Editorial

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Biographical notes: Mohammed Dahane is an Assistant Professor in the Industrial Engineering and Production Laboratory of Metz (LGIPM) and the National Engineers School of Metz (ENIM), Metz, France. He has 4 years of teaching and research experience. He received his PhD degree from the University of Metz in 2007. His research interests deal with the joint analyses of maintenance policies and production or the quality constraints, the reliability and reconfigurable manufacturing systems. He has authored nearly 30 technical papers in peer-reviewed journals and at various international conferences. His contributions have appeared in various reputable journals such as *International Journal of Production Research*, *Computers & Industrial Engineering*, etc.

Lyes Benyoucef is Professor at Aix-Marseille University since September 2011. Before joining Aix-Marseille University, he was a senior researcher at INRIA. His research interests include modelling, performance evaluation, simulation and optimisation of supply chains and e-sourcing technologies. He has rich industrial application experiences with European industries (GROWTH-ONE, GROWTH-TNEE, French-German GrailChem and FP6-NoE I*PROMS). He is member of the IFAC TC 5.2. Manufacturing Modelling for Management and Control, and an editorial board member of *International Journal of Service Operations and Informatics*, *Artificial Intelligence Research*, and *Journal of Operations and Logistics*. He has served as a Guest Editor of six special issues of leading journals such as *EAoAI*, *JIM*, *JMTM*, *IJSIM* and *IJLSM* and a book in Springer series in advanced manufacturing. He has been served on International Program Committees for more than 35 conferences.

1 Introduction

With burgeoning global markets and the demanding nature of the customer, it is very important for companies/organisations to respond quickly and cost effectively to be present and to take the lead among the competitors. Today, customer satisfaction is a

challenge for most manufacturing companies. Mass customisation, a product deployment concept that combines low price with extensive variation and adaptation, has emerged due to its potential impact upon the customer regarding the perceived value of the product. With the continuous demand for products incorporating new and complex functionalities there has been a lot of pressure on the manufacturing organisations.

This special issue presents a selection of papers presented at the 4th International Conference on Industrial Engineering and Systems Management (IESM) 2011 held on 25–27 May 2011 in the National Engineers School of Metz (ENIM), Metz, France. IESM aims to bring researchers and professionals from all industrial engineering and service sciences disciplines together to discuss issues and share their research and development results and experience.

2 Overview of the papers included in the special issue

We have encouraged authors to submit their papers with both theoretical and practical implications, with their results in industrial engineering and systems management. Total five papers were selected after a peer review process. These five papers were revised in accordance with the suggestions and recommendations from the reviewers.

The first paper by Zhong and Aghezzaf deals with the problem of the single-vehicle cyclic inventory routing problem (SV-CIRP). The SV-CIRP is a particularly challenging optimisation problem, which can be formulated as a mixed-integer program with a nonlinear objective function. An effective iterated local search algorithm (ILS) is developed to solve the problem. Variant instances are generated and used to test the proposed approach. The numerical results show that the proposed iterated local search algorithm is competitive and it can find quality solutions for the single-vehicle cyclic inventory routing problem in reasonable computational times.

The second paper by Ben Mosbah and Dao addresses the part routing selection and the part-machine grouping problems in cellule manufacturing environment. The cell formation problem has long been recognised as the most challenging problem in realising the concept of cellular manufacturing. It belongs to the class of NP-hard problems. To solve the two problems, an optimisation algorithm based on the Extended Great Deluge (EGD) is developed. Several computational experiments are presented comparing EGD with genetic algorithms.

The third paper by Brahim-Djelloul, Estampe and Lamouri analyses the existing supply chain modelling tools in order to elucidate which of these tools take into account real-time information. More specifically, the paper shows existing modelling tools able to model supply chain's dynamic performances. The analysis is particularly useful since it highlights the dynamic behaviour of the supply chain when facing an uncertain environment, and where reactive monitoring becomes an important competitive asset.

The fourth paper by Hachani, Verjus and Gzara presents an approach to deal with product design process flexibility in Product Lifecycle Management (PLM) systems by making profiles from Service Oriented Architectures (SOA). The study aims to specify, design and implement product design processes in a flexible way.

The fifth paper by Jakjoud, Zrikem, Baron and Ayadi defines a meta-model for systems engineering processes. The meta-model integrates the fruitful approach of the Software Process Engineering Meta-model (SPEM) combined with some useful concepts

from the System Modelling Language (SysML). Further, through some predefined criteria, the specification of the EIA 632 standard and a sample process for systems engineering the developed model is validated.

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