

## Gender diversity for sustainability management: developing a research agenda from a supply chain perspective

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**Gender Diversity for Sustainability Management: Developing a Research Agenda from a Supply Chain Perspective**

**Diversité de Genre pour une Gestion de la Durabilité : Élaboration d'un Programme de Recherche du point de vue de la Supply Chain**

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## **Abstract**

Gender diversity (GD) is one of the issues that need to be addressed for the sustainable development of businesses. Research is lacking on GD in the sustainability management of supply chains (SMSCs). This study addresses the potential impact of GD on SMSCs. A literature review methodology is used to review articles from academic and professional sources over three decades. The findings show that some studies have examined GD and supply chain management (SCM) but the focus has tended to be on the challenges encountered by women in SCs, such as women as victims, but not women as potential change actors. On the contrary, sustainability management literature invokes the importance of GD and the specificities women managers can bring to the performance of firms. A research agenda is thus proposed in this study by combining outcomes from both fields. It implies there is an important space to fill especially concerning the environmental and social impacts GD may have on SMSCs.

**Keywords:** gender diversity (GD), supply chain management (SCM), corporate social responsibility (CSR), sustainability management, research agenda.

## **Résumé**

La diversité de genre (DG) est l'une des questions qui doivent être abordées pour le développement durable des entreprises. La recherche sur la DG fait défaut dans la gestion de la durabilité des supply chains (SCs). Cette étude porte sur l'impact potentiel de la DG sur les supply chains durables. Une revue de la littérature est menée pour passer en revue les articles académiques et professionnels sur trois décennies. Les résultats montrent que certaines études ont examiné la DG et la supply chain management (SCM), mais que l'accent a eu tendance à être mis sur les défis rencontrés par les femmes dans les SCs, tels que les femmes en tant que victimes, mais pas les femmes en tant qu'acteurs potentiels du changement. Au contraire, la littérature sur la gestion de la durabilité invoque l'importance de la DG et les spécificités que les femmes cadres peuvent apporter aux performances des entreprises. Un programme de recherche est donc proposé dans cette étude en combinant les résultats des deux domaines. Cela implique qu'il y a un espace important à remplir, notamment en ce qui concerne les impacts environnementaux et sociaux que la DG peut avoir sur la gestion de la durabilité des SCs.

**Mots clés :** diversité de genre (DG), supply chain management (SCM), responsabilité sociale des entreprises (RSE), gestion de la durabilité, programme de recherche.

## Introduction

In recent years, focal companies across various sectors have emphasized gender diversity (GD) in their corporate and supply chain (SC) strategies, suggesting that GD, which aims to provide benefits for both workers and the company, is a key topic in their current agenda (Ethical Trading Initiative [ETI] 2018; Global Forum on Responsible Business Conduct [GFRBC] 2018). GD is to be understood as a fair representation of people of different genders, thus is often measured through ratios of men and women in a given environment, sometimes also taking into account people of non-binary genders (Ozar 2006). Enormous efforts have been made to address the following: gender ratios, the empowerment of women, improved gender relations/quality and productivity, impacts on health and well-being, and remuneration, as well as to gain understanding of women's challenges in securing management roles in sectors in which women are more prevalent than men, such as the garment and footwear sectors (ETI 2018).

However, these efforts are implemented in specific sectors, such as electronics, tourism, health and social care, domestic work, and agriculture, where unequal treatment of women prevails (GFRBC 2018). Society as a whole could benefit if companies in the future were to address across all sectors the following issues related to women: *“collecting sex-disaggregated data; developing gender sensitive and responsive policies, plans and warning systems; supporting women's equal and meaningful participation in consultations and negotiations; and assessing if women benefit equitably in compensation payments or other forms of restitution”* (Organization for Economic Co-operation and Development [OECD] 2018, p. 41). More specifically, a GD policy in multinational enterprises, where they have global SCs, would benefit the society and the economy as they could transfer their corporate culture (the employment of women in particular) to their subsidiaries. Achieving the G20 countries target

of increasing women labor force participation by 25% by 2025 could add 1% to GDP growth across the OECD area (OECD 2017). This GDP growth could be reinvested in developing a more sustainable future.

