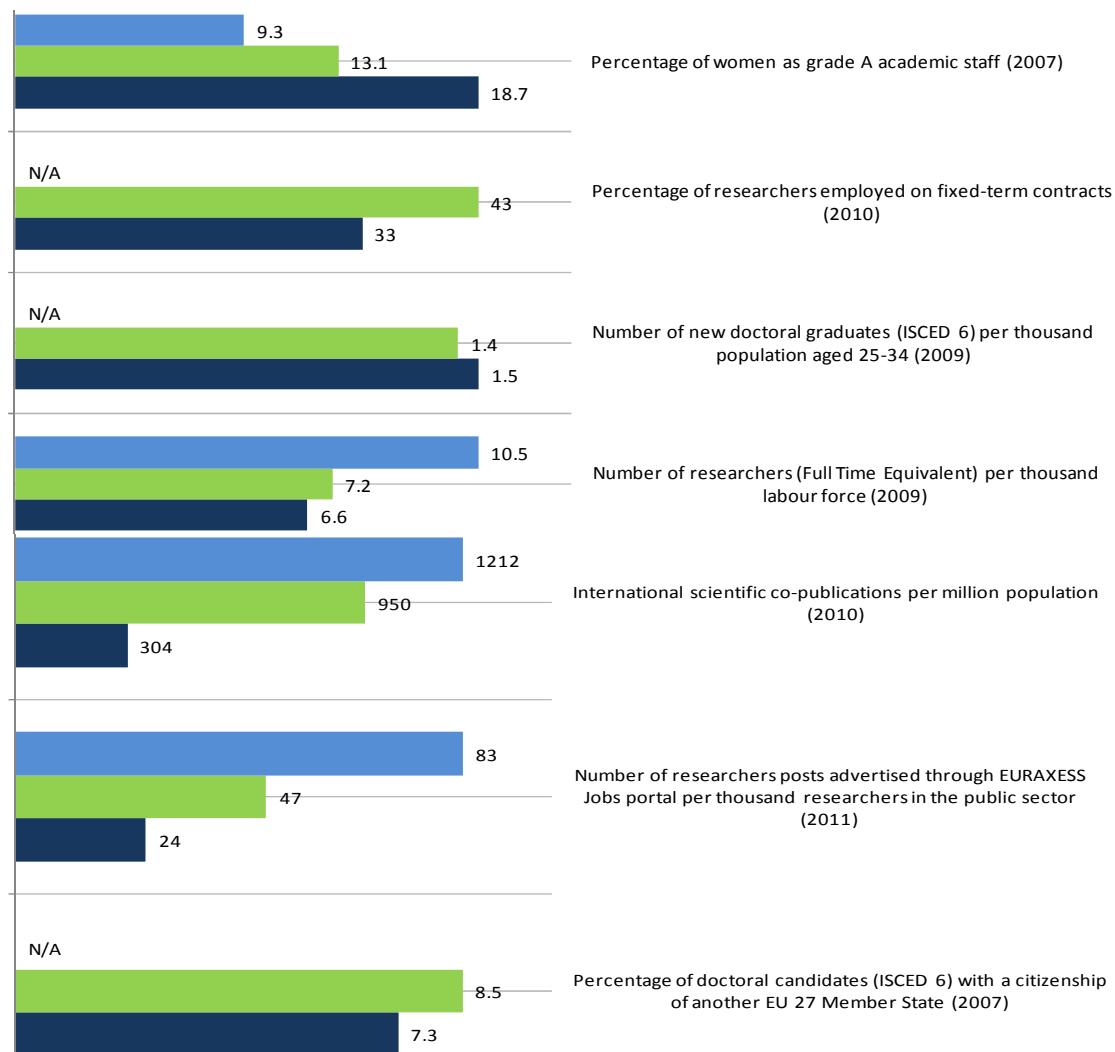
National R&D intensity target

"R&D intensity in Luxembourg has fluctuated over the last decade. More precisely, it decreased from 1.65% in 2000 to 1.56% in 2005, increased to 1.66% in 2006 and slightly decreased to 1.56% in 2008, before increasing to 1.68% in 2009. These fluctuations are mirrored by fluctuations in the R&D intensity of the private sector over the same period. Public sector (government plus higher education) has increased steadily, even if it has remained relatively low, from 0.12% in 2000 to 0.44% in 2009. This shows that R&D financed by the business sector is the component most affected by the business cycle. The economic crisis did not trigger any cuts in public sector expenditure on R&D. The country was able to increase his nominal R&D budget. This indicates that Luxembourg regards R&D as a priority and as a means of ensuring a better and more rapid economic recovery and economic growth in the longer term. In this context, Luxembourg has set an ambitious, albeit realistic R&D intensity target of 2.6% of GDP for 2020. The private sector would contribute 1.8-1.9% of GDP, i.e. approximately 70%, and the public sector 0.70- 0.80%, i.e. around 30%."¹

