

Livro de Resumos



24 - 26 MARÇO

XXIII CONGRESSO
APDIO 2024

ESCOLA SUPERIOR DE TECNOLOGIA E GESTÃO DE VISEU

**O Potencial da IO na Formulação e Implementação de
Políticas Públicas**

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XXIII Congresso da Associação Portuguesa de Investigação Operacional

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Submissão #38

Extending inventory supply chain planning to a multi-warehouse and multi-period context: a mathematical programming approach focused on a continuous review policy

Joaquim Jorge Vicente, Teresa Cardoso-Grilo

Inventory management has been widely studied by several authors. Nevertheless, there is still a small number of studies exploring its application at the supply chain level, despite being widely recognized that the collaboration between partners in the supply chain is critical to achieve more efficient inventory management decisions. In fact, such a collaboration fosters the global optimization of supply chains. In this paper, the inventory supply chain planning problem is addressed through the use of the continuous review (r,Q) policy, aiming at optimizing inventories throughout a supply chain while defining the amount of products transported among facilities over time. A mixed integer linear programming (MILP) model is built for that purpose and a multi-periodic/multi-warehouse/multi-retailer supply chain is considered as reference. This model adds to existing supply chain inventory management literature by extending existing models to a multi-periodic and multi-warehouse supply chain. The model, hereafter called CRP2InvSC model, allows to determine inventory levels, order quantities Q and reorder points r for each time period and each facility on a supply chain. Products flows between supply chain entities is also modelled. A case study based on a distribution supply chain is used to illustrate the applicability of the proposed model.

Keywords: supply chain management, inventory planning, mixed integer linear programming, continuous review policy

Submissão #39

Sustainability and resilience in location-routing problems: A systematic review

Bruna Figueiredo, Rui Borges Lopes, Amaro de Sousa

Sustainability and resilience are two important trends in the supply chain field. In recent years, the incorporation of sustainability concerns into the modelling of different problems related to the supply chain has received increasing attention. Although not yet thoroughly explored, the design and operation of resilient supply chains have also been a major concern, making it increasingly addressed in the literature. In the design and operation of supply chains, key decisions concern the location of distribution centers and subsequent distribution to customers. This work presents a systematic review of location-routing problems (LRPs) which integrate the concepts of sustainability, resilience, or both. The broad definition of sustainability and the ambiguity of the concept of supply chain resilience mean that the strategies and metrics applied may differ between different works, according to the authors and their objectives. This presentation will analyze how these concerns are integrated into the modelling of LRPs. It will also discuss the main characteristics of the models presented and the solution methods employed. Finally, some research gaps and suggestions for future work will be put forward.

Keywords: location-routing problem, sustainability, resilience