Editorial

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Biographical notes: Salvatore Cannella received his Doctor Europaeus' degree in Logistics and Management for Quality, Sustainability and Safety from the University of Palermo and University of Seville (co-tutoring agreement). His research focuses on supply chain management, the bullwhip effect and assessment for quality in the European Space of Higher Education.

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Supply chain management researchers and practitioners face new challenges in integrating issues of collaboration within their traditional supply chain processes and models. During the past 20 years, there has been growing pressure on businesses to pay more attention to the supply chain performance consequences of inter-firm integration strategies and, in particular, of information sharing investments (Cao and Zhang, 2011). One symptom of this pressure is the movement towards supply chain collaborations, i.e., modifying the relationship among buyers and supplier both during the developments of new products but also during the routine operations of the supply chain (Cannella et al., 2010). The resulting challenges for researchers include integrating collaborations issues in classical supply chain management decisional models, such as those related to demand management, order replenishment, production planning, distribution planning,

and so on. Collaboration in supply chain represents a huge challenge for companies, and has begun to attract significant attention from academic researchers seeking to better understand the perils, benefits, facilitators, and inhibitors of collaborative ventures (Stank et al., 2011). Thus, the advocated advantages coming from information sharing and integration of supply chain members push researchers to develop new and complex decision-making models for supporting supply chain managers to make collaboration a real advantage (Lyu et al., 2010; Cannella et al., 2013). This special issue of *International Journal of Management and Decision Making* presents six interesting papers dealing with such topics. Each submission was reviewed by a double-blind review process using at least two reviewers who are experts in the corresponding field. We briefly describe these contributions below.

Marqui, de Moura and Alcântara, in their paper 'Collaborative supply chain: a conceptual model for operationalisation', propose a conceptual model for establishing cooperation, coordination and collaboration in supply chains. Firstly they perform a notable taxonomy effort by clarifying the definitions for these three terms and then they analyse a sample of classifications of types of relationships among companies in the supply chain. Secondly they identify the characteristics and behaviours of collaborative supply chains. More specifically, they identify nine characteristics that the relationship among companies developing collaboration in the supply chain should embody; and ten behaviours that companies developing collaboration in the supply chain should adopt. Each of the characteristics and behaviours are explained in detail. Thanks to their review effort, the authors design a new and interesting conceptual model. By doing so the authors contribute to companies' decision making process, as to whether they should or not invest time and effort on developing a collaborative relationship.

Deghedi and Ibrahim, in their paper 'Demand information sharing in supply chains: the impact of lead-time and inventory to backorder cost ratio', present an agent-based model of the beer game to investigate the value of sharing the demand information among the actors of a SC. Furthermore, the paper studies the sensitivity of the results to the changes of two supply chain parameters: the lead-time and the inventory to backorder cost ratio. The authors present a literature review on the beer game models and on the implementation of the agent-based model to supply chain system. The model is composed by five main classes of agents, i.e., customer, retailer, wholesaler, distributor, and factory. Each agent has the objective of minimising its inventory, and hence cost, through optimising the quantity to order. The authors simulate two scenarios: no information sharing and information sharing in which demand information is shared among agents. The authors argue that the information sharing generates a 93% reduction of the total cost of the SC. However, they show an unequal, or even unfair, distribution of the information sharing benefit among the agents. In particular, the factory is the member characterised by the highest cost reduction (98.6%). Thus the authors suggest the necessity of establishing some form of mutually beneficial cooperation between the actors of a supply chain, in which downstream actors are encouraged to share the information through incentives.

