

Job offer: Joint DOCTORAL contract

Grenoble Applied Economic Labs (GAEL) - Université Grenoble Alpes

Chair in Industrial Bioeconomy – NEOMA BS

“Open innovation strategies to shape the new bioeconomy paradigm”

The doctoral candidate will benefit from and will be co-funded by two prestigious, dynamic and inter-disciplinary institutions to conduct his research project:

Presentation of the University and GAEL:

Created from the merger on 1 January 2016 of the Joseph Fourier, Pierre-Mendès- France and Stendhal Universities, the Université Grenoble Alpes is one of France’s leading institutions for higher education and research. On the strength of its 80 laboratories, research at the Université Grenoble Alpes enjoys greater cross-disciplinarity to place it at the forefront of innovation. The range of courses offered covers all academic disciplines. The merged university is now in a position to provide its 45,000 students with cross-disciplinary courses. The Université Grenoble Alpes places international relations at the very heart of its teaching and research objectives. Each year, it hosts more than 6,000 international students, including 1,500 PhD students. The site’s level of excellence in terms of research, education and innovation, as well as the efficient cooperation between the parties involved, was recognised with the awarding of the *Initiative d’excellence* or IDEX label in January 2016.

The Grenoble Applied Economy Laboratory (GAEL) is a joint research unit of CNRS, INRA, University Grenoble Alpes and Grenoble Institut National Polytechnique. The main focus of GAEL is the microeconomics of sustainable innovation and consumption, with results mainly applied to the fields of energy and the agro-industry. The main methods used at GAEL are microeconomics (industrial organization, behavioral economics), experimental economics, econometrics, applied modeling in the domain of energy and qualitative analysis based on

case studies. GAEL was created in 2003 and gathers 70 people, including 40 researchers and engineers, 10 supporting staff and 20 PhDs. GAEL receives the greater part of its funding from Region Auvergne-Rhône-Alpes, the National Research Agency and the European Union. A significant part of its research is cross-disciplinary with links to nutrition, engineering, agronomy, genetics and ecology. The doctoral project is co-funded by the cross-disciplinary project glyco@alps (<https://glycoalps.univ-grenoble-alpes.fr/>) supported by the IDEX.

Presentation of the Business School and the Chair:

NEOMA Business School is a reference in the field of management education, with more than 9000 students based on campuses in Rouen, Reims, and Paris. It offers a portfolio of programmes from undergraduate level to Executive Education, managed by a faculty of 200 permanent professors. NEOMA Business School has more than 40 000 alumni, based in more than 120 countries all over the world. NEOMA Business School (born from the merger of Reims Management School and Rouen Business School) is a business and management school delivering cutting-edge management training.

NEOMA Business School hosts a Chair in Industrial Bioeconomy, located on our Reims campus and at the European Bioeconomy Centre (Centre Européen de Bioéconomie - CEBB), which is the only Human and Social Sciences Chair dedicated to the bioeconomy in France. The chair studies the bioeconomy qualitatively and quantitatively from an economics and management perspective. In cooperation with local bioeconomy players, it investigates research issues in the following areas:

- Strategic analysis of players in different bioeconomy sectors and their networks
- Management practices in innovation clusters around biorefineries
- The role of governance in the performance of agricultural cooperatives
- Territorial attractiveness and its transformation
- The use and consumption of new sustainable products

The doctoral project is co-funded by the Chair.

Presentation of the doctoral project:

This project investigates the innovation strategies of bioeconomy players. The bioeconomy provides an alternative to fossil carbon by using renewable biomass to produce a wide range of high value added products such as food and pharmaceutical products, bio-sourced materials and bio-energy. The development of the bioeconomy will depend on the innovative capacity of players transforming biomass into bio-sourced products and the users of these products. Yet the bioeconomy has been the focus of few economic analyses, particularly from the economic perspective or that of business innovation management.

This thesis topic complements previous theoretical and empirical work on innovation economics. Innovation results from the creation of techno-economic networks (Callon, 1992); it is social, technical, and open. Open innovation (Chesbrough, 2006) supposes that firms innovate by acquiring knowledge developed by other and by sharing their internally developed knowledge with outside players. Levidow et al. (2013) stress the importance of

cooperation to create new agronomic knowledge. Theinsathid et al. (2009) suggest that consumers, particularly lead-users, should be involved in the bioplastic innovation process. In biotechnology, cooperation between universities and industry (Ahn et al. 2012) facilitates the transfer of knowledge developed by public research (Matt et al. 2017). **A first original feature of the work proposed in this thesis is a review of this work in the context of mature, low-tech sectors, such as the food industry, wood or paper, that want to contribute to the bioeconomy.** The need to develop major technological innovations in sectors dominated by organisational innovation will lead to strategic changes for those firms already in place. Their ability to innovate so as to join the bioeconomy will certainly involve specific, renewed openness strategies that will need to be detailed theoretically and empirically.