Key indicators measuring the country's research performance

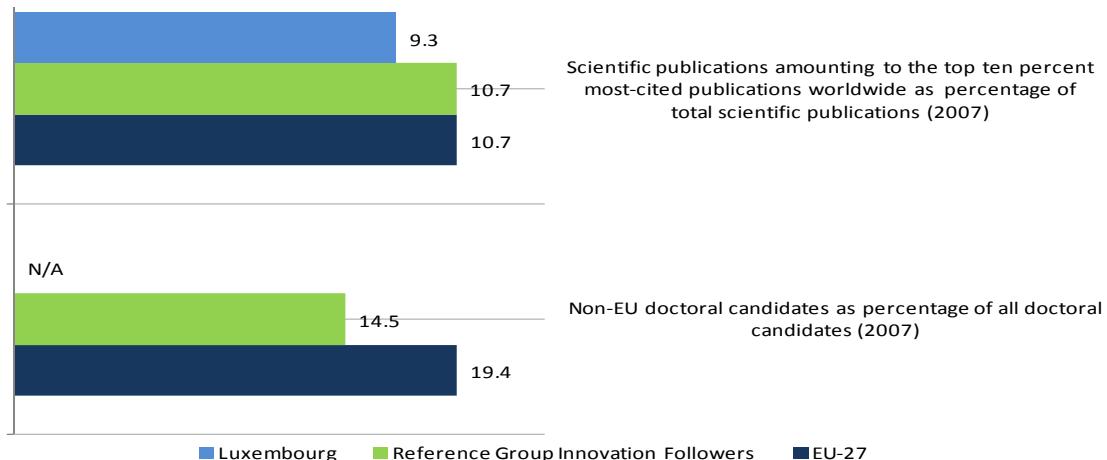
The figure below presents key indicators measuring Luxembourg's research performance against a reference group and the EU27 average².

Figure 1: Key indicators – Luxembourg



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, Austria, Belgium, Cyprus, Estonia, France, Ireland, Luxembourg, Netherlands, Slovenia and the UK show a performance close to that of the EU27. These countries are the Innovation followers³.

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 |
|-------------------------------------------------|------------|------------|
| Head Count per 1 000 active labour force (2008) | 12.06 | 9.45 |
| Head Count (2008) | 2 568 | - |
| FTE per 1 000 active labour force (2009) | 10.50 | 6.63 |
| Full time equivalent (FTE) (2009) | 2 401 | - |

Source: Deloitte

Data: Eurostat

2. National strategies

In Luxembourg R&D policies are coordinated by two Ministries; the Ministry of Economy and Foreign Trade (*Ministère de l'Economie et du Commerce extérieur*) 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 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. 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.

Table 2: National strategies

| Measure | Description |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Law on Public Research Institutions (in the proposal stage) | <p>The Ministry of Higher Education and Research is in the process of amending the current Law on Public Research Institutions. The future law will:</p> <ul style="list-style-type: none"> – Propose attractive employment and career development conditions for doctoral students; – Promote gender equality and encourage institutions address existing imbalances in gender representation on university bodies and committees. |

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

| Measure | Description |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National Plan for Innovation and Full Employment - National Reform Programme of the Grand Duchy of Luxembourg as part of the Lisbon Strategy (2009) | 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. |
| National Research Fund – FNR (<i>Fonds National de la Recherche Luxembourg</i>) (since 1999) | 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: <ul style="list-style-type: none"> – support researchers to build up scientific quality and excellence; – improve Luxembourg's research environment and institutional framework; – promote scientific culture, particularly among the young. Since 2000, the FNR has implemented the AFR Grant Scheme (<i>Aides à la Formation-Recherche</i>). These research training grants offer financial support to doctoral and post-doctoral students. |
| Performance contracts (2008) | As a result of an OECD study (2005) on the strengths and weaknesses of the Luxembourg research system, the government adopted a national R&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 is to provide institutions with a large measure of autonomy in defining and implementing a three-year research development strategy (by 2013). Priorities include human resource development for researchers, including provisions for career development, personal evaluation, recruitment procedures (involving international selection committees) and training procedures. |

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 9.3% in Luxembourg compared with 13.1% among the Innovation Union reference group and an EU average of 18.7%. 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 scales of the research career and especially for the nominations in the board of the research institutions.

Quotas to ensure a representative gender balance

Luxembourg has no quotas or national targets and/or other measures to ensure a representative gender balance for researchers. The Government of Luxembourg mostly uses soft measures to achieve this. For instance, 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. Gender balance is also taken into consideration for the nomination of the personnel to the research institutions' boards.

