Editorial

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Biographical notes: Imed Kacem received his Diploma of 'INGENIEUR' from ENSAIT (French High School) and MS from Lille 1 University, both in 2000; PhD in Computer Science in 2003 from the Ecole Centrale de Lille and his Habilitation degree (HDR) from Paris-Dauphine University in 2007. He is a Full Professor at Paul Verlaine University of Metz (UPVM) and the Head of its Computer Science Department. His research interests include combinatorial optimisation and scheduling. He is the author of more than 100 publications in refereed journals, conferences, books and chapters of books. He is the Area Editor for Computers and Industrial Engineering. He is on the editorial boards of *European Journal of Industrial Engineering*, *International Journal of Advanced Operations Management*, *Advances in OR*, *IJPS*, *IJAMC*, *JSCI*, *JPAM* and *JISE*. He was the Organisation Chairman of CIE39, ICSSSM06 and WAC/ISIAC06. He is listed in *Who's Who in the World*.

The main aim of this special issue was to present some new trends on decision-making and optimisation in supply chain. In particular, these advances focus on methodologies and innovative applications. Their important role in several logistical systems was our main motivation to edit this volume. Indeed, such advances can be of a great benefit to increase the industrial performance, the robustness and the safety of several complex systems. That is why the elaboration of new decision-making models and optimisation techniques represents an interesting question leading to several research activities and scientific projects in many recognised teams. This volume is constituted of four papers related to decision-making, supply chain and optimisation areas.

In the first paper, A. Balma et al. consider the well-known problem in the telecommunication community as the traffic grooming problem. It is related to integrated capacity dimensioning and demand routing in SDH/WDM networks. They formulate the problem as an integer linear programme. Then, they transform the problem into a mixed integer linear programme by relaxing the unsplittability constraints on flow variables. Moreover, they propose a Branch-and-Price method in which the branching step is only based on capacity variables, and the basic solutions generated for pricing subproblems have a non-zero variable for each separate channel. They show that the pricing process can be done in a polynomial time. As the time complexity of the problem depends only on the number of edges, they expect the proposed method to be effective.

A two-echelon inventory system consisting of one supplier and N retailers is considered by R. Haji et al. in the second paper. The authors assume that each retailer faces an independent Poisson demand with the same rate and they apply a new ordering policy called one-for-one-period ordering policy for its inventory control. In such an ordering policy, the order size is equal to one and the time interval between any two

consecutive orders forms a common fixed cycle. Thus, the supplier faces a deterministic demand and adopts a deterministic inventory policy. At each cycle, he orders a batch of size N to his own supplier. Upon receipt of each batch, he sends 1 unit of the product to each retailer with a transportation cost. In this paper, the authors first derive the total cost function per unit time. Further, they obtain the conditions under which the total cost function is convex. Finally, they obtain the optimal time interval between any two consecutive orders as well as the optimal average inventory for each retailer.

In the third article, I. Boufateh et al. study the life cycle assessment (LCA) which is increasingly used in order to enable the modelling, the evaluation and the comparison of different alternatives of products, processes or supply chains according to their environmental and sustainable impacts. The main aim of the authors is to use a multiple criteria decision-making (MCDM) method to analyse the results of the LCA of textile products. Their motivation is to help the different actors in the supply chain. Within this framework, they study the choice of the most suitable multicriteria analysis method from the literature and they show its application in the textile supply chain.

M. Sawadogo and D. Anciaux aim in the last paper to model the performance of an intermodal transportation system within the green supply chain. Such a model takes into account the economic, environmental and societal criteria in order to help the decision-makers in choosing the strategy with the best compromised benefit/impacts in an intermodal transportation system. It has to consider many conflicting criteria at the same time and the use of multi-criteria decision support system is hence an appropriate methodology. The authors show that the considered path selection in a multimodal transportation network can be seen as a multi-criteria decision-making problem, for which they propose a method based on the elimination and choice expressing the reality (ELECTRE) approach to solve the multi-criteria model.

Finally, the guest editor would like to express his thanks to all the referees for their very helpful work, the authors for their contributions and the editor-in-chief for his help to the success of this project.