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## **Editorial**

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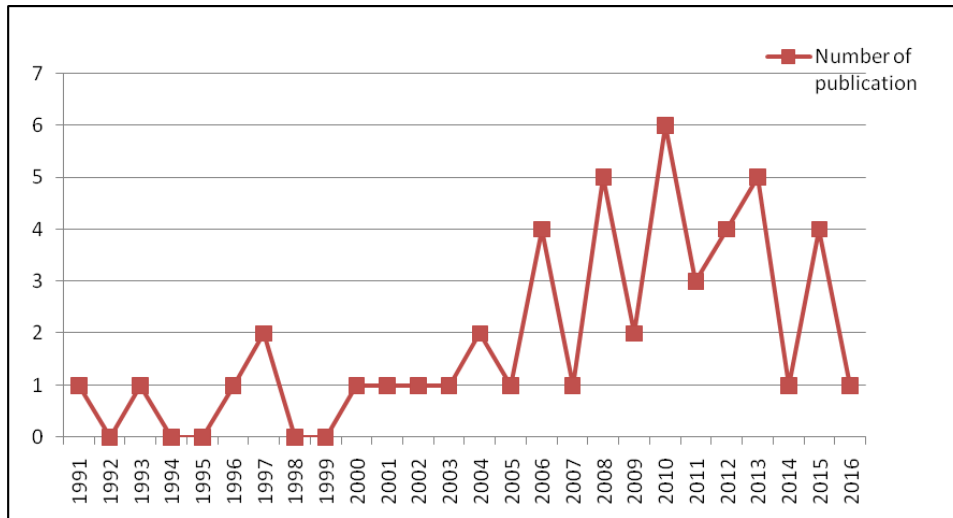
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## **1 Introduction**

The fashion and textiles industry is one of the most important industries in the world in terms of billions in monetary revenue and millions in involved labour force. Fashion has a short product life cycle and high demand volatility as the tastes of consumers are dynamic. To gain the better performance in the supply chain, it is greatly significant to develop a systematic and scientific approach to properly manage inventory in the fashion industry. For example, the fast fashion brand Zara always tends to offer a larger number of assortments in small quantities by the quick response strategy. Under the concept of quick response, Zara monitors inventory levels in both physical stores and online retail platforms in-time and manage inventory to better match supply and demand. Moreover,

Zara adopts the advanced inventory management technique just-in-time, which enables the company to ensure the items are available whenever they are needed, and there is neither too much nor too little. In the big data era, great fashion firm is employing advanced information techniques to improve forecast accuracy and reduce the associated uncertainty in inventory.

**Figure 1** Number of publications in fashion inventory management (see online version for colours)



Note: Data is collected from Shen, Chen, Chow, and Thoney-Barletta’s review paper in this special issue.

**Table 1** Number of publications by various research approaches in fashion inventory management

<i>Research approach</i>	<i>Number of publications in fashion inventory management</i>
Analytical approach	28
Case study approach	12
Empirical approach	5
Simulation approach	3

Note: Data is collected from Shen, Chen, Chow, and Thoney-Barletta’s review paper in this special issue.

Due to the complexity of fashion supply chains, many scholars have chosen to study fashion products in the inventory management literature. According to the review paper published in this special issue by Shen, Chen, Chow and Thoney-Barletta, there are 48 research articles published from 1991 to 2016 in the area related to fashion inventory research. This number is continually growing. As shown in Figure 1, we can see the research of fashion inventory management is definitely a hot topic after the 21st century. It can be reflected that scholars had paid more and more attention to it in the latest decade. Moreover, from Table 1, we can observe that there are four common research approaches adopted in fashion inventory management, namely, analytical approach, case study, empirical approach, and simulation. Undoubtedly, analytical approach is the most

popular one, followed by the case study approach, empirical approach and simulation approach.

This special issue aims to provide the most recent and innovative research in fashion inventory management. We present new findings based on literature review, case study, and quantitative models. The featured papers either contribute to the literature or advance practices in fashion inventory management. All of the results provide great insights to both scholars and industrialists.

## 2 Inventory insights

This special issue of *IJIR* includes four research papers in fashion inventory management. The findings and insights generated by them are summarised in the following.

