Master internship
Analysis of the servitization process for a reconfigurable manufacturing system, in the context of factory of the future

Context and objectives

The transition of industrial companies towards the delivery of "Product-Service-Systems" (PSS) and no more only "products" has generated a large amount of research over the past year. In the context of industry of the future, the master project addresses PSS applied to the field of reconfigurable manufacturing systems: the reconfigurability of these systems is an important added-value for the customers, but it is directly linked to potential service offers facilitating industrial reconfiguration. In this context, the multi-actor economic model for such PSS offers requires to be carefully analysed and to prove advantages both for the users and providers. An application case study will be developed in collaboration with BOA Concept (*https://www.boa-concept.com*), an industrial company developing logistic solutions in a BtoB context.

The research study will address various goals:
- A state of the art focused on servitization of reconfigurable systems will analyse research issues linked to economic model balancing for servitization.
- Understand the industrial context and identify the potential services which could be integrated to support industrial reconfiguration of logistic systems ;
- Formalize the decision-making problem, by considering the outputs expected by the various actors (notably providers versus customers) ;
- Analyse the economic factors characterizing a situation of reconfiguration and formalise the associated economic model ;
- Analyse the different approaches (simulation, operation research etc…) which could be implemented to develop a decision support system aimed at the multi-actor balancing of the economic model ;
- Implement a first test-version of the decision-making approach proposed and analyse the results generated.

Candidate profiles (one or several of the elements below)
- Good background in Production Management and Industrial Engineering or related field.
- Scientific culture on system modelling and performance analysis, applied to production or logistic systems
- Decision-making support systems

Place : Ecole des Mines de Saint-Etienne
Laboratory : LIMOS, UMR CNRS
Salary: Training allowances (550 €/month)
Period: 6 months starting between March 15th and April 1st, 2020

Application
The application should include a curriculum, a cover letter and transcripts of the past two years (with results of the first semester of 2018 – 2019, if available), and it should be emailed to xavier.delorme@emse.fr, xavier.boucher@emse.fr, no later than January 31th, 2020.