Luxembourg Country Report

EUFORI Study

European Foundations for Research and Innovation

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EUROPEAN COMMISSION

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EUFORI Study

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Contents

1  Contextual Background 6
   1.1  Historical background 6
   1.2  The legal and fiscal framework 7
   1.3  The foundation landscape 8
   1.4  Research/innovation funding in Luxembourg 10
2  Data Collection 13
   2.1  The identification of foundations supporting R&I 13
   2.2  The survey 13
   2.3  The interviews 13
3  Results 15
   3.1  Types of foundation 15
   3.2  The origins of funds 15
   3.3  Expenditure 17
   3.4  Focus of support 19
   3.5  The geographical dimensions of activities 20
   3.6  Foundations’ operations and practices 21
   3.7  The role of foundations 22
4  Innovative Examples 23
5  Conclusions 26
   5.1  Main conclusions 26
   5.2  The strengths and weaknesses of the R&I foundation sector in Luxembourg 26
   5.3  Recommendations 27
6  References 28
1 Contextual Background

1.1 Historical background
Luxembourg has traditionally adopted a ‘collectivist’ approach to philanthropy, where initiating and funding social progress is seen as the exclusive role of the Church and State. This has, until recently, been characteristic of one of two prevailing viewpoints in Europe. Some, mostly Northern European countries, such as the Netherlands and Scandinavia, have taken a more ‘liberal’ attitude that broadly welcomes private involvement in civic and social activities (within given limits); others, particularly neighbouring countries such as Belgium and France, but also Spain, whose societies have been shaped by the Napoleonic Code of civil law, have tended more towards Luxembourg’s viewpoint, discouraging independent action by private individuals and companies. [1]

A recently published book [2] provides extensive information about the dynasties of families who played an important economic, political, cultural and social role during the industrialisation period of the Grand Duchy of Luxembourg (1850-1900). These influential families – often lawyers, notaries, bankers, industrialists and property owners – were philanthropists, and paved the way for the setting up of Luxembourg’s foundations. Indeed, during this period, a distinction was made between the practice of charitable activities and the setting up of foundations to address social and educational issues neglected by the State and, on the other hand, the less common sponsorship of culture, with the constitution and the bequest of large art collections by philanthropists to public institutions. It is worth mentioning the charitable activities of the ‘Jeunes économes’ and the foundations set up to make up for the lack of schools (the Institut Emile Metz, now the Lycée Technique Privé Emile Metz), the lack of healthcare institutions (the Institut Norbert Metz, now the Fondation Norbert Metz – Clinique d’Eich) and the lack of accommodation (the Fondation J.P. Pescatore). Examples of sponsoring culture include the art collection of Jean-Pierre Pescatore, donated to the City of Luxembourg currently being exhibited at the Villa Vauban, and the collection Dutreux, which can be seen at the Musée communal des beaux-arts d’Ixelles in Brussels.

The development of the Luxembourg not-for-profit sector has gained momentum over the last twenty-five years. ‘Two-thirds of the associations have been created in the last twenty years.’ as reported in the 2010 study Le secteur associatif au Luxembourg, [3] which also states that almost 80 % of the still active foundations have been set up since 1989.

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1 Case Study: Promoting Philanthropy in Luxembourg. FSG Social Impact Advisors, wise partnership and Banque de Luxembourg.
A general trend is that, since the 1980s, European philanthropic activity has increased in countries from both traditions; the ‘collectivist’ and the more ‘liberal’ approach. Indeed, a series of legal reforms, including revisions to Foundation Law in Belgium (2002) and in Spain (2003) and improvements to tax benefits for donations in Italy, Germany, France and Spain, among others, have had an encouraging impact on European private founders and donors, either as individuals and/or as corporations. Until 2008, Luxembourg had not yet seen similar legal and fiscal changes.

It is worth noting that the Grand Duchy of Luxembourg is one of the most generous countries in the world, not only but also in terms of overseas development aid, contributing the highest proportion of the gross national income (GNI). According to the OECD’s key metric, which is official development assistance as a share of the GNI, Luxembourg overtook Sweden in 2012, thanks to a rise in bilateral grants. As part of a government plan, Luxembourg had made a commitment to keep its development assistance as a share of the national income at around 1%.

1.2 The legal and fiscal framework
Open discussions about and around philanthropy in 2008, initiated by the Symposium ‘Seizing the opportunity for philanthropy in Luxembourg,’ and organised by the Banque de Luxembourg as one of several initiatives in order to contribute to the systemic development of philanthropy in Luxembourg, had an inspiring influence and a positive impact on the Luxembourg foundation landscape. As a result of these discussions, major legal changes were adopted in 2008, the fiscal treatment for donations was doubled as of 2009 and the Fondation de Luxembourg, the only sheltering foundation in Luxembourg, was set up and began its operational activities in 2009.


According to the FA, only one type of foundation pursuing nonprofit or public benefit purposes, exists in Luxembourg. This Luxembourg nonprofit foundation can be set up either as a classical fundraising or distributing foundation, a company foundation, a sheltering foundation, an impact financing foundation or a shareholder foundation. However, private foundations with a public benefit purpose, as can be constituted in Belgium, cannot be established in Luxembourg.