Domínguez and Framinan, in their paper 'A decision management tool: modelling the order fulfilment process by multi-agent systems', present an agent-based framework for modelling and simulating complex supply chain networks. More specifically, the framework is implemented through Java Swarm, a multi-agent software platform for the simulation of complex adaptive systems called Sistemas Cooperativos para la Programación y Ejecución de pedidos (SCOPE). Firstly the authors perform a literature

review of the related agent-based framework for supply chain management. By doing so the authors are able to highlight the potential benefit of the proposed framework. Secondly they present the multi-agent system and its software implementation. Thirdly they validate the framework by comparing their results with three relevant studies of the bullwhip literature, i.e., Chen et al. (2000), Dejonckheere et al. (2003) and Chatfield et al. (2004). The results obtained by SCOPE are extremely close to those works. Finally the authors illustrate how the presented framework can provide a valuable resource for supply chain management academics and practitioners. In particular the authors highlight how SCOPE can help managers to better understand how a given supply network configuration performs in the presence of external disturbances (supply and demand) and/or internal disturbances (machines process time and transport times). Analogously, researches can benefit from the open-source code of SCOPE (in Java) and its modular design with the main functions of the enterprises encapsulated in different functional agents to make easier the process of adding new functions, allowing to improve and customise the platform in the desired way.

Ball and Deshmukh, in their paper 'A cooperative options-based strategy for coordinating supply chain and resource allocation decisions', propose an options-based approach at achieving cooperative supply chain decisions at both the macro and micro levels between multiple agents, where risks are due to both the buyer (i.e., task) and supplier/seller/producer (i.e., resource). To do so the authors develop a cooperative decision-making model using the concept of real options. In this model the agents' goal is to properly cooperate in the most effective manner with other agents to allocate tasks to resources. A task enters the decision-making system (e.g., organisation) with the respective agent's goal of allocating it to a resource to be processed and receive a finished product and resulting utility value. The authors argue that this multi agent system may help each supply chain member to design flexible contracts that respond dynamically as system information and uncertainties become better known, with the ultimate effects of improving coordination, reducing costs, and minimising the resulting bullwhip effect within a large-scale supply chain network.

Hofmann and Wessely, in their paper 'Structuring and quantifying the value contribution of supply chain initiatives', elaborate an extrapolation method to estimate the full value contribution of single supply chain initiatives for a company and its affiliated supply chain partners. More specifically, the authors state the following two research questions: RQ1: 'From a company's perspective, how can the multiple roll out of a supply chain initiative on selected suppliers and customers be systematically structured?' RQ2: "How can the overall value contribution of an supply chain initiative be estimated and considered by a financial quantification approach, e.g., the economic value added?". In order to answer these questions, the authors firstly identify deficiencies of existing literature regarding the value contribution of supply chain initiatives. Afterwards they develop a framework that makes it possible to consider the integration of companies in individual networks of suppliers and customers in the value determination along the supply chain. The quantification approach has been validated and optimised by testing based on in-depth exploratory interviews of route decision makers. The data-base is provided by logistics experts from 11 cooperating international companies from the Swiss and German consumer goods and pharmaceutical industry.

D'Avino, Correale and Schiraldi, in their paper 'No news, good news: positive impacts of delayed information in MRP', show how demand information sharing impacts

on the algorithm of MRP in a in a three-echelons supply chains. First they detail how the information sharing is used in MRP formulas. Furthermore they simulate, under both deterministic and stochastic behaviour, the following three case:

1 no information sharing: where each echelon decides its own replenishment decisions only depending on received orders

2 information sharing: where the final demand is shared among all levels and it is used for future forecasts

3 information delay: where the information about final demand is shared with a delay.

They argue that the reduction of the delay always leads to a decrease in the inventory costs for the down-stream echelons, on the contrary for the manufacturer a reduced delay does not clearly generate benefits. To put the theoretical scheme into practice, the authors are currently working on a re-design project of the MRP software in one of the largest Italian manufacturing companies of home appliances.

As guest editors, we are very satisfied with the quality of the papers presented in this issue. These articles present new results that should be useful for both researchers and managers that are facing collaboration decisional issues in supply chains and we guess they contribute to the body of knowledge for this crucial aspect of the business.

We would like to thank the authors for contributing with their high-quality manuscripts and all reviewers for providing valuable comments. Also, we would like to express our special thanks to the Editor-in-Chief for his valuable guidance's during this experience. Finally, we acknowledge the financial support from the Portuguese Foundation for Science and Technology, Grant SFRH/BPD/68576/2010.

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