

# Publication Trends in Supply Chain Management in the Fashion Industry

Basak Cetinguc, Eyup Calik and Fethi Calisir

**Abstract** The main objective of this research is to conduct a scientometric analysis of supply chain management in fashion- industry literature. The data were gathered from Web of Science database. “Fashion Industry” and “Supply Chain Management” were used as keywords to perform this research. Without narrowing down the time bounds, this search identified 123 publications related to supply chain management in the fashion industry were published up to that date. Though there have been annual ups and downs in the number of publications, the annual number of publications increased from one in 2000 to 18 in 2015. The most productive year was 2014 with 23 papers. Articles were the most popular documentation style with 94 papers, and the other documentation types were conferences, reviews, patents and editorial papers, in descending order. Moreover, 91% of publications were written in English, and China was found to be the most productive country. Concerning research areas, there was a wide range of fields, while the most trendy research area was engineering with 26%. Furthermore, the source titles spanned 79 various sources. At the top was the International Journal of Production Topics with 13 publications, while 47 different sources titles contained only one publication each. This research offers an insight into fashion-industry literature, specifically on supply chain management. The statistics gathered from Web of Science might enlighten researchers, who want to publish a document in this area, about their publication options.

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## 1 Introduction

The need for success in supply chain practices in the fashion industry has attracted researchers and managers. The flexibility and responsiveness of firms determine commercial success or failure in fashion markets that require competitors to adapt to rapidly changing demand (Christopher et al. 2004). Moreover, the fashion system, as one of the global industries in a highly competitive world, has complex supply networks in terms of fragmentation and geographical dispersion of production activities and stakeholders (Macchion et al. 2015). In other words, it is often the case that clothing is designed in one country, manufactured in another, and sold in a third (Čiarnienė and Vienažindienė 2014). Therefore, firms have redefined their business models in order to transform their relationships with supply-network members and to manage these chains attentively (Macchion et al. 2015). To orchestrate the integration and management of supply-chain members in the fashion industry becomes more complicated than in other sectors that have stable and predictable demand, such as the steel or chemical industry. The uncertain, complex, and dynamic nature of the fashion industry, characterized by short product life-cycles and great product variety, attracts researchers who work in the area of operations and supply chain management (Brun and Castelli 2008; Macchion et al. 2015). The goals of supply chain management in this industry are meeting the customer needs with increased variety, at the right time and in the right place (Azevedo et al. 2014). Members of fashion supply chains are mainly raw material suppliers, textile manufacturers, clothing manufacturers, retailers, and consumers (Azevedo et al. 2014).

Globalization and digitalization, as well as the growing demands for quick response and fast fashion, have been putting greater pressure on the fashion industry, so that supply chain management has become more strategically important than ever before (Iannone et al. 2015). The competition among retailers in the fashion industry is aggressive due to the recent success of fast fashion retailers (Čiarnienė and Vienažindienė 2014). Supply-chain decisions have been affected by the dramatic shift in the scale and power of major retail buyers in the fashion market (Brun and Castelli 2008). Additionally, responding quickly to changing consumer needs and retail behaviors have played a crucial role in this industry (Macchion et al. 2015). Decreasing delivery times in the fashion supply chain is the main target of quick response (Čiarnienė and Vienažindienė 2014). At the same time, the current trend of sustainable development in the economy, environment, and society has increased the awareness of a sustainability approach and sense of their importance in the fashion industry (Li et al. 2014). Thus, sustainable supply chain management in the fast fashion industry has become one of the prominent concepts in this area. Moreover, globalization of both sourcing and distribution has

motivated the development of sustainable practices in fast-fashion supply chains (Turker and Altuntas 2014).

This scientometric study might shed light on the tendencies of supply chain management in fashion-industry literature since, different aspects and various kinds of concepts are being searched under the keywords of this literature. In the second section, we discuss how the data were gathered and which methodology was followed. The third section covers the findings, and, finally, in the last section, results are reported and discussed.

## 2 Data and Methodology

The data were collected from the Web of Science database. The databases that the Web of Science covered at the time were the Web of Science<sup>TM</sup> Core Collection, Derwent Innovation Index, KCI-Korean Journal Database, and SciELO Citation Index. “Fashion Industry” and “Supply Chain Management” were used as keywords to perform this research. Without time limitations the time bounds, it was found that a total of 123 publications related to supply chain management in the fashion industry were published up to January 2016. Conducting a scientometric analysis is similar to capturing the literature data up to that moment. So, this research covers the literature pervious to January 2016; any alteration or addition after that month was not taken into consideration by this research paper. Filters supported by the Web of Science were used to perform classification of the publications. Publication year, language, country, research area, documentation type, and source title are the main criteria of the classification.