4 Sorry Sweden, Luxembourg is now the most generous country in the world. Accessed 4 August 2014 at: http://qz.com/166298/sorry-sweden-luxembourg-is-now-the-most-generous-country-in-the-world/
5 The Symposium ‘Seizing the opportunity for philanthropy in Luxembourg’ was organised by the Banque de Luxembourg as one of several initiatives in order to contribute to the systemic development of philanthropy in Luxembourg. Accessed 4 August 2014 at: http://www.banquedeluxembourg.com/bank/en/bank_corporate-social-responsibility_engagement
Luxembourg public benefit foundations are establishments pursuing aims that are philanthropic, social, religious, scientific, artistic, pedagogic, related to sports or in the field of tourism (art. 27.2 FA). Their purpose should be pursued using the assets dedicated to the foundation on its creation or later on.

The draft Law No 6054 on Non-Profit Associations and Foundations, deposited in 2009, includes interesting but also controversial points, such as fixing the minimal endowment for a foundation to EUR 250 000 and the obligation for a foundation to have its annual accounts audited by an external auditor. Although this draft law has since been publicly discussed as well as criticised, there has been silence surrounding it during the last four years. As it has not been voted on since, the existing Luxembourg Law on Non-Profit Associations and Foundations of 21 April 1928 as amended is still valid and serves its purpose well.

According to the FA, state-approved foundations are by definition bodies of public interest pursuing public benefit purposes. As such, they are exempt from income tax.

Foundations are not allowed to pursue any for-profit activity, including any trading activities. This means that foundations are not allowed to sell items nor to invoice for services provided, if done on a large scale. Gifts and inheritances received by foundations are subject to a donation or inheritance tax, normally at a reduced rate of 4.8 or respectively 4 %. This tax does not apply to gifts or legacies by bequest that have established the foundation. Furthermore, gift tax is only due on registered gifts.

The tax treatment of individual donors is generous. Since 1 January 2009, donations from individuals and legal entities are eligible for a tax benefit that has doubled (up to an annual 20 % of the taxable net income of the donor or a maximum of EUR 1 000 000). These amounts are high and are meant to encourage larger donations.

1.3 The foundation landscape
The Luxembourg not-for-profit foundation sector includes a total of 230 foundations (as of 31 December 2013), all of which are governed by the Luxembourg Law of 21 April 1928 on Non-Profit Associations and Foundations, as amended, and are registered with the Registre de commerce et des sociétés, Luxembourg. A closer look at this list shows that 95 foundations can be eliminated from this study as they have either been wound up, merged, transformed or have ceased their activities. As a consequence, 135 active public benefit foundations exist in Luxembourg as of 31 December 2013.

Since 9 January 2009, the Luxembourg foundation landscape has been enriched by the Fondation de Luxembourg, a sheltering public benefit foundation set up by the Luxembourg State and the Œuvre Nationale de Secours Grande-Duchesse Charlotte. Its mission is to promote private philanthropic commitment by

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enabling sheltering foundations to be set up under its aegis. This structure has the same advantages as a foundation with its own legal entity, but greatly simplifies the incorporation process. Since its incorporation, the Fondation de Luxembourg has facilitated the setting up of 43 sheltered foundation (as of 31 December 2013) with four foundations having a complete and/or partial focus on R&I activities.

It is interesting to look at the dynamics of the registration of Luxembourg foundations. In terms of numbers of Luxembourg foundations, one can emphasize that 80 % of the active 135 incorporated foundations were created over the last twenty-five years (a total of 107), with an average of four to five foundations set up every year. Recent years have seen the same average number of new foundations, with a peak in 2009 (six foundations) and a lower number in 2013 (four foundations). The low figure for 2013 needs to be considered together with the fourteen new sheltered foundations which were set up in 2013 under the aegis of the Fondation de Luxembourg.

The period of 1989-1998 was by far the most dynamic period with the highest number of foundations being set up, followed by the last five years (2009-2013). If sheltered foundations, made possible by the setting-up in 2009 of the Fondation de Luxembourg, are added, the period 2009-2018 will definitely exceed the period 1989-1998 in terms of new foundations being created.

Figure 1: The dynamics of the registration of Luxembourg foundations

The vast majority of the active 135 foundations support charitable activities in the Grand Duchy of Luxembourg, in Europe or elsewhere, serving a broad range of purposes, from the advancement of arts, culture or education, to the relief of those in need, to healthcare or the saving of lives and much more. Out of these 135 foundations, only 15 foundations include research and/or innovation in their purpose and their activities.

Among these fifteen Luxembourg foundations, only four foundations support mainly research and/or innovation activities; one was created in the late 1980s and is financing medical research, whereas the three more recent foundations support either finance research in monetary economics or support the promo-
tion of research and/or innovation activities. The remaining eleven Luxembourg foundations have R&I as one of their core activities. This means that less than 50% of their annual expenditure is allocated to R&I. The main core of the activities supported by Luxembourg foundations are illustrated in the following pie chart. The most ‘popular’ areas of activities (more than 10%) are Social, Culture, Health and Education, followed by Humanitarian and Children and Youth purposes. Disabilities, Sports, the Environment and R&I attract the interest of just a few Luxembourg foundations.

