

Interview: Thomas Dentzer – Head of Life Sciences Sector Development, BioHealth Cluster Manager, Luxinnovation, Luxembourg

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Luxembourg has a young and ambitious life sciences community, which has identified four aspects of personalized medicine where the country has significant potential: digital health, neurodegenerative diseases, molecular diagnostics and immune-oncology. Thomas Dentzer, Head of the Life Sciences sector in Luxembourg, discusses the flexible and supportive atmosphere for companies and researchers in Luxembourg.

The Luxembourg BioHealth cluster was created in 2008, joining the league of many other hubs, science parks, and cluster organizations at the European level. In what can be considered a very competitive environment, what sets Luxembourg’s BioHealth cluster apart from other such clusters across Europe?

In 2006, the government of Luxembourg took the decision to promote the development of the life sciences industry as part of a wider strategy to diversify Luxembourg’s economy. Along with five other focus areas, life sciences was selected as a key strategic area that shows great potential for the future sustainable development of the national economy.

Despite this relatively short history, Luxembourg has built a very strong and ambitious life sciences community over the last eight years. The challenges and opportunities we face in Luxembourg are very different from other life sciences hubs in Europe, and we are still at a relatively early stage of growth.

What sets us apart as a cluster however is the inclusiveness of our community – we don’t just count companies or research institutions among our members, but also government policy makers and funding agencies (who sit on our board steering committee). This community truly works together as a unit, with ideas and support coming from all levels.

Luxembourg is a country where significant opportunities exist for companies involved in one of our focus areas because they will find themselves being welcomed into a supportive community where

they can form real relationships with all stakeholders, including the government, and play a meaningful role in the course of the cluster's development.

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What are these focus areas?

The overarching banner for our strategy is personalized medicine, which is a huge field. Within these technologies and concepts, we have identified a few niche areas of expertise where Luxembourg has strong potential to be competitive at a global level and where Luxembourg as a community can bring something valuable to the table.

The areas we identified are molecular diagnostics, neurodegenerative diseases, and digital health and big data analytics. We also have some interesting expertise in immunology and cancer research.

Digital health is the area wherein Luxembourg has the most relevant private-sector expertise, given our robust experience in data management and cybersecurity within the financial services sector. Aside from the availability of competent professionals, we have excellent data infrastructure, with the government having invested a lot in ICT infrastructure over the last 15 to 20 years. Significant opportunities exist if we can effectively transfer data management and analytics experience and assets from the finance sector into healthcare.

One of the key institutions is the Luxembourg Center for Security, Reliability and Trust (SNT), which, alongside the Luxembourg Center for Systems Biomedicine (LCSB), is one of the two competence centers at the University of Luxembourg that support the BioHealth cluster. The SNT focuses on information technology and cybersecurity, which are both critical to digital health solutions. Security is particularly important in the health industry, not only from a health/safety standpoint, but also from a fraud prevention perspective; unlike credit card information or financial details, many aspects of health information (genes tied to specific forms of cancer for instance) are fixed throughout a person's life and cannot be changed.

What are some of the key challenges?

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Like all cluster organizations, our role is to support the community, help members find new opportunities for advancement here and abroad, and work with our members to articulate their needs and the challenges they face to the government at a national level. It is in this role as liaison, that we stand out from other countries and can have a profound effect on the members of our community because we have excellent, direct and quick access to key stakeholders in our government. We also receive a high degree of support from policy makers who are very open to the industry's concerns and suggestions, one of the prime advantages of the size of our country.

Thus far however, a significant proportion of our efforts has been dedicated to building up the size and capacity of the life sciences industry in Luxembourg and we have achieved encouraging results. As such, the government has made significant investments in infrastructure and public research institutions to help attract academic researchers and life science innovators from abroad.

The best example to date is Prof. Rudi Balling, who started the Luxembourg Center for Systems Biomedicine (LCSB) in 2009, which has since become a force with to be reckoned with. The LCSB has a strong focus on research in neurodegenerative diseases, particularly Parkinson's.

Today, our primary aim is to promote coherence in the research and innovation taking place across the industry in Luxembourg so that we can leverage and strengthen our specific expertise as a cluster.

The success of a cluster relies largely on building a research base and attracting talent that conducts great science and can build partnerships with excellent institutions. Why should leading global life sciences researchers come to Luxembourg?

Of course the life sciences community is working hard to achieve those two very goals – building a research base and attracting talent – and we are definitely showing progress. Over the last five or six years, interest in coming to Luxembourg has changed dramatically which is itself a reason for more researchers to consider coming here.

Funding has certainly played a critical role in driving this change, and many of the leading researchers who have come to Luxembourg were attracted with very generous grants. Perhaps as important as the funding itself though is the freedom that these researchers were given to carry out their research thanks to the University of Luxembourg’s flexibility in allowing investigators a lot of say in how they lead their labs which is not always the case in other institutions or countries. Prof. Rudi Balling for example has said on many occasions that he came to Luxembourg because he was given the opportunity to start a lab from scratch, set things up in the best way he saw to do research, and pursue the research topics he found most interesting and promising. This is a very clear advantage we can offer.

Another aspect of this flexibility is Luxembourg’s openness; the university and public research institutions are quite open to researchers transitioning from one area to another. This runs contrary to the culture at established institutions in the US for example where, for the most part, you are expected to pursue topics narrowly related to your past experience, i.e. a virologist is expected to do virology. At the University of Luxembourg, you will find microbiologists with experience studying bacteria in the environment who are now carrying out projects related to the human microbiome, or developing synthetic devices that can simulate the intestines this is the kind of shift that researchers are free to make here. Many of those who have come to Luxembourg find it attractive because here they have the opportunity to develop into an area of their choosing where they can really grow and blossom.

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