Univ. Grenoble Alpes
Université de l'innovation

FICHE NAVETTE: DOCTORANTS IDEX

SECTOR **:** Higher Education Institution

LOCATION: France, Grenoble

RESEARCH FIELD: Industrial Engineering, Computer Science, Decision Support, Business Process Management

RESEARCHER PROFILE:
  □ *First stage researcher, Master of Philosophy.*

INSTITUTION: Univ. Grenoble Alpes, University of Innovation

One of the major research-intensive French universities, Univ. Grenoble Alpes**1 enjoys an international reputation in many scientific fields, as confirmed by international rankings. It benefits from the implementation of major European instruments (ESRF, ILL, EMBL, IRAM, EMFL*2). The vibring ecosystem, grounded on a close interaction between research, education and companies, has earned Grenoble to be ranked as the 5th most innovative city in the world. Surrounded by mountains, the campus benefits from a natural environment and a high quality of life and work environment. With 7000 foreign students and the annual visit of more than 8000 researchers from all over the world, Univ. Grenoble Alps is an internationally engaged university.

A personalized Welcome Center for international students, PhDs and researchers facilitates your arrival and installation.

In 2016, Univ. Grenoble Alpes was labeled «Initiative of Excellence ". This label aims at the emergence of around ten French world class research universities. By joining Univ. Grenoble Alpes, you have the opportunity to conduct world-class research, and to contribute to the social and economic challenges of the 21st century ("sustainable planet and society", "health, well-being and technology", "understanding and supporting innovation: culture, technology, organizations" "Digital technology").

* ESRF (European Synchrotron Radiation Facility), ILL (Institut Laue-Langevin), IRAM (International Institute for Radio Astronomy), EMBL (European Molecular Biology Laboratory), EMFL (European Magnetic Field Laboratory)

Key figures:

- + 50,000 students including 7,000 international students
- 3,700 PhD students, 45% international
- 5,500 faculty members
- 180 different nationalities
- 1st city in France where it feels good to study and 5th city where it feels good to work
- ISSO: International Students & Scholars Office affiliated to EURAXESS

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[1] Univ. Grenoble Alpes

MANDATORY REFERENCES:

CDP TITLE: CIRCULAR, Circular Industrial Systems
SUBJECT TITLE: Models and tools for the optimization of circularity in supply chains
SCIENTIFIC DEPARTMENT (LABORATORY'S NAME): G-SCOP and LIG
DOCTORAL SCHOOL'S: ED-IMEP2
SUPPORTER'S NAME*: Van-Dat CUNG with Dominique RIEU, Agnès FRONT, Fabien MANGIONE, Mario CORTES CORNAX.*

SUBJECT DESCRIPTION:

Circular economy is defined as "an economy that is restorative and regenerative by design, which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles" (MacArthur, 2013). According to the Ellen MacArthur Foundation, which works on the transition to this new approach, the circular economy has three principles: 1) design out waste and pollution; 2) keep products and materials in use and 3) regenerate natural systems (MacArthur, 2013).
This new approach requires some changes throughout supply chains (Smol et al., 2015; Habibi et al., 2017), which are critical on the performance of the whole organization (Chandoul et al. 2009; Habibi et al., 2017; Govindan et al., 2018). The existing literature does not define the link between supply chains and the circular economy concept (Homrich et al., 2018). New researches are needed, starting from the implementations of the circular economy principles and the impact of these implementations on supply chain management (Geissdoerfer et al., 2017; Govindan et al., 2018)
The purpose of this PhD is to contribute to the research area stated above by firstly, investigating the actors, the activities, the requirements and the performance indicators of a circular supply chain by a literature review. Then, it aims at proposing new models, methods and tools for managing and evaluating the transition to circular supply chains.
More precisely, one of the main goals of the PhD is to develop models and tools that are able to simulate and optimize the supply chains processes in the context of circular economy. The first objective is to identify indicators allowing measuring circularity in a supply chain management process. The second objective is to propose models and tools to help to evaluate these indicators and improve circularity conditions in a supply chain management process. We will propose a method, models and tools to analyze, diagnose and evaluate existing supply chains and identify possible evolutions and optimizations to introduce and support circularity in supply chains. The proposed method will be based on continuous evolution cycles (Cortes-Cornax et al., 2016). It will allow the organizations' actors to be implied in the supply chain process as well as to be autonomous and collectively implied in the propositions of evolutions of the supply chain. The proposed evolutions should be aligned with the new issues brought by circular strategies, in particular, the distribution of the products and the locality of reproduction. In that sense, the method will combine participative and ludic techniques and formal simulation models in order to analyze, diagnose and evaluate both the performance of the supply chain and the production process itself. The method will be applied and validated in the industrial case of the CIRCULAR project.