**Figure 2: The core activities of the 135 active Luxembourg foundations**

Source: Mémorial C, Recueil des sociétés et associations, Luxembourg

### 1.4 Research/innovation funding in Luxembourg

Since the 1980s, research and development (R&D), and innovation have been political priorities for successive Luxembourg governments. Significant investment has been made to promote the development of R&D and innovation in both the public and private sectors.

In the 1980s, several R&D structures were set up including Luxinnovation (the National Agency for Innovation and Research in Luxembourg in 1984); three Public Research Centres (CRPs) between 1987 and 1988: CRP-Gabriel Lippmann, CRP-Henri Tudor and CRP for Health, and in 1989, the Centre d’Etudes de Populations, de Pauvreté et de Politiques Socio-Economiques/International Network for Studies in Technology, the Environment, Alternatives, Development (CEPS/INSTEAD).

The framework Law for Economic Development and Diversification was passed in 1999 and led to the establishment of the National Research Fund (the Fonds National de la Recherche), which supports researchers and public research activities. The government, formed after the general elections of 1999, stressed the importance of research and innovation by increasing the budgetary resources made available to the sector and established a Ministry of Research, responsible for public research. Indeed, Luxembourg public investments in private and public R&D, increased between 2002 and 2012 from EUR 47.8 million to EUR 280 million and, as a percentage of the GDP, increased from a little more than 0.10% to close to 0.70% of the GDP. [10]

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2003 was the year of the establishment of the fully-fledged University of Luxembourg, the first and only university of the Grand Duchy of Luxembourg. In ten years, this multilingual, international, research-oriented university set up three faculties (Science, Technology and Communication; Law, Economics and Finance, and Language and Literature, the Humanities, Arts and Education) and two interdisciplinary centres (the Centre of Security, Reliability and Trust and the Luxembourg Centre for Systems Biomedicine). It offers 11 bachelor degrees, 29 master degrees and doctoral studies based on the Bologna Accords. Finally, research is possible in five high-priority research areas (International Finance; Security, Reliability and Trust in Information Technology; Systems Biomedicine; European and Business Law and Education and Learning in Multilingual and Multicultural Contexts), in twelve research units and has six endowed chairs and three doctoral schools. Relevant for the EUFORI study is that 430 students are enrolled on a PhD program out of which 330 are doctoral students with both student and employee status.

The government also encourages the establishment of centres of excellence based on public-private partnerships. This approach is based on the experiences of the work on technology clusters with the formation in 2002 of the Luxembourg Materials Cluster and the Luxembourg ICT Cluster; the Luxembourg Space Cluster in 2003; the Luxembourg BioHealth Cluster, the Cluster for Logistics and the Luxembourg Maritime Cluster in 2008 and, finally in 2013, the Luxembourg Automotive Cluster.

Example of a public-private partnership: the BioHealth cluster

Launched in 2008 by the government and supported by a EUR 140 million public funding program, the BioHealth cluster started a strategic partnership with three world-renowned US research institutions which has led to the:

- creation of the Integrated Biobank of Luxembourg (IBBL),
- establishment of the Luxembourg Centre for Systems Biomedicine (LCSB) and
- discovery of potential biomarkers for lung cancer.

The government initiative aims to enhance synergies between research and innovation players in Luxembourg by encouraging the coordination of research activities and promoting researchers’ inter-sector mobility. These synergy efforts will be visible through the concentration of activities in the City of Sciences, Research and Innovation in Belval, where a technological campus which favours public-private cooperation will be established. CRP-Gabriel Lippmann, which has merged with CRP-Henri Tudor into the Luxembourg Institute for of Science and Technology, CEPS/INSTEAD and the Luxembourg Centre for Systems Biomedicine at the University of Luxembourg (the House of Biomedicine) are the first public research organisations which have already located their activities there.

In 2012, the creation of the Max Planck Institute Luxembourg for International, European and Regulatory Procedural Law contributed to the diversification of R&D activities.

The four foundations focusing on R&I do not have a common recognisable organisational charter. However, most of them cooperate either with other not-for-profit organisations or act as a complementary source of support of public and private research or researchers.

Referring to figures published by the Ministry of Research, R&D expenses amount to EUR 626.3 million, which is equivalent to 1.46 % of the Gross Domestic Product (GDP) for 2012. The R&D expenses can be divided up as follows:

- Companies: EUR 429 million, ~ 68.5 % of total expenditure and 1 % of the GDP
- state sector: EUR 120.1 million, ~ 19.2 % of total expenditure and 0.28 % of the GDP
- higher education: EUR 77.2 million, ~ 12.3 % of total expenditure and 0.18 % of the GDP.

In order to conform with the objectives laid out by the ‘Europe 2020’ Strategy, the government has undertaken to achieve between 2.3 % and 2.6 % of (private and public) expenditure on GDP. [12]

According to the publication of the Innovation Union Scoreboard 2014, [13] Luxembourg is qualified as an Innovation Follower. Its performance relative to the EU has declined from almost 120 % in 2009 to 117 % in 2013. The relative strengths are in international scientific co-publications, community trademarks, venture capital investments and community designs. Luxembourg performs well below the average for non-R&D innovation expenditure and new doctorate graduates. Strong growth has been observed for international scientific co-publications, most cited scientific publications and R&D expenditure in the public sector. Sharp declines have been observed in non-R&D innovation expenditure, the sales share of new innovations and R&D expenditure in the business sector.

