

UIIN BLOG



Dr. Jean-Pierre Segers Explores Regional Innovation Systems in Belgian Pharmaceutical Industry

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The biotechnology and pharmaceutical industry is one of the driving forces of the Belgian economy. According to the OECD reports, Belgium is among the leading countries for performance in innovation and industry development as measured by patent applications, the number of drugs in the pipeline, venture capital invested in biotechnology and the number of new biotechnology firms. The Belgian pharmaceutical industry is highly R&D-intensive, which explains the bioRegions of Flanders and Wallonia hosting a number of global players in medical research and development.

The Belgian biotechnology model was clearly created as a university spin-off model. Strong

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collaboration between research institutions, universities, financiers and existing companies has resulted in many university spin-offs. Networked research centers and inter-university poles of excellence were created to provide a strategic orientation for biotechnology research. In Flanders as well as in Wallonia the biotechnology and life sciences industries are represented by a number of regional government and private sector network organizations that actively participate in the biotechnology clustering activities.

A longitudinal follow up has been carried out, from 1987 to 2017, of 30 Belgian new biotechnology firms in the bioRegions of Flanders and Wallonia in a country study for the biotechnology industry in Belgium, within the dissertation titled 'The interplay of regional systems of innovation, strategic alliances and open innovation'. This dissertation focused on red biotechnology, i.e. pharmaceutical and healthcare applications.

The research results showed the new biotechnology firms are both beneficiaries and targets of strategic partnering alliances with large and global (bio) pharmaceutical companies. A number of the Belgian new biotechnology firms hold a nodal position as "most preferred partner" with multiple alliances in dynamic R&D networks. The research found a large number of strategic alliances and networks involving interfirm partnering activities between large and global (bio)pharmaceutical companies like Johnson & Johnson, Pfizer, Novartis, Roche, Merck & Co.,

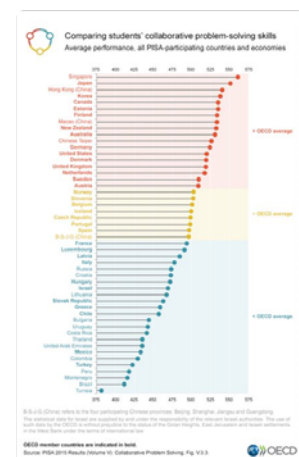
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Sanofi-Aventis, GlaxoSmithKline, AstraZeneca, Eli Lilly and AbbVie amongst others and Belgian new biotechnology firms.

The Belgian new biotechnology firms are either still in the preclinical stage of therapeutic research, developing targets and compounds in their early stages of existence or developing technology platforms in leading edge drug development. Most of them conduct research in the discovery phases I and/or II. They are involved in interactive collaborations (strategic alliances) with big pharmaceuticals, often with a co-creation goal: therapeutic targets, finding new molecules with a blockbuster potential, transforming the new molecule into a commercial drug.

Belgian new biotechnology firms apply a portfolio strategy of closed and open business models to capture value from the proprietary technology and know-how, given the high risk and high cost of developing and commercializing a new product on their own. They have a high degree of dependence on milestone and success payments in the early stages of development.

Belgium may end up specializing in subsectors of red biotechnology, e.g.:

- Flanders bioRegion: nano- and antibodies (Ilima); molecular diagnostics; NBFs such as Ablynx, Argenx, Biocartis, Galàpagos, ThromboGenics.
- Wallonia bioRegion: cell therapy; women's health; molecular diagnostics; CAR-T. NBFs

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such as Mithra Pharmaceuticals, Celyad, MdxHealth.

A Number of these new biotechnology firms are aspiring to migrate into fully integrated (bio) pharmaceutical companies (phases III and IV). In addition, they are actively involved in open innovation activities.

About Dr. Jean-Pierre Segers



Dr. Jean-Pierre Segers (Tongeren, 1963) has a master in commercial science and business administration (1987) and in public management (2001). He also holds a certificate in entrepreneurship

(2014). During his PhD at HEC Management School – University of Liège, he was the dean of PXL University College – Business School (current position). In addition, he is the chairman of PXL-UHasselt StudentStartUP, the PXL/University of Hasselt strategic initiative supporting student entrepreneurship and startups. Jean-Pierre is a former researcher of the Small Business Research Institute of the University of Brussels. He also worked as a researcher for the universities of Limburg (Diepenbeek) and Maastricht.

He is a regular speaker and invited workshop expert at international conferences, presenting his research and publications in the field of small business management, entrepreneurship, entrepreneurship education, startup ecosystems, new biotechnology firms (new technology based firms), open innovation, regional systems of innovation and public-private partnerships. He is also member of the review boards of a number of national and international journals.

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You can access the full dissertation by Dr. Jean-Pierre Segers [here](#)

Dr. Jean-Pierre Segers also published two additional follow up research papers:

1. a case study on "*Green Biotechnology in Belgium: The Ghent Innovation District*" in SSRN Electronic Journal, 5(89), June 2017. Access it [here](#)
2. "*Towards a Typology of Business Models in the Biotechnology Industry*" in SSRN Electronic Journal, Biotechnology eJournal, November 2017. Access it [here](#)

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