In the long term, the proposed method will have to:
1) Ensure a good functional coverage, allowing to analyze, diagnose and evaluate traditional supply chains processes under the context of circular economy, identify blocking points in the context of circular economy and propose possible solutions to progressively migrate from a traditional supply chain to a circular supply chain,
2) Propose continuous evolution cycles and allow the actors of the organizations implied in the supply chain processes, to be autonomous and collectively implied in the propositions of evolutions of the supply chain. The evolutions should be aligned with the new issues brought by circular economy, in particular, the distribution of the products and the reuse location. Participative approaches, simple end-users languages and ludic tools will be privileged (Front et al., 2015).
3) Combine and confront results issued from simulation models (discrete event simulation models for example) and end-users modeling sessions.

Expected results:

- T0+12: State-of-the-art on indicators and models to evaluate circularity conditions in supply chains. Scaling of the case study. First version of pertinent indicators evaluated on the case study.

- T0+24: First version of the method allowing analysis, diagnosis and evaluation of existing supply chains. First version of the method applied on the case study.

- T0+36: Final version of the method allowing proposition of evolutions of existing supply chains considering circularity. Method applied on the industrial case of the project. Method deployed on the common platform (see T4.2).

Bibliography

1. CHANDOUL A., CUNG V.-D., MANGIONE F., Optimal Repositioning and Purchasing Policies in Returnable Container Management. IEEE International Conference on Industrial Engineering and Engineering Management (IEEM), Dec 2009, Hong Kong, China. 5 p., 2009.

2. CORTES-CORNAX M., FRONT A., RIEU D., VERDIER C., FOREST F., ADInnov : an Intentional Method to Instill Innovation in Socio-Technical Ecosystems, CAISE 2016, International Conference on Advanced Information Systems Engineering, June 15-17, 2016, Ljubljana, Slovenia.

3. FRONT A, RIEU D., SANTORUM M., MOVAHEDIAN F., A participative end-user method for multiperspective business process elicitation and improvement, (DOI: 10.1007/s10270-015-0489-6), Software and Systems Modeling, Springer, 2015.

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5. GOVINDAN, Kannan et HASANAGIC, Mia, A systematic review on drivers, barriers, and practices towards circular economy: a supply chain perspective. International Journal of Production Research. 3 janvier 2018. Vol. 0, n° 0, pp. 1-34. DOI 10.1080/00207543.2017.1402141.

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ELIGIBILITY CRITERIA

Applicants:

- must hold a Master's degree (or be about to earn one) or have a university degree equivalent to a European Master's (5-year duration),

Applicants will have to send an application letter in English and attach:

- Their last diploma
- Their CV
- A short presentation of their scientific project (2 to 3 pages max)
- Letters of recommendation are welcome.

Address to send their application: van-dat.cung@grenoble-inp.fr, fabien.mangione@grenoble-inp.fr, agnes.front@univ-grenoble-alpes.fr

SELECTION PROCESS
Application deadline: **June 1st, 2018** at 17:00 (CET)
Applications will be evaluated through a three-step process:

1. Eligibility check of applications in early June 2018
2. 1st round of selection: the applications will be evaluated by a Review Board in mid-June/early July 2018. Results will be given in July 06th, 2018.
3. 2nd round of selection: shortlisted candidates will be invited for an interview session in Grenoble on mid-July 2018. (if necessary)

TYPE of CONTRACT: temporary-3 years of doctoral contract
JOB STATUS: Full time
HOURS PER WEEK: 35
OFFER STARTING DATE: September 1st, 2018 (but not later than October 1st, 2018)
APPLICATION DEADLINE: June 1st, 2018
Salary: between 1768.55 € and 2100 € brut per month (depending on complementary activity or not)

Financements de la thèse : si co-financements, préciser la durée de chacun des financements et l'organisme ou l'institution partenaire