Maternity leave

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

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 and other public research 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.

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 | Yes | Most institutions regularly publish job vacancies on national and international portals. |
| – publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS) | 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. |
| – publish job vacancies in English | Yes | English is the preferable language for non-administrative job vacancies. |
| – systematically establish selection panels | Yes | Institutions establish selection panels for top research position according to the performance contracts between the government and the research institutions. |
| – establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.) | Yes | The University of Luxembourg and public research centres establish the composition of selection panels. |
| – publish the composition of a selection panel (obliging the recruiting institution) | No | Institutions do not publish the composition of a selection panel. |
| – publish the selection criteria together with job advert | No | Institutions do not publish the selection criteria together with job advert. |
| – regulate a minimum time period between vacancy publication and the deadline for applying | No | Institutions do not regulate a minimum time period between vacancy publication and the deadline for applying. |
| – place the burden of proof on the employer to prove that the recruitment procedure was open and transparent | No | Institutions do not place the burden of proof to prove that the recruitment procedure was open and transparent. |
| – offer applicants the right to receive adequate feedback | No | Institutions do not offer applicants the right to receive adequate feedback. |
| – offer applicants the right to appeal | No | Institutions do not offer applicants the right to appeal. |

Source: Deloitte

EURAXESS Services Network

In 2011, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 83 in Luxembourg compared with 47 among the innovation reference group and 24 as the EU average⁴. Information on entry conditions, transfer of social security and pension contributions, accommodation, administrative assistance, etc. is published on the “De Guichet” (<http://www.guichet.public.lu>) as well as on the national EURAXESS portal. All jobs announcements are also published on the EURAXESS portal.

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 |
|----------------------------------------|-------------|
| <i>Promotion of scientific culture</i> | |

⁴ See Figure 1 “Key indicators – Luxembourg”.

| Measure | Description |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Networking activities | The FNR runs two networks: <ul style="list-style-type: none"> - “Go for Science” - 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; - “ProScience” – where all major public research actors, as well as the Ministry of Education and the <i>Service National de la Jeunesse</i> (the National Youth Service), communicate in order to facilitate the organisation of promotional activities and increase the research institutions’ support for promoting scientific culture. |
| Public events | The FNR finances and organises and/or co-organises the biennial “Science Festival” and “Researchers’ Night” in Luxembourg. |
| Workshops | 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. |
| Other accompanying measures | |
| Training and Mobility | The FNR implements the following three measures to train researchers and promote mobility: <ul style="list-style-type: none"> - Researchers living in Luxembourg or Luxembourg researchers working abroad are encouraged to present their research results at scientific conferences abroad and to establish scientific contacts at an international level. - Researchers working in a public research institution in Luxembourg, regardless of their age and nationality, participate in summer schools and short training sessions of up to two weeks. - Foreign researchers come to Luxembourg and researchers from Luxembourg go abroad for a period from one month up to one year. Eligible researchers are those from public research institutions or public bodies with a research mission in Luxembourg, regardless of their age or country of origin. |

Source: Deloitte

The University of Luxembourg and the existing AFR grant schemes aim at attracting students to take science to an advanced (doctoral) level by promoting and financing research science. However, the Government of Luxembourg does not put any special emphasis on encouraging women to take science to a doctoral level. The Government of Luxembourg has not implemented any specific measures to increase the number of doctoral graduates in science, technology, engineering and mathematics (STEM).

Measures to increase the quality of doctoral training

In the past, an external selection committee evaluated funded PhD proposals. In the future, the Government of Luxembourg is planning to define supervision criteria in order to monitor the advancement of funded PhD projects⁵.

Skills agenda for researchers

The Government of Luxembourg is planning to set up a series of doctoral schools⁶ for PhD candidates in order to improve researchers' employment skills and competencies.

6. Working conditions

Measures to improve researchers' funding opportunities

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

⁵ The Government concludes multi-annual performance contracts with the research institutions in Luxembourg. For the current performance contract 2011-2013, the institutions are 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.

