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"Supply Chain Management in the Fashion Retail Industry: a multi-method approach for the optimization of performances"

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Abstract

Fashion and Apparel Supply Chains work in a very fast-changing environment always demanding better quality, higher availability of products, broader assortments and shorter delivery times. Then, an efficient Supply Chain Management can make the difference between success or failure in the market. In this context, this thesis analyses the characteristics of this particular industry at different levels. Starting from the analysis of the whole Supply Chain, aimed at identifying the most critical areas and processes, this work proposes a reference framework for the definition and subsequent optimisation of the physical and informative flows. The model also includes all the cost and revenue items connected to the processes which are characteristic of a Fashion Supply Chain working with a wide network of direct-operated or franchising mono-brand stores. In recent years, the traditional model, only based on a brick & mortar business, has been overcome due to the wide spread of e-commerce. This evolution forced companies to adopt a new integrated strategy, called Omni-Channel Retailing, in order to meet customers requests and offer a wider product selection. With these perspectives, the framework has been revised and extended in order to represent no longer only the physical network but also the mobile purchasing paths and allow us to evaluate how this new integrated strategy may impact on the performances of a traditional Supply Chain. From all these analysis it emerged that the most critical process for a company operating in this sector, is the Replenishment process, i.e. the definition of the delivery times and quantities from the central warehouse to the whole network of stores and clients. An heuristic optimisation method, called the Bees Algorithm, was adopted to solve this problem and, together with the reference framework, represents a useful Decision Support System for fashion companies in the definition of the purchasing quantities and operations plans well ahead of the sales season.