## 3 Results

### 3.1 *Publication Years*

2000 was the first year of publication considered for supply chain content in the fashion industry, while sorting publications according to their publication years. Figure 1 shows the chronological order of the publications, and the most productive year was 2014 with 23 publications. By the year 2006, the trend in publications started increasing and never decreased below five publications after that year. One of the most productive years was 2008 by 12 publications. After 2011, the number of publications never dropped below ten. Since this research was conducted at the beginning of 2016, no publications for the year 2016 are included. Approximately 34% of the publications were published in the last 2 years.

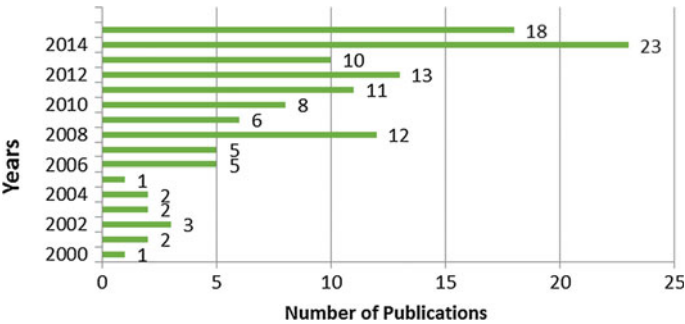


Fig. 1 Chronological distribution of publications

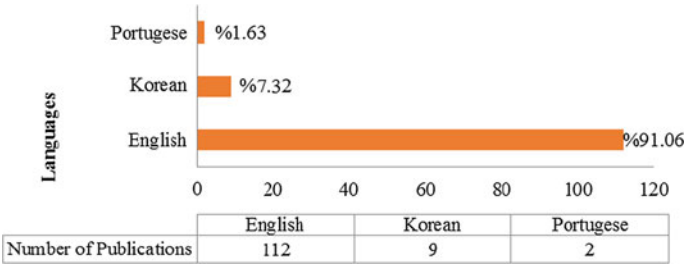
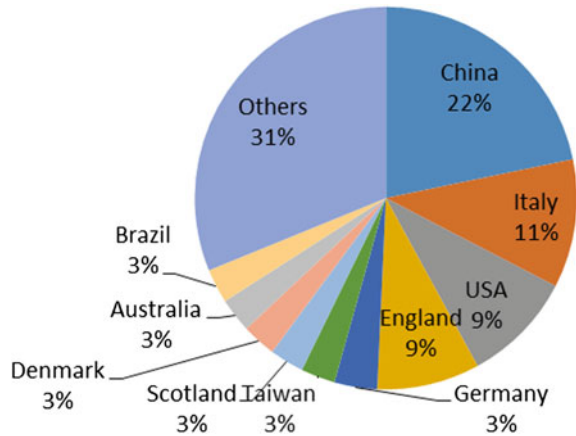


Fig. 2 Number of publications by language

3.2 Languages

Three different languages were used in the publications related to supply chain management in the fashion industry. Figure 2 shows that the number of English-language publications is far more than those in Korean and Portuguese. 112 of 123 publications are written in English, whereas nine are in Korean and only two are in Portuguese. In order to understand whether this distribution is specific for supply chain management in the fashion industry, Web of Science database was used as a tool to identify the language distribution in supply chain management and in the fashion industry separately. It is found that publications were written in 17 different languages in the area of supply chain management area 18 different languages in the fashion industry in general. Nevertheless, English is the most popular language in both areas.

**Fig. 3** Distributions of publications by country



### 3.3 Countries

In total, 33 different countries were the origin of the publications produced until January 2016. The distribution of countries can be seen in Fig. 3. China is the most productive country with 30 publications. In descending order, China, Italy, the USA, and England are the most productive countries, and 51% of the publications have been written in these countries. Five publications came from Germany, and four publications per country were generated by Australia, Brazil, Denmark, Taiwan, and Scotland.

Others, including Turkey, Spain, South Korea, Singapore, Norway, France, Finland, and Canada had three publications each; Romania, Netherlands, Lithuania, India had two publications per country; and Wales, Sweden, Sri Lanka, Saudi Arabia, Portugal, New Zealand, Japan, Ireland, Iceland, Greece, and Colombia had one publication. The sum of the classification by country totals 138 publications. It can be concluded that publishing companies of some publications probably collaborate with researchers from various different countries. Some other conclusions can be drawn from evaluating the distributions of languages and countries, for example, although China is the most productive country, Chinese does not appear in the list. Chinese researchers publish their publications in other languages. Similarly, Italy is the second most productive country, but no Italian-language publication has been published. Moreover, South Korea was the company location of only three publications in the databases, while a total of nine publications have originated from Korea.

### 3.4 Research Areas

Publications related to supply chain management in the fashion industry appeared in 17 different research areas. Since supply chain management is an interdisciplinary subject, there is a great diversity of research areas.