Most foundations supporting R&I choose projects which have a link to the Grand Duchy of Luxembourg, either in financing research carried out in the country or supporting a Luxembourg researcher working in Europe, or making funds available for the Luxembourg part of an international study.

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2 Data Collection

2.1 The identification of foundations supporting R&I

There are 135 active Luxembourg foundations recognised as having public benefit status. As there is no centralised foundation database in Luxembourg, the only way to identify the Luxembourg foundations supporting R&I was to look up every single registered foundation. This R&I focus can be found in the objectives (or purposes) of the foundations, as mentioned in the deposited statutes at the Registre du Commerce et des Sociétés and published at the Mémorial C, Recueil des Sociétés et Associations. If available, a cross-check with the foundation’s internet site or with publicly available data was carried out by the author. A list of all the active foundations was created and nineteen foundations (including four sheltered foundations[14]) were selected.

2.2 The survey

The questionnaire was sent out by ordinary mail to the nineteen foundations with a cover letter explaining the aim of the EUFORI Study and how to fill out the questionnaire online. In order to increase the response rate, the author personally contacted by phone or by email a representative of the foundations which did not provide information online. Seven foundations filled out the questionnaire online and two foundations filled out the questionnaire manually, returning it to the author who entered the data online. Out of the nineteen foundations receiving the questionnaire, four sheltered foundations had to be excluded, as the sheltering foundation replied for all of them in its own answer. In addition to this, the following five foundations showed no interest in participating in the EUFORI Study: the Fondation Recherche sur le Sida; the Fondation Faune-Flore; the Fondation Kiwanis, Luxembourg; the Fondation Européenne des Fondations and the Max Planck Institute Foundation Luxembourg. One foundation replied, but the answers could not be used.

As the participating foundations were, in terms of operations and funds available for R&I, the most important foundations, their responses were found to be representative for the eligible foundations.

2.3 The interviews

In order to have a sample of the interviewed foundations as large and diverse as possible, the author chose to conduct interviews with the following selected foundations:

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14 A sheltered foundation is an umbrella foundation established under the aegis of the Fondation de Luxembourg, the only sheltering foundation in Luxembourg. Sheltered foundations have no legal entity on their own but depend on the legal entity of the sheltering foundation.
1. One large operating/grantmaking foundation which has as one of its main activities (approximately one third of its budget over time) the support of research projects and which is almost entirely privately funded: the Fondation Cancer.

2. One large operating/grantmaking foundation whose exclusive mission is to support research and which is almost entirely funded by private means: the Fondation de Recherche Cancer et Sang.

3. One large sheltering foundation, which has sheltered foundations under its aegis supporting mainly and/or partially research and innovation and which are exclusively privately funded: the Fondation de Luxembourg.

4. One grantmaking corporate foundation, established by the management of a State-related entity and which supports research and innovation: the Fondation de la Banque Centrale du Luxembourg.

5. One ‘market-oriented’ grantmaking and newly established foundation engaged in bridging the gap between fundamental research, applied research and ‘go private’ activities: the Fondation Ouverte pour la Construction de l'Avenir du Luxembourg.

6. One small foundation focusing on the promotion and the development of young researchers in Luxembourg: the Fondation Jeunes Scientifiques Luxembourg.

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15 A large foundation by Luxembourg standards (i.e. large means an annual budget of EUR 2 million).
3 Results

3.1 Types of foundation
Out of the nine participating foundations, five can be qualified as operating foundations, while four are grantmaking foundations. These grantmaking foundations are exclusively privately funded and are partly supporting R&I.

Four out of the nine foundations have no employees on their payroll, whereas five foundations are operating foundations and have a total of 42 FTE employees on their payroll.

Out of the nine participating foundations, none are exclusively financed by the State, three are partially financed by the State and partially financed privately, but the majority of the foundations (six) are exclusively privately funded.

The majority of the participating foundations (six) partly support R&I; less than 50 % of their budget is allocated to R&I.

3.2 The origins of funds \[16\]

3.2.1 Financial founders
The majority of the nine foundations were set up and financed by individuals and corporations in the private sector [7/9] and/or by not-for-profit organisations [4/9] and/or the public sector [4/9]. No universities, research institutes or hospitals have been set up as foundations in Luxembourg.

Figure 3: The financial founders of nine foundations (several answers possible)

<table>
<thead>
<tr>
<th>Financial Founder</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private individuals</td>
<td>5</td>
</tr>
<tr>
<td>Corporation</td>
<td>2</td>
</tr>
<tr>
<td>Non-profit organisation</td>
<td>4</td>
</tr>
<tr>
<td>Public sector</td>
<td>4</td>
</tr>
<tr>
<td>Hospital</td>
<td>0</td>
</tr>
<tr>
<td>Research institute</td>
<td>0</td>
</tr>
<tr>
<td>University</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Data collection EUFORI Study

\[16\] All foundations refer to their annual accounts of the calendar year of 2012.
Bar one, all the foundations take their strategic direction from a Supervisory Board or a Board of Directors (the Directors are volunteers and are not paid).

