

Stage de master – MSc internship

Steering quality management towards sustainability in ramp-up projects

Overview of the topic:

Frequent development of products and services became a key feature of nowadays businesses aiming to keep up with increasing customer requirements and to meet social challenges. This put more pressure on systems engineering and management to align with quality and sustainability requirements. Ramp-up projects, allowing for the transition from prototype realization to series production, comes into play at this point (Medini et al. 2020a).

Current MSc research project supports a broader ongoing research effort involving the identification and characterization of quality management and sustainability synergies, in particular during the ramp-up phase of system lifecycle. Previous research within two collaborative research projects allowed to establish an initial research framework (Medini et al. 2020b) with a first application in additive manufacturing domain (Rousseau et al. 2020). Building on these efforts and on the results from a previous MSc internship (Sivapragassam 2020), this project will specifically address the integration of sustainability objectives in Six-Sigma (SS) with a focus on ramp-up projects. Sustainability objectives are derived from the Triple Bottom Line (TBL) vision of sustainable development.

The research project will involve 1) conducting a review of the literature to complement the review done so far, 2) conducting interviews with practitioners from three sectors (additive manufacturing, cycling, and healthcare services) with a view to draw a general picture of the industrial practices in these targeted sectors, 3) building on previous research from the team to derive a guideline integrating TBL and SS, and finally 4) conducting an illustrative case involving one of the three industrial sectors. The future MSc intern will be working with and helped by permanent researchers and a post-doc.

Desired candidate skills: System engineering, quality management, industrial management (any past experience in relation to sustainability assessment is appreciated but not obligatory).

Location: Mines Saint-Etienne.

Laboratory: LIMOS (UMR 6158) – Laboratory of Computing, Modelling and Optimization of the Systems.

Supervisor: Khaled Medini

Period: 5 to 6 months starting from February/March 2020.

Salary: 577€/month (in the form of internship scholarship).

Application:

- The application should include: short résumé, cover letter, transcripts of the past two years (including partial results of the current semester, if any).
- Application and any request should be emailed to: khaled.medini@emse.fr
- Deadline: January 6th, 2021.

References:

- Medini K, Pierné A, Erkoyuncu JA, Cornet C (2020a) A Model for Cost-Benefit Analysis of Production Ramp-up Strategies. In: APMS 2020.
- Medini K, Wuest T, Romero D, Laforest V (2020b) Integrating sustainability considerations into product variety and portfolio management. In: Procedia CIRP.
- Rousseau M, Medini K, Wuest T (2020) Configurators as a means to Leverage Customer-Centric Sustainable Systems – Evidence from the 3D-Printing Domain. In: Procedia CIRP.
- Sivapragassam G (2020) Sustaining variety management in Product Configurators. MSc Thesis, Centrale Nantes.