Editorial

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Biographical notes: Imed Kacem is a Full Professor at Paul Verlaine University of Metz. He is the author of nearly 100 publications in the combinatorial optimisation area. He is Area Editor for Computers & IE and for Advances in OR. He is on the Editorial Boards of the *EJIE*, *IJAOM*, *IJAMC*, *JSCI*, *JPAM* and *JISE*. He was a Guest Editor for *EJIE*, *IJAOM* and *JSSSE*. He organised CIE39, ICSSSM06 and WAC/ISIAC06. He obtained the third '2009 Robert Faure Award' from ROADEF (Société Française de Recherche Opérationnelle et d'Aide à la Décision). He is listed in Who's Who In the World.

First of all, we would like to thank the editors of *EJIE*, Professors A. Allahverdi, J. Framinan and R. Ruiz, for accepting the idea to organise this special issue after a careful selection of some papers presented at the MOSIM'08 conference. Their professional assistance was very helpful to achieve this issue in the best conditions.

MOSIM'08 (http://www.mosim08.enstib.uhp-nancy.fr/) or the 7th International Conference on Modelling and Simulation has been held in Paris from 31 March to 2 April 2008. It has been the occasion to present 220 contributions selected from 379 submissions (included the special sessions). This represents a selection level of 59%. This event has attracted 85 articles from the outside of France and participants from 20 countries (most of them are French speaking countries).

According to the journal standards, a new review process has been organised and applied to all the submitted papers to this special issue. At this occasion, we would like to express our gratitude to all the reviewers for their professional help and their contribution to the success of this special issue.

The main aim of this issue was to disseminate some new advances in the simulation and the optimisation areas and especially those applied to the logistical systems. Such advances can be related to the theoretical level, to the methodological level or to the applicative level. This choice is motivated by the fact that these tools play an important role in several industrial systems. In particular, in the area of logistics, several important applications can be found. This special issue is organised in six articles related to the mentioned scopes. In the remainder of this editorial note, we describe the main contribution of each of them.

In the first paper, Saenz de Ugarte, Hajji, Pellerin and Artiba propose a generic manufacturing execution platform in order to provide a reactive real-time decision support to disturbing events. They show how this approach can support engineering change order processing in some environments controlled by ERP. Moreover, they

provide an example based on a real scenario in the aerospace industry. Such an example illustrates how a genetic algorithm (GA) and a real-time discrete event simulation model can be integrated within an ERP and MES system platform.

In the second paper, Besbes, Teghem and Loukil consider a *k*-stage hybrid flow shop scheduling problem under non-availability constraints (i.e., the machines are not continuously available). The objective is to find a feasible schedule with the aim of minimising the makespan. They study two variants of this problem. In the first, the starting times of maintenance tasks are fixed, whereas in the second variant, maintenance must be performed on given time windows. A heuristic approach based on a GA is proposed to minimise the makespan. This choice is motivated by the NP-hardness of the studied problem. Computational experiments are carried out on randomly generated instances to evaluate the efficiency of the proposed algorithm in connection with the studied variants of the problem (flexibility or not of the starting times of the maintenance tasks).

In the third paper, Boyer, El Baz and Elkihel present an exact cooperative method for solving the multidimensional knapsack problem (MKP) which combines dynamic programming and branch and bound algorithms. Their method is a hybridisation of a dynamic programming heuristics based on surrogate relaxation and a branch and bound procedure. They describe the numerical tests of such a method carried out on several randomly generated sets of instances and problems in the literature. First, the obtained solutions are compared to optimal values and results provided by other well-known existing heuristics. Then, the exact cooperative method is compared to a classical branch and bound algorithm.

In the fourth article, Bahroun, Moalla, Baâzaoui and Campagne propose a generic model of software agent based on multi-agent systems in order to model supply chains and to simulate and to evaluate replenishment policies within such chains. They present an implementation of the supply chain based on the beer game. Using the framework JADE, they simulate some replenishment policies in order to validate the model. This choice is motivated by the big flexibility for the modelling of distributed organisations regarding structures and decisions and because they present an effective tool of simulation.

In the fifth article, Cheaitou, Jemai, Dallery and van Delft study a two-stage supply contract model for advanced reservation of capacity. The payback option at the beginning of the selling season is considered. External information is collected between the two decision stages in order to update the demand forecast and to correct the decisions of the first stage. The demand occurs during a single selling period. At the end of the period, the rest of the inventory is sold at a salvage price. During the selling season, every unsatisfied demand is lost and every satisfied demand is charged with a unit selling value. The model is proposed with the aim of calculating the quantities to be ordered before the selling season. This is equivalent to determine the capacity amount to be reserved so that the demand will be optimally satisfied.

Finally, Lehoux, D'Amours and Langevin study different collaboration modes between a pulp and paper producer and its retailer. For this special case, they determine the collaboration strategy that is the most interesting (in terms of profit) for each actor. This decision is based on real costs and parameters obtained from the industrial actors. Moreover, they develop a method to share collaboration benefits and to ensure a more

advantageous relationship for all the actors. Throughout this example, they show that if the producer shares a part of the transportation or inventory savings with its partner, the collaborative, planning, forecasting and replenishment (CPFR) method can be interesting for both of them.