### 3.2.2 Income

#### Total income

Although foundations are required by law to publish annual accounts, only a small majority [5/9] answered this question. Where data were missing the author looked up public information. As this information is not available for individual sheltered foundations, the sum of all the sheltered foundations set up under the aegis of Fondation de Luxembourg has been considered.

<table>
<thead>
<tr>
<th>Statistics on income (data for 2012)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of foundations</td>
<td>9</td>
</tr>
<tr>
<td>Mean income in Euros</td>
<td>1 896 884</td>
</tr>
<tr>
<td>Median income in Euros</td>
<td>192 759</td>
</tr>
<tr>
<td>Total income in Euros</td>
<td>17 071 952</td>
</tr>
</tbody>
</table>

EUR 0-100 000: 4 foundations

EUR 100 000-1 000 000: 1 foundation

> EUR 1 000 000: 4 foundations

#### Sources of income

Most foundations were set up with an endowment in the form of money [4/5], securities [2/5] and/or property [2/9]. Patents and proceeds from privatisations were not mentioned as part of an endowment. The four foundations with an annual income of over EUR 1 million use their endowment and their fundraising capacity to generate their total annual income. This is also true for the foundation with a total income of between EUR 100,000 and EUR 1,000,000.

With the exception of one foundation, which is exclusively funded by income from its endowment, the three remaining foundations, with a total income of below EUR 100,000, use their fundraising capacity to generate income.

Three foundations answered that they receive income from government subsidies and grants. The foundations receiving governmental support do not distribute these funds but use them for their own operational work. The three foundations which receive an annual income from the government, receive it in the form of the equivalent of salaries of foundation’s staff being ‘conventionné’ (employees, scientists etc.). The three foundations answering this question said that the government has no influence over decisions made about the allocation of funds for R&I.
3.2.3 Assets

As with the data on annual income, the author had to look up public information on four foundations’ assets. For the sheltered foundations, this information is only available as the sum of all the sheltered foundations (the Fondation de Luxembourg). The table below contains information for eight foundations and the Fondation de Luxembourg.

<table>
<thead>
<tr>
<th>Statistics on assets (data for 2012)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of foundations</td>
<td>9</td>
</tr>
<tr>
<td>Mean assets in Euros</td>
<td>5 801 909</td>
</tr>
<tr>
<td>Median assets in Euros</td>
<td>1 948 634</td>
</tr>
<tr>
<td>Total assets in Euros</td>
<td>52 217 179</td>
</tr>
<tr>
<td>EUR 0-1 000 000: 3 foundations</td>
<td></td>
</tr>
<tr>
<td>EUR 1 000 000-10 000 000 Euros: 4 foundations</td>
<td></td>
</tr>
<tr>
<td>&gt; EUR 10 000 000 Euros: 2 foundations</td>
<td></td>
</tr>
</tbody>
</table>

Bar one foundation out of the five answering foundations, the other four foundations responded that they have more than 50% invested in long-term securities.

3.3 Expenditure

Total expenditures

The same nine foundations were examined for their total income and total expenditure.

<table>
<thead>
<tr>
<th>Statistics on expenditure (data for 2012)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of foundations</td>
<td>9</td>
</tr>
<tr>
<td>Mean expenditure in Euros</td>
<td>858 024</td>
</tr>
<tr>
<td>Median expenditure in Euros</td>
<td>173 526</td>
</tr>
<tr>
<td>Total expenditure in Euros</td>
<td>7 722 215</td>
</tr>
<tr>
<td>EUR 0-100 000: 4 foundations</td>
<td></td>
</tr>
<tr>
<td>EUR 100 000-1 000 000: 1 foundation</td>
<td></td>
</tr>
<tr>
<td>&gt; EUR 1 000 000: 4 foundations</td>
<td></td>
</tr>
</tbody>
</table>

Out of the nine foundations, one newly created foundation intends to spend 100% on innovation, three foundations spend more than 60% of their 2012 expenditure on R&I activities and the remaining five foundations consider R&I as a minor activity and spend less than 25% of their expenditure on R&I issues.
Research
Eight foundations only or partially support research. With the exception of one foundation, which has a dedicated research team, the other seven foundations only or partially supporting research prefer to grant funds to selected projects or students.

Example of a sheltered foundation under the aegis of the Fondation de Luxembourg granting scholarships to promising graduate students.

Two PhD students at the LCSB, Julia Becker-Kettern and Kathrin Hemmer, are recipients of the 2013 Pélican stipend. This grant is awarded by the Fondation du Pélican de Mie et Pierre Hippert-Faber under the aegis of the Fondation de Luxembourg, and is meant to help students of the University’s Doctoral School of Systems and Molecular Biomedicine with expenses that are not covered by their research grant.