The other original feature of this project is its study of the development of innovation networks on which the European bioeconomy is based. Work on the industrial lifecycle (Grebel et al. 2006) shows that in emerging knowledge-intensive sectors (biotechnologies, ICT) large, diversified firms already in place survive, new firms emerge (high-tech start-ups) and innovation networks between these industrial players and public research organisations are created. In addition, the literature on social networks suggests that the form and structure of the networks between public and private players depend on the type of technologies developed (Owen-Smith and Powell, 2004) and the knowledge bases (Owen-Smith et al. 2002). Little work has investigated the structure and development of networks in the emerging bioeconomy paradigm. The broad range of sectors affected by this new technological regime provides an opportunity for the analysis of extremely diverse networks: led by mature low-tech and high-tech sectors, or by growth, multisector and multidisciplinary sectors.

The research question will cover the new collaborative forms and dynamics and strategic partnerships in sectors transitioning towards the bioeconomy.

In terms of methodology, the thesis will take a conceptual and empirical approach based on an analysis of quantitative and qualitative data. Given the exploratory nature of the thesis, one of the first concerns will be an analysis of the bioeconomy's structure and actors, two features that are not yet clearly defined (Golembiewski et al. 2015). To do so, the thesis will study projects in the European Framework Programmes FP7 (2007-2013) and H2020 (2014-2018) relating to the bioeconomy. An analysis of the data available via the EUROLIO network (European Localised Innovation Observatory) of which the GAEL laboratory is a member, will make it possible to map the actors and to identify the characteristics of the networks of actors working in the bioeconomy: cross-sectoral, multi-disciplinary, science-based, complementary or competing. The objective will be to compare the structure and composition of networks in different sectors: the role of science, sectoral diversity of actors, firm size, geographic location, evolution between FP7 and H2020. In addition, the analysis of the structure (existence of cliques, cohesion, centrality) and composition of the networks will provide answers to questions regarding their innovation performance (Cowan and Jonard, 2004; van der Valk et al. 2011). This first stage of the work will thus be completed with an analysis of the performance of the firms in the networks by comparing the network databases with a database of patents that is available at NEOMA BS. The successful candidate will be able to use competences available from GAEL laboratory theoreticians and network econometrists and from the Chair in the quantitative analysis of innovation.

To understand the strategic aspects of new forms of collaboration between bioeconomy players from mature, low-tech sectors, the successful candidate will conduct case studies, based on semi-structured interviews, of firms in various sectors (food industry, paper) with different features in terms of size, date of market entry, and role in the innovation system. The features of open innovation strategies will be identified by a qualitative analysis that will consider theoretical concepts and field data to discover new variables, determinants, or links between the variables. The objective is to develop or enhance existing theories by generating new concepts. The theoretical and empirical questions linked to the analysis of company innovation strategies will benefit from the fact that the thesis will be part of the glyco@alps project. The relations between glycoscience researchers and industry, together with the position of the bioeconomy chair in its local context will facilitate access to the field. Case-study selection will also be based on the mapping of actors resulting from the network analysis.

Profile and skills required:

The candidate will have the following educational experience and qualifications:

- A master in economics or management with a specialisation in innovation economics, environmental economics, industrial economics, or agricultural economics
- A master in agronomics with a strong interest in and experience of social sciences
- Skills in econometrics, network analysis
- Interest in the bioeconomy, and more generally the technological innovation.
- Interest in qualitative analysis and conducting interviews with stakeholders (companies in the Pomacle cluster, companies working with researchers in glyco-science) and with researchers from other disciplines (engineers from the Agro-Paristech, Centrale-Supelec laboratories at CEBB, researchers in glyco-science).
- Fluent English is essential

PhD grant. In addition to the salary, the successful candidate will receive benefits (private health insurance) and the resources necessary to conduct his/her work (equipment, conference funding, English translation services). The candidate will also be enrolled in the PhD in Management at NEOMA Business School, provided he/she meets the admission requirements for this PhD programme. The candidate will therefore be able also to obtain a PhD in Management delivered by NEOMA Business School, a leading AACSB and EQUIS accredited business school.

Applications:

Send your CV and cover letter by email by 31 May 2018.

Contact:

If you require any additional information, please contact:

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