Interview: Marc Schiltz – Executive Head, Luxembourg National Research Fund



"Luxembourg needs to have a competitive biomedical research sector with international networks thus allowing the nation to achieve global recognition."

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Marc Schiltz reveals the ambitions of Luxembourg's National Research Fund (FNR), how his team are encouraging integration and doing far more than just delivering funds to willing researchers.

Over the past 5 years, you have taken it upon yourself to internally reorganize the Luxembourg National Research Fund (FNR), sharpen its strategic orientation and build bridges with the private sector and the international scientific community. What specific changes have you enacted, and what has been the rationale behind these reforms?

The Luxembourg National Research Fund takes pride in the excellence in which it performs its duties. The public research efforts in this country are still very young and this presents our organization with challenges as we are attempting to develop a world class university and public research sector in a country that had no institutions of this nature 20 years ago! We do not have a lot of time to succeed. I believe our young research system has 25 years to become successful which is a short amount of time in comparison to the timescale of well-established universities abroad. Finally, there is the challenge of size. Luxemburg is a small country with only 600,000 inhabitants and therefore we cannot try to develop everything. This is where the Luxembourg National Research Fund is so important because it targets focus areas. Biomedicine is one of the priorities that we are currently focused on. You cannot just enter this sector and proclaim to have excellent standards; reputations take a lot longer to build. Generally, new institutions in this sector

start by getting great people and then progress to certain activities gradually. However, this is not enough. Luxembourg needs to have a competitive biomedical research sector with international networks thus allowing the nation to achieve global recognition. The programs we support must be internationally competitive. In the past many organizations have sent individuals outside their country of employment to the international biomedical community to develop existing networks.

The FNR not only acts as the main funder of research activities nationally (wielding an annual budget of in excess of EUR 70 million), but also proactively seeks to establish Luxembourg as a leading knowledge-based society through science, research and innovation, thereby contributing to the country's economic diversification and future prosperity. What progress has been made to date on this front?

I always say that when I started 5 years ago, there was a "polite curiosity" about the Luxembourg market. At present, Luxembourg is taken very seriously and I am very pleased about that. We today have world class researchers working here and state-of-the-art IT systems. This progress is certainly an encouraging sign and our researchers have become part of successful international networks. For example, European Union funded projects like 'Horizon 2020' are now realistic options for Luxembourg researchers. To qualify and submit proposals for these projects you must demonstrate that your organizations are immaculately efficient and produce consistently insightful research. The fact that we now have a significant increase in proposals within 'Horizon 2020' shows that research in Luxembourg is internationally respected. As Luxembourg's National Research Fund, we have developed international corporation agreements with other national funding organisations. On November 15th 2016, I am going to fly to Singapore with the Prime Minister to sign a cooperationagreement with our counterpart's Research Foundation. It is also worth mentioning that the University of Luxembourg is climbing the rankings very quickly. Currently, the university is ranked 178st in the world (inside the coveted top 200 places) which for a university that was only formed in 2003 is a considerable achievement. What the university's biomedical research department is doing mirrors that of the university itself – The university is the flagship for the country.

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You have always said that "to capitalize on the benefits of Luxembourg's small size and agility, the country must target its funding towards particular scientific niches". Which do you identify as the specific research areas in which Luxembourg can achieve international recognition? Where does biomedicine rank on your list of priorities?

The government has produced a list of priorities and biomedical research is on that list. However, another important area is innovation itself. Obviously, these are both very wide fields and we need to narrow these fields and concentrate our efforts on specific goals. Luxembourg has invested heavily in information technology and its infrastructure. As a country, we have the highest density of top Tier data centers than any other nation in the world. We have entered the next phase of this process and are successfully adding our collective research capacities to this infrastructure. We also have talented teams of people within the field of information technology to compete with other nations. With the arrival of Big Data and other technological developments, this aspect of healthcare could experience considerable changes. That is Luxembourg's key asset in short-term success.

Luxembourg is currently placed in a very interesting situation because we only have four major hospitals that all answer to one ministry. With the digitalization of the industry on the horizon, it is obviously far simpler to test its implementation here than in larger countries. In fact, Luxembourg's system is more centralized than many outside the country believe. There is only one state health insurance company CNS (Caisse Nationale de Sante). With this relative ease, there is certainly an opportunity to use Luxembourg as a 'testbed' for innovation. In my opinion, this is the logical next step for Luxembourg and its healthcare system.