This was the first time since the creation of the award three years ago that two of the three grants went to students at the Luxembourg Centre for Systems Biology (LCSB). ‘I feel honored to be awarded this grant,’ said Julia Becker-Kettern, who works in Carole Linster’s Enzymology and Metabolism laboratory. ‘I am planning to spend some of the money to visit conferences and workshops. The remainder of the funds will allow me to generate some transcriptomics data in collaboration with EMBL.’ Kathrin Hemmer, who is a graduate student in Jens Schwamborn’s Development and Cellular Biology laboratory, will use the funds not only to travel to conferences but also to participate in a CLARITY workshop held in Karl Deisseroth’s lab at Stanford University in California. CLARITY is a process where an entire mouse brain is rendered transparent with its three-dimensional complexity of fine wiring and molecular structures remaining completely intact. The third grant was awarded to Susanne Reinsbach from Iris Behrmann’s lab at the University’s Life Sciences Research Unit. She will use the funds for study visits to the A.I. Virtanen Institute for Molecular Sciences in Finland and to the ISB in Seattle, where she will perform analysis and integration of high-throughput data to identify mechanisms that contribute to the development of melanoma skin cancer. [17]

Innovation
Only three foundations dedicate funds to innovation: one newly created foundation allocates its entire budget to innovation; one foundation has decided to split its budget equally between research and innovation; and one last foundation has a very small proportion attributed to innovation.

Three foundations support innovation, particularly in two areas, namely proof of concept projects and studies, conferences and awards on innovation.

Expenditure trends
R&I spending tends to be stable or has increased over the last year (2012). No foundation stopped or decreased its R&I expenditure in 2012.

R&I expenditure was expected to remain stable or to increase in 2013. No foundation intended to stop or to decrease its R&I expenditure in 2013.

3.4 Focus of support

3.4.1 Beneficiaries
The R&I beneficiaries of grants belong mainly to research institutes but are also individual beneficiaries. The large majority of foundations prefer to support R&I projects or individuals (researchers, PhD students) who have a direct or indirect connection with Luxembourg (research material and/or activities in Luxembourg, promoting and outspreading of research in Luxembourg, Luxembourg researchers working abroad).

3.4.2 Research fields
The foundations focused their support on the following research themes, listed in decreasing order of importance:

- Medical science [7/9]
- Nature science [4/9]
- Engineering and technology [3/9]
- Social science [3/9]
- Human science [2/9]
- Agriculture science [1/9]

3.4.3 Research-related activities
The four answering foundations financed the following research activities:

- Dissemination of research [4/4]
- Information and equipment [3/4]
- Scientific communication [3/4]
- Civic mobilisation and cause defense [3/4]
- Mobility of researchers [2/4]

When asking which project has been the most successful, the President of the Fondation Cancé highlighted two useful and international projects by Prof. Dr. Martine Piccart, Professor of Oncology at the ULB, Brussels, Director of the Medicine Department at the Institut Jules Bordet, Brussels, and author and co-author of over 250 peer-reviewed international publications, with a key interest in breast cancer research.
An example of recent large financial support by a grantmaking foundation [18]
In order to support a worldwide research program on breast cancer research, the Fondation Cancer handed out, on 3 July 2014 a cheque of EUR 1 266 155 to Professor Martine Piccart and Serge Schmitz of ‘BIG Against Breast Cancer.’

The Breast International Group (BIG) is a non-profit organisation for academic breast cancer research groups, based in Brussels. Its mission is to facilitate breast cancer research at an international level by stimulating cooperation between its members and other academic networks, and collaborating with, but working independently from, the pharmaceutical industry. The actual research program is ‘AURORA,’ a large multinational and multicentre molecular screening program, aimed at women with metastatic breast cancer. The objective is to be thoroughly characterised at the molecular level with the aim of better understanding disease clonal evolution and the mechanisms of resistance and sensitivity to therapy.

3.5 The geographical dimensions of activities

3.5.1 Geographical focus

When questioned about the geographical aspect of their R&I activities, the nine foundations answered as follows:

• Four out of nine devote their R&I expenditure exclusively to Luxembourg.
• One out of nine devotes its R&I expenditure only to the European Union.
• Two out of nine devote their R&I expenditure mainly to Luxembourg.
• One out of nine splits its R&I expenditure between Luxembourg, the European Union and the rest of the world.

Foundations operating in other EU countries do not encounter difficulties when doing so.

3.5.2 The role of the European Union

In the opinion of Luxembourg foundations, the preferred role of the EU should be to:

• contribute to awareness-raising of foundations [4x]
• collaborate with foundations on projects [3x]
• provide a legal framework [2x] and
• provide a structure to enhance collaboration [2x].

The two following EU roles were perceived by foundations as being unnecessary: investing in an information infrastructure via databases and evaluating projects from foundations.
3.5.3 Contribution to European integration
Seven out of nine foundations consider that their activities contribute to European integration on research issues and five out of nine foundations consider that their activities contribute to European integration on educational issues.

3.6 Foundations’ operations and practices

3.6.1 The management of foundations
Bar one, all the foundations take their strategic direction from a Supervisory Board or a Board of Directors. The mandates of the Governing Board members are all on a voluntary basis. The members of the Governing Board are not entitled to receive any kind of remuneration or payment of money or other material benefit from the Foundation.

3.6.2 How do grantmaking foundations support research?
Only one foundation, spending about 30 % of its income on R&I activities, has extensive public information available \(^{19}\) on its decisional structure (an advisory Scientific Committee and a decisional Board of Directors) and procedure, its evaluation and selection criteria as well as its follow-up procedure of supporting research projects. A complete list of all the sponsored projects since the foundation’s creation (1995-2013) is available online: 30 projects worth more than EUR 5.3 million have been financially supported by private fundraising. The support varies from EUR 8 000 for a one-year project to EUR 880,000 for a two-year project.