**Table 1** The distribution of top ten research areas

| Rank | Top 10 research area                   | Number of publications | % share in publications |
|------|----------------------------------------|------------------------|-------------------------|
| 1    | Engineering                            | 49                     | 26.3                    |
| 2    | Business Economics                     | 40                     | 21.5                    |
| 3    | Operations Research Management Science | 32                     | 17.2                    |
| 4    | Computer Science                       | 14                     | 7.5                     |
| 5    | Materials Science                      | 10                     | 5.4                     |
| 6    | Environmental Sciences Ecology         | 10                     | 5.4                     |
| 7    | Mathematics                            | 7                      | 3.8                     |
| 8    | Life Sciences Biomedicine Other Topics | 7                      | 3.8                     |
| 9    | Social Sciences Other Topics           | 5                      | 2.7                     |
| 10   | Automation Control Systems             | 3                      | 1.6                     |

Table 1 shows the top ten research areas. Engineering is the first, by covering 26.3% of total publications. Business economics and operations research management science are the following top two research areas. After these three areas, there is a dramatically decrease in publications across research areas.

3.5 Document Types

Five types of documents are found related to supply chain management in fashion-industry literature. Articles are the most popular among the document types with 94 publications, followed by conferences with 18 publications. The remainder consists of reviews (8), patents (2) and editorial (1) publications. Figure 4 represents the percentage distribution of publications per document type.

**Fig. 4** Document type distributions of publications



**Table 2** The distribution of top ten source titles

| Rank | Top 10 source titles                                      | Number of publications | % share in publication |
|------|-----------------------------------------------------------|------------------------|------------------------|
| 1    | International Journal of Production Economics             | 13                     | 10.57                  |
| 2    | Production Planning Control                               | 7                      | 5.69                   |
| 3    | Mathematical Problems in Engineering                      | 7                      | 5.69                   |
| 4    | Sustainability                                            | 5                      | 4.07                   |
| 5    | Journal of Fashion Business                               | 4                      | 3.25                   |
| 6    | The Research Journal of the Costume Culture               | 3                      | 2.44                   |
| 7    | Supply Chain Management an International Journal          | 3                      | 2.44                   |
| 8    | Journal of the Textile Institute                          | 3                      | 2.44                   |
| 9    | Journal of Business Ethics                                | 3                      | 2.44                   |
| 10   | International Journal of Operations Production Management | 3                      | 2.44                   |

### 3.6 Source Title

There are 79 different source titles in the Web of Science Database related to supply chain management in the fashion industry. As can be seen in Table 2, the most popular journal is the International Journal of Production Economics, with 13 publications. Production Planning Control and Mathematical Problems in Engineering journals share the second place on the list with seven publications each. Fifty-seven source titles contain only one publication.

## 4 Discussion and Conclusion

This study is focused on the publications trend in supply chain management in the fashion industry. The Web of Science is used as a tool to collect the publications related to this topic until January 2016. The main objective of this study is to conduct a scientometric analysis of trends in supply chain management in the fashion industry. In order to perform the analysis, supply chain management and fashion industry were the keywords searched in the Web of Science search engine by topics, using the “AND” conjunction. Totally, 123 publications were gathered. Furthermore, publications were examined in terms of these criteria: publication years, countries, languages, research areas, document types, and source titles. The first publication related to the supply chain management in the fashion industry was published in 2000, and the year 2014 was the golden year of publications. It was found that three different languages were used in publications. In addition, the most productive country was found to be China with 30 publications, followed by Italy and the United States of America. Moreover, the most prominent research area was

Engineering with 26.3% and followed by Business Economics with 21.5% of all publications. Document types were divided into five different groups, and articles had the greatest share with 76% of publications. In terms of source title, International Journal of Production Economics is the most favorite journal in this area with 10.6%. Even though this study clarifies the publication trends in supply chain management in the fashion industry, there are few inevitable limitations. For instance, only the publications indexed in Web of Science database are included in this study. Furthermore, the ever-changing nature of publishing affects the number and distribution of publications.

In conclusion, some points revealed by this study are notable. Firstly, there is not any one journal that gathers under its roof of the supply chain management publications in the fashion industry. Researchers working on this subject could collaborate and publish a journal under the name of supply chain management practices in the fashion industry. Additionally, while the fashion industry also operates within Europe, there are not a sufficient number of publications originating from the many European countries. In this industry, sustainable fashion supply chain and fast-fashion supply chain management are new trends; hence these areas could be fruitful and exciting areas for researchers. For further research, databases apart from Web of Science could be used, and the results could be compared. This research was also done in January 2016. Henceforth, analysis could be conducted again, by following the same steps, in order to compare the results. Finally, the survey of research titles could be narrowed down more specifically, for example, to conduct scientometric analysis specifically in sustainable supply chain management in the fast-fashion industry.

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