‘Inventory management research for the fashion industry’ by Shen, Chan, Chow and Thoney-Barletta, reviews the recent literature on inventory management related to the fashion industry. This review paper provides a comprehensive examination of the fashion inventory management literature. The authors classify the extant literature by four widely used research methodologies, including analytical modelling, empirical, case study and simulation approaches. According to the number of articles, analytical approaches are the most widely adopted one for examining inventory studies in the fashion industry. Scholars use analytical approaches, usually under the operations research framework, to identify, evaluate, and solve problems in inventory management. Specifically, the analysis of fashion inventory management can be divided into four different areas:

- 1 inventory planning decisions
- 2 supply chain coordination and risk consideration
- 3 quick response strategies
- 4 better inventory management facilitation.

After looking deeper in corresponding literature, the authors identify that inventory ownership, information technology, and incentive schemes for increasing inventory efficiency are the key factors to enhance inventory management in the fashion industry. Based on the comprehensive literature review in the inventory management of fashion industry, they propose that inventory management of luxury fashion, sustainability in inventory, and empirical and case study approaches are the most important and promising directions for future research.

The second paper is ‘Strategic values of technology-driven innovation in inventory management: a case study of Zara’s RFID implementation’ by Yim and Huang. Yim and Huang conduct a case study in RFID implementation in Zara. It is well-known that the RFID system makes use of radio signals to transmit real-time information between multiple and distant objects. Since its first application in the Second World War to identify alliance planes, the RFID technology has been significantly improved for commercial adoption. From 2014 to 2016, the fashion industry leader Zara has run the largest RFID-based inventory management project in its 2,000 stores across 88 countries. This research paper analyses Zara’s real-life case on synergising its supply chain structure, business model and IT infrastructure in the RFID implementation. The case study sheds light on how fast fashion business can capitalise technological innovation on

leapfrogging its inventory management and strengthening its competitiveness in the industry.

The third paper 'Analysis of inventory and financial performances of Esprit based on its corporate financial reports' is from Cai and Xie. Esprit a global fashion retailer specialised in branding, product design and retailing. Esprit reached its peak business performance in 2008, but fell constantly later and decreased 98% net profit in 2011. This big drop has received huge attentions and surely raises many managerial lessons in inventory management. This paper looks through Esprit's annual financial reports and generated insights. To be specific, the author finds that: based on the data in its 2010/2011 financial year report, inventories continued to increase, the risk gradually accumulated. The inventory amount increased from 2.46 billion to 4.22 billion dollars, inventory turnover in the number of days grew from 65 days to 75 days. Motivated by these industrial evidence, the author explores the reasons behind the decline in business performance of Esprit and the high inventory level through summary of its corporate financial reports from 2008 to 2015 (since Esprit reached its peak in 2008). This study identifies several key factors explaining how and why Esprit experienced the success and tough time in terms of poor inventory and cash flow management. Based on different frameworks, the paper further identifies the strengths and weaknesses of Esprit's operations and proposes managerial insights.

The fourth paper is 'A multi-objective location-inventory model for a fashionable item in a three-level supply chain', by Bozorgi-Amiri, Akram, Taleizadeh and Yousefi-Babadi. Nowadays, designing a supply chain considering customers' satisfaction is a practical field in supply chain management. On the other hand, facility location problem is one of the most fundamental tasks of supply network design. Undoubtedly, inventory costs are significant and also have the direct relationship with facility positions. Although location and inventory problems may seem to be two distinct fields, making decisions based on inventory management, such as determining lot sizes, and integrating this issue with location-allocation decisions are important and may lead us to a profitable supply framework. In this paper, a multi-objective location-inventory model in a three-echelon supply chain for a fashionable product with a fixed lifetime is extended where manufacturers, distributors, and customers are the members of the chain. One of the most important factors for supplying fashionable products is the availability time for the customers. So, besides the main objective of each chain including minimisation of transportation, inventory, deterioration and shortage costs, another objective related to delivery times should be considered. Here, the optimal lot-sizes, the delivery time between factories and distributors (so as to choose and locate the best candidate place), and the optimal flows between layers of supply chain are determined. Also, the decisions of either sending items directly from factories to customers or sending them to the customers through distributors were analysed. The mixed integer nonlinear model is solved with GAMS and eventually, several numerical examples are presented. Finally, extensive sensitivity analyses are carried out and the objective functions were analysed by changing the important parameters such as the deterioration rate during transportation process and the deterioration rate per time unit in each distribution centre. To understand the trade-off between choosing two distinct ways for delivering fashionable products to the customers, the authors focus on the importance of the deterioration rate. Their results show that the proposed model is practical in real world problems.