The remaining foundations do not adhere (systematically) to such a transparent policy for supporting financially research projects.

Two out of three foundations are involved in the implementation of the projects which it funds.

Three foundations consider themselves as grantmaking foundations and have the following profile. They tend to wait for applications from third parties with no active calls for proposal. They prefer ‘medium’ to ‘small’ grants to multiple organisations/individuals with no active calls for proposal over ‘large’ grants to a few organisations/individuals. It is common practice for grantmaking foundations to require evidence of how grants have been spent after the funded projects have been completed. Evaluations to assess whether a grant was successful and why it was successful are sometimes done. There was no clear cut opinion from the respondents as to whether to support an organisation only once. Support from foundations is mainly agreed on a medium-term basis.

3.6.3 Engagement in partnerships
Five out of nine foundations develop joint research activities in partnership with others in the field of R&I, all of them with universities, four with research institutes, three with hospitals, three with the government and two with other not-for-profit organisations. No joint research activities are carried out with private companies.

\(^{19}\) Accessed 4 August 2014 at: http://www.cancer.lu/fr/recherche
The five foundations engaging in joint research partnerships in the field of R&I do so to increase their impact but also to pool money due to lacking the necessary funds and for pooling expertise and/or sharing infrastructure.

### 3.7 The role of foundations

#### The role of Luxembourg R&I foundations, as seen by Luxinnovation

According to a representative from Luxinnovation, the role of Luxembourg R&I foundations is now, and may in the future continue to be, limited to the role of a contributing partner, especially in terms of providing financial means. These resources will potentially remain small compared to the large sums available to public (European) funding available, i.e. in the ‘Europe 2020’ Strategy.

The role of Luxembourg foundations supporting R&I, as seen by the Fondation Cancer.

As the President of the Fondation Cancer recently wrote in its quarterly publication ‘Info Cancer,’ foundations prefer to finance research projects that are of direct benefit to patients and are not commercially profitable (i.e. projects enhancing the quality of life of patients without the outcome of a new drug). Foundations also favour sponsoring small research projects which do not qualify for public support or university funding.

Financing research equipment, especially if useful to the entire national community, is viewed as another preferred area of support by the same Foundation. It has decided to devote financial support to the acquisition of a microscopy platform to watch a living cell in real time and, more recently, is co-sponsoring the ‘Cyberknife M’, which enables the robotic treatment of patients in radiotherapy. This more precise and patient-sparing radiotherapy technique is also much quicker.

Public institutions consider foundations supporting R&I as a minor contributing partner. However, they should not underestimate R&I foundations with their limited financial private resources and their sparse management structure. Indeed, these foundations are very selective and efficient in choosing and financing projects that directly benefit organisations which are not commercially profitable, are too small to qualify for public support and are adventurous in their approach.

With less public funding available in the near future, R&I foundations will be asked more and more to play a more important role in supporting R&I activities in Luxembourg.

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4 Innovative Examples

Innovation by being open-minded

One interview was conducted with the President of the Fondation de Recherche Cancer et Sang, a 100 % operational research foundation which employs 21 FTE and raises EUR 1.5 million annually, mainly during a national fundraising event. Its long-standing President, a haemato-medical oncologist, founded the original association in 1976 after receiving cash from the husband of a young patient who had succumbed to cancer.

The President admits that (Luxembourg) foundations’ budgets devoted to medical science are small compared to pharmaceutical companies’ budgets. This means that researchers have to concentrate on niches in fundamental and applied research (i.e. molecular biology).

When asking what he considers most important in the area of research he mentioned ‘serendipidity’ (a ‘happy accident,’ a ‘pleasant surprise’ or a ‘fortunate mistake’). Researchers have to ask questions, work hard, be patient and be open to results one does not expect. In reality ‘one searches for something and one finds something else.’

The article which was most cited is not a scientific article but a science enhancing article ‘The very-last-minute slide’ published in The Lancet on 30 April 1994.[21] This article is about a technique for preparing slides which can be changed at the last minute.

Innovation through cross-border activity

Another interview was conducted with a representative from the Fondation de Luxembourg, the only Luxembourg sheltering foundation. As of the end of 2013, four out of 43 sheltered foundations have supported research projects (research with an university and a public research centre) or have financed fellowships. These sheltered foundations are not exclusively supporting research projects. The C. Ehrenrooth Foundation, set up under the aegis of the Fondation de Luxembourg, has established the Ehrenrooth Fellowship with the purpose of granting scholarships to international fellows. This is an example of an innovative foundation with an international edge: a Luxembourg sheltered foundation has granted fellowship to two doctors, one from Syria and one from Uzbekistan, engaged in post-graduate neuro-surgery studies at the Clinic of Neurological Surgery at the Helsinki University Hospital.

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**Innovation with scarce resources**

The interview with representatives from the Fondation de la Banque Centrale du Luxembourg shed light on the activities of the still young Foundation, namely the organisation of conferences on financial stability, the prize for the best annual thesis on financial stability, as well as the grant for visiting scholars at the Luxembourg Central Bank. As the Foundation does not have its own staff and limited resources, some of the Luxembourg Central Bank staff members have to juggle their daily work and the Foundation’s work, not an easy task but an enriching experience.