To what extent has Luxembourg managed to turn public research into a competitive advantage on the European stage? How would you characterize the current international perception of "research made in Luxembourg"?

The international community understands we are taking biomedical research very seriously. As I mentioned, only 5 years ago the international community saw our research capacities as something to be curious about but not necessarily viewed with same amount of seriousness as other nations. That has now changed. The state is heavily investing in both biomedical research and healthcare innovation. Luxembourg has also seen different governments during this period and regardless of the change of administrations, there has always been a strong commitment towards research. When I tell my colleagues abroad that over the last 12 years the state budget for research and innovation has been multiplied tenfold, I am often met with disbelief. Of course, we started with a small amount of funding but there has not been one year where our state budget has failed to increase. The results can also clearly be seen alongside the commitments. Our research institutions like the LCSB (Luxembourg Center for Systems Biomedecine) are well known players in the medical research community. In addition, we are also involved in the larger research programs. Some of these are jointly undertaken programs. For instance, we successfully conducted

research into neuro-degenerative diseases. We are also involved in Eurostars programme (An idea where research groups pool all their resources together and make it available for corporate research). This collaboration exists at an EU level but obviously, the clear majority of the funding comes from national agencies. Proving that you can work with other organizations in the delivery of results is very important in regards to receiving funding.

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Could you give some specific examples of instances when the FNR has been able to anchor science and research in addressing current and future societal challenges?

We have strong research capacities and our challenge is to connect these with the wider medical community. In regards to our work, we need to raise awareness to the medical practitioners and increase our dialogue particularly with insurers and hospitals. We have launched a National Center for Excellence in Research on Parkinson's Disease (NCER-PD) and we wanted it to be a cooperation between the LCSB, the LIH (Luxembourg institute of Health), the Biobank and the Central Hospital. It is crucial to have this cooperation between all parties; research is fine but at some stage we have to connect hospitals and make Luxembourg an attractive destination for business and commerce. Our prime focus was to establish strong research capacities with a university involved. Now that we are widening this focus we are learning that some aspects of the life sciences sector are far easier to develop than others. For instance, IT is very easy to commercialize but biomedical aspects require a long-term view with the right personnel. Working in university laboratories and obtaining well-trained people is critical to success at this stage. Maintaining close connections with a university are important because it allows more people to develop a PhD level of knowledge and to apply that on a day to day basis. We should not be satisfied with just strong research capabilities.

Can you elaborate on the exact role of the FNR in such an initiative?

As a Centre of Excellence, we develop numerous programs and also focus on creating strong working relationships with hospitals. As part of our Parkinson's disease program, we are funding a clinic in the Central Hospital. It is important to mention that our practices are equally good value for the patient. We want patients to continuously seek our support in the future so these treatments cannot be financially inaccessible. Equally, the patient gets access to the latest methods of treatment and we work very closely with the Patient Association to maintain these ideals.

We have recently established a proof of concept program where innovative ideas developed from research practices can be brought to the medical community's attention or a new company can be

formed to accommodate new discoveries. Whilst our role is to fund, through these programs we can positively affect how the funding is received.

Last November, you were elected to the Governing Board of Science Europe, an association of European Research Funding Organisations (RFO) and Research Performing Organisations (RPO), based out of Brussels. Just how useful is this development as a mechanism for Luxembourgish research to gain greater visibility on the international stage?

All the main players in the funding of medical projects are associated with Science Europe so that in itself makes the connection important. It is a useful political platform that allows organizations to exchange practical information and the body has a powerful voice which the scientific community is looking to use to influence policy. For smaller countries, it is also particularly useful in terms of international networking. I regularly meet with the heads of other European funding agencies where we discuss future developments.

Within five years what do you hope Luxembourg and the National Research Fund will have achieved?

I hope we will have fulfilled our ambition of evolving away from just research activities and developed Luxembourg as a greater place for business development. Secondly, I hope we have successfully reached out to all the key players in the healthcare system; more hospitals, practitioners, and state insurance. Ultimately, I want our funding to have led to strong research that has had a greater impact on the healthcare system. Five years could be a short amount of time to achieve these goals but I hope that in five years' practitioners will describe this industry as a success and acknowledge that it would not have been possible without the research capacities that were previously created. I hope an increased amount of businesses stem from the research institutions currently present here.

We are very serious and ambitious about Luxembourg's future. We want to create a world class research system where biomed is one of the priorities and we are well positioned to develop this niche market.

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