PhD Position

PhD Thesis Title: Specifying innovative logistic models to relocate manufacturing industry: application to the Furniture Industry.

PhD Supervisor: Pr. Patrick BURLAT

Laboratory: Department OMSI, Centre G2I, ENSM-SE

Expected starting period: October 2010.

Contact: Pr. Patrick Burlat, Center G2I, Ecole Nationale Supérieure des Mines de Saint-Etienne, 158, cours Fauriel, 42023 SAINT ETIENNE CEDEX 2, FRANCE. Tel.: + 33 (0)4 77 42 02 32, E-mail : burlat@emse.fr

Scientific context and objectives

Sustainability has become a way in which organizations can distance themselves from the pack, with a resulting improvement in environmental and social factors and with potential impacts on cost-reduction or even on competitiveness increase. In this context, the French furniture industry is looking for new evaluation methodologies to help companies make green business the new 'business as usual'. This PhD thesis will focus on methods to reduce environmental footprints and to drive efficiencies and environmental improvement throughout supply chains. To do so, sustainability considerations will be combined to Lean Manufacturing approach. Indeed, adding environmental efforts to lean viewpoint can increase value, reduce cost of raw material, decrease sourcing charges through logistics optimization, as well as minimize regulatory non-compliance risk. Moreover, this will promote 'local factories' i.e. local sourcing via small production cells with 'right sized' equipments requiring less capital than huge size global manufactures. Such relocated production should use less energy for producing the right quantity of tailor made components with zero inventory, rapid lead times and carbon efficient delivery.

Research methodology

This researched will be based on the following concepts: Enterprise Modeling, Supply Chain Design and Control, Lean Manufacturing, Performance Evaluation, Carbon Efficient Value Chains. Tools like cost models, ecological footprints, and data collection analysis will be used.

Links with national and international research programs

This PhD thesis is closely connected to the French furniture Industry, and the results will be applied to several main industrials of the sector. It will also be related to research program MOSLC (Managing and Organizing Sustainable Logistics Chains) funded by Région Rhone-Alpes, via the research cluster "GOSPI" (Management and Organization for Production Systems and Innovation). Other academic cooperations are currently active on this topic with: ENSTIB, Insa Lyon, INPG, Politecnico de Torino, Fraunhofer de Stuttgart, Nottingham University, Loughborough University.

Funding

PhD allocation offered by Ecole Nationale Supérieure des Mines de Saint Etienne, under employee status.

Candidate Profile

Master 2 (M2) in Industrial Engineering or equivalent.

Applying

Applications should be sent to Pr. Patrick Burlat:

- Curriculum vitae,
- Cover letter,
- Academic results and ranking for the taught course part of the Master of Science, full description of your master thesis, as well as the e-mail address of your supervisor.
- List of courses completed during your previous years of higher education and your ranking.
- Letters of recommendation.

Recent publications of OMSI Department on this topic:

- Burlat P. et Peillon S. : « Skills networks and local dynamics », in Global Competition and Local Networks, directed by Rod B. McNaughton and Milford B. Green, Ashgate Publishing Limited, pp. 133-149, Londres, 2002. (ISBN 0-7546-1588-X
- Burlat P., Benali M. : "A methodology to characterize cooperation links for networks of firms", Production Planning and Control (PPC), Vol. 18, n° 2, pp. 156–168, March 2007, (ISSN 0953–7287).
- Chapron J., Boucher X., Burlat P., Lebrun P., "Analysis of Organisational Dependency for Urbanism of Information Systems, International Journal of Computer Integrated Manufacturing (IJCIM), Volume 21, Issue 3, pp. 337 – 350, April 2008, (ISSN 0951-192X).
- Essaid M., Grimaud F., Burlat P., "Manufacturing network simulation using a data driven model". International Journal of Simulation and Process Modelling. Accepted paper January 2009.
- Boucher X., Chapron J., Burlat P., Lebrun P., "Process clusters for Information Systems diagnostics: an approach by Organisational Urbanism", Production Planning and Control. Accepted paper May 2009.
- Taratynava N., Burlat P., Boucher X., "Analyse des échanges de prévisions dans une chaîne logistique MTS/MTO", Journal Européen des Systèmes Automatisé (JESA). Accepted paper June 2009.
- Benali M., Burlat P., "Modeling cooperation links within networks of firms". In Special Issue on "Supply Networks Design and Management", O'Brien C., Villa A. and Burlat P. Eds. Journal of Intelligent Manufacturing (JIM). Accepted paper June 2009.
- Boucher X., Burlat P., Garapin A., Llerena D., Taratynava N. "Analysis of strategic Behaviours within Suppy Chains: Complementarity between modelling and experimentation methodologies", Book Chapter, Ed. Hermes, Accepted-June 2009.