**Innovation with an entrepreneurial spirit**

Speaking with the President of the Fondation Ouverte pour la Construction de l'Avenir du Luxembourg (FOCAL), he revealed that although there is wide support for research projects and a great deal of public financial support available, there is no funding available for converting research results for small-scale projects into sustainable projects. The research field ranges from health and bio-medical to the ITC, engineering and industrial sectors. As the Foundation is still young, it is looking to identify its first successful project, which is not an easy task. Indeed, the process of choosing the first project is strewn with pitfalls and the selection criteria have to be multi-faceted, combining pertinence of the research results and entrepreneurial sustainability.

Once a first decision is taken, it will be easier to show this project to the public and potential donors in order to attract new donations for more financial support.

**Innovation with a young spirit**

The last interview was conducted with an employee from the Fondation Jonk Fuerscher. The objective of the Young Scientists Foundation is to raise interest and create a taste for research among young people between 12 and 21 years of age. The research areas covered range from natural science to the humanities. The main ambition of the Foundation is to encourage young people to carry out extra-curricular scientific and technical activities, which will prove both their scientific curiosity and their perseverance. To achieve this, the association has been organising since 1971 the annual national Young Scientists competition, which gives young people the chance to win awards and present their work at an international competition.

The only employee of the foundation, financed by the State through the Fonds National de la Recherche, is looking for private funding (i.e. awards by other foundations and/or service clubs) to increase the activities of his foundation. Lately, he has been successful in attracting private and corporate donors supporting individual prices.
Innovation by public-private partnerships

Example of a public-private partnership: the BioHealth cluster [22]

Launched in 2008 by the government and supported by a EUR 140 million public funding program, the BioHealth cluster started a strategic partnership with three world-renowned US research institutions which has led to:

- The creation of the Integrated Biobank of Luxembourg (IBBL).
- The establishment of the Luxembourg Centre for Systems Biomedicine (LCSB).
- The discovery of potential biomarkers for lung cancer.

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5 Conclusions

5.1 Main conclusions
Given Luxembourg’s ‘collectivist’ approach to philanthropy (according to the FSG Social Impact Advisors, wise partnership, published by Banque de Luxembourg) and the improvements in the legal and fiscal philanthropy framework since 2009, Luxembourg-based donors and founders are slowly becoming more active, particularly in setting up (sheltered) foundations.

In the research and innovation field, public funding, made available by the State, also through its research centres and the University of Luxembourg, is by far the main source of R&I funding. Public human resources and the funds available for R&I activities are paramount compared to the small resources at the disposal of a few active foundations supporting R&I activities.

Indeed, since the 1980s, and especially during the last six years, the State has made significant efforts both in human resources and financial terms, to diversify the Luxembourg economy and to build a knowledge-based society.

Accordingly, there should be more foundations supporting R&I activities and they should evolve in a favourable context to become actively operational or grantmaking foundations. However, this will not happen at the snap of a finger, but is part of a longer educational and promotional process.

Although a few courageous foundations are exceptions to the rule (i.e. the Fondation Cancer, the Fondation de Recherche Cancer et Sang, the Fondation du Pélican de Mie et Pierre Hippert-Faber and the C. Ehrnrooth Foundation, both set up under the aegis of Fondation de Luxembourg), there is unfortunately neither an important increase in the numbers of stand-alone public utility foundations being set up, nor a craze for choosing R&I activities as a foundation’s mission.

Fortunately, the increasing number of sheltered foundations being set up under the aegis of the Fondation de Luxembourg provides a glimmer of hope.

5.2 The strengths and weaknesses of the R&I foundation sector in Luxembourg
Fortunately, the few foundations playing an active role are very successful in fundraising for R&I, raising awareness of the importance of research in the general public, being accountable for private donors and companies, venturing new ideas, buying equipment for a whole community, and taking the risk to support projects neglected by pharmaceutical companies and the State.
As there are few funds available for R&I foundations compared to public R&I funding, philanthropists often hesitate to choose R&I as their field of support as they have a sense that their financial contribution may not ‘make a difference’ in R&I. Indeed, making a difference is often considered by philanthropists as a major ambition, whatever field they have chosen to support.

5.3 Recommendations

A win-win situation could be achieved if the State and State-funded institutions would consider foundations with their private funds and resources as complementary, flexible and innovative partners, albeit with more limited financial resources. Indeed, these foundations are very selective and efficient in choosing and financing projects that are of direct benefit to beneficiaries, that are not commercially profitable, too small to qualify for public support and have a venture approach. We can imagine that one day R&D expenses will be allocated by the Ministry of Research to foundations, as well as companies, the State sector and higher education.

We can also imagine that the positive and mediatised examples of (sheltered) foundations supporting R&I will inspire other donors and foundations to do the same.

With less public funding available in Luxembourg in the near future, nonprofit Luxembourg foundations, set up either by private or corporate donors in the form of a public benefit foundation or as sheltered foundations, will be increasingly asked and willing to play a greater role in supporting R&I activities. Indeed, the private sector (in the form of donations and bequests) and the third sector (in the form of supporting researchers and R&I projects) have to meet their responsibilities and will be consulted more and more and have a greater influence on decisions in the R&I field. So, Luxembourg foundations are destined for a seat at the table of R&I decisions taken in Luxembourg.
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