⁶ For general Information on the aims of the Doctoral Schools of the University of Luxembourg, see:

http://wwwen.uni.lu/research/doctoral_schools;

- Doctoral school in Educational Sciences, available at: http://wwwfr.uni.lu/flshase/doctoral_school;

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

http://wwwfr.uni.lu/recherche/fstc/life_sciences_research_unit/doctoral_school;

- Doctoral Schools in Economics and Finance, available at:

http://wwwfr.uni.lu/recherche/fdef/crea/doctoral_school_in_economics_and_finance

Table 5: Funding programmes and grants

| Measure | Description |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FNR research programmes (partly or completely funded by FNR) | |
| ATTRACT Programme - Opportunities for Outstanding Young Researchers in Luxembourg (2006-2013) | The ATTRACT Programme aims to build on the excellence, dynamism and creativity of research in Luxembourg by attracting distinguished 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. |
| CORE Programme (2008-2013) | The main objective of the CORE Programme is to foster scientific quality in the domains of economics, society and environment and promote the deployment of research results to ensure socio-economic benefits. The programme also promotes research training for doctoral students. Finally, the CORE programme aims to increase the competitiveness of Luxembourg research at international level through the publication of scientific articles in internationally renowned journals. |
| INTER Programme - Promotion of International Cooperation (2006-2014) | 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. |
| PEARL programme – Excellence Award for Research in Luxembourg (2011-2013) | The dual objective of the PEARL programme is first to offer institutions a flexible tool to recruit and integrate excellent PEARL grantees in important R&D activities in Luxembourg and second to help institutions implement their strategic development. |
| FNR - AFR Grant Scheme (Aides à la Formation-Recherche) | |
| PhD Grants | 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 or abroad. The interest of the project in the context of the Luxembourg R&D setting is one of the selection criteria. |
| Post-doc Grants | 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 are desirous of undertaking research in Luxembourg or abroad. Again, the interest of the project in the context of the Luxembourg R&D setting is one of the selection criteria. |

Source: Deloitte

Remuneration

With the exception of AFR Grant scheme beneficiaries, researchers working at the University of Luxembourg and in public research centres are considered as ‘private employees’, similar to researchers in the private sector. Consequently, their salary and benefits depend on each institution’s remuneration policy.

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’

By the end of 2011, the University of Luxembourg, four public Research Institutions and the National Research Fund (FNR) had endorsed the ‘Charter & Code’. The AFR Grant Schemes are also in line with the principles advocated in the ‘Charter & Code’. In addition, one research institution⁷ has received HRS4R acknowledgment. Under the future new law on public research institutions, the implementation of the ‘Charter & Code’ will become mandatory.

⁷ Centre de Recherche Public-Santé (CRP-Santé).

Autonomy of institutions

The public research centres enjoy full autonomy in their recruitment policy. The University of Luxembourg's autonomy is limited, on the other hand, due to the fact that some academic staff profiles are already defined by law.

Both public 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 research centres must develop an evaluation strategy for their personnel's salaries based exclusively on their academic performance.

Career development

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

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 an AFR Grant scheme are engaged under work 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

Collaboration between academia and industry is exclusively fostered by the National Research Fund's AFR Grant Scheme (FNR).

Table 6: Collaboration between academia and industry

| Measure | Description |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Public-Private Partnerships under the AFR (AFR-PPP scheme) | <p>The AFR scheme supports researchers to carry out their PhD and/or post-doc training in collaboration with a private company in Luxembourg. The AFR contribution to work contracts comes to EUR 38 220 per year (plus EUR 3 680 for PhD studies) and EUR 54 231 per year (plus EUR 4 944 for post-docs). The research project is jointly developed by the AFR candidate, the private company and the public partner, and it needs to be innovative and create "new knowledge".</p> <p>The AFR scheme provides for:</p> <ul style="list-style-type: none"> – Researchers to be trained in companies and to carry out their research training projects in collaboration with the company; – Companies to contribute to the training of the researchers and benefit from their expertise. |

Source: Deloitte

8. Mobility and international attractiveness

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 7: Measures to attract and retain leading researchers

| Measure | Description |
|------------------------------------------------------------------------------------------------------|-------------------------------------|
| ATTRACT Programme - Opportunities for Outstanding Young Researchers in Luxembourg (2006-2013) | See chapter 6 "Working conditions". |

| Measure | Description |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ERCIM Grants (European Research Consortium in Informatics and Mathematics) (2 calls/year; Grant duration: generally 24 months) | 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 ⁸ . |
| PEARL Programme – Excellence Award for Research in Luxembourg (2011-2013) | See chapter 6 “Working conditions”. |

Source: Deloitte

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 law⁹, 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”).

Outbound mobility

The FNR accompanying measure on Training and Mobility (see chapter 5 “Education and training”) is dedicated to the support of both inward and outward mobility (from one month up to one year).

Promotion of ‘dual careers’

The government of Luxembourg does not 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 fully open to non-residents in Luxembourg. The selection process is neither related to the country of residence of the researcher nor to the researcher’s nationality.

Measures encouraging inter-sectoral mobility

The government does not promote inter-sectoral mobility to any great extent, apart from via the existing AFR–PPP scheme.

⁸ The ERCIM consortium brings together research institutes from 20 European countries in the field of information technology and applied mathematics.

⁹ ‘*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 “Researchers Directive” is transposed within this law.