Several gender gaps can be highlighted in SCs and Zinn et al. (2018) call for more research on this topic. Among these gaps, there is the fact that in retail most shop-floor workers are women but this is not reflected in senior management and executive positions (World Economic Forum [WEF] 2018). For instance, in 2015, about 60% of the total employees at Walmart, Tesco and Carrefour were women; however, at the top management level, women represented between 31% and 42% of managers and only 23% to 25% of board members (WEF 2018). Another study shows that the private sector could support and sustain women entrepreneurs by actively supporting their inclusion in SC opportunities (McKinsey & Company 2010). This topic is typically linked to human resources management (HRM). However, even if HRM considerations in SCM research field are increasingly taken into account, it appears that most studies either focus on competences (e.g. see the special edition in *Logistique & Management* coordinated by Livolsi 2007) or on employee motivation and well-being at work (Large and Paché 2016), leaving aside the diversity topics.

Previous studies embedded in corporate governance research field have shown that GD can have a positive impact on the sustainability management in individual firms (e.g. Bear et al. 2010; Bernardi and Threadgill 2010) but there is little research on the sustainability management in firms and their SCs (SMSC). SMSCs (including corporate social responsibility [CSR]) is of utmost importance today in order to ensure sustainable production and consumption (United Nations Sustainable Development Goal [UN SDG] 12). In practice, some governments, such as that in France, recognize the importance of GD in firms and impose a

certain proportion of women in top management.<sup>1</sup> Consequently, GD has also become an indicator for the social performance of firms (Nakamba et al., 2017). SCs consist of a network of companies defined by Stock and Boyer (2009 p. 706) as “*the management of a network of relationships within a firm and between interdependent organizations and business units [...] and related systems that facilitate the forward and reverse flow of material, services, finances and information from the original producer to final customer [...]*”. Taking into account this definition, if GD can improve elements from the sustainability management of individual firms (as stated by [OECD] 2018, p. 41; GFRBC 2018, p.3; UN 2019), GD can also improve the SMSCs since they are composed of individual companies that increasingly need to report on GD. Sustainability issues are accentuated and can have serious impacts when analyzed from an SC perspective, as a mistake in production, delivery or other operations by one member of the SC will have an effect on the others entities. Accidents such as the Rana Plaza collapse (poor health and safety measures causing the deaths of more than a thousand people), scandals such as the case of Nike (child labor), Volkswagen (falsification of data concerning the CO<sup>2</sup> emissions of cars) and other examples testify to the need to analyze sustainability issues from an SC perspective.

However, to date, very little research has studied the effect of GD on supply chain management (SCM) practices and performance (Chin and Tat 2015) and, more precisely, limited research has focused on the impact of GD on SMSCs. The impact of GD has been more studied in other management-related fields, such as GD among board members (e.g. Bear et al. 2010) or teamwork (Kochan et al. 2003). In SCs, GD related to sustainability focuses more on upstream SCs, specifically in the mining sector (e.g. Bell 2013; Lahiri-Dutt 2015). There is hence a need to have a more comprehensive overview of GD impact on SMSC which includes

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<sup>1</sup> French law number 2011-103 imposes a compulsory ratio of 40% of the underrepresented gender as of January 1, 2017 for companies on the stock exchange and for companies with more than 500 employees (JORF, 2011). As of 2020, this obligation will also concern companies with fewer than 500 employees (JORF, 2011).

both the upstream and downstream part of the SC. Indeed, GD is part of social issues in SCM and it is widely acknowledged that research on social issues in SC are limited compared to the economic or environmental dimensions of sustainability (Carter et al. 2019; Fritz and Silva 2018; Yawar and Seuring 2017). GD is an important field of study in other sciences, such as economics (Duflo 2012) and geography (Little and Panelli 2003), which highlights the importance of the topic for transdisciplinary research. In this article, the focus is on the impact of GD at the operational and managerial levels in firms and their SC with regard to sustainability-related decisions. In this context, Walter Zinn, Thomas Goldsby and Martha Cooper call for such a study in an editorial from the *Journal of Business Logistics* (Zinn et al. 2018). Anchored in this pathway, the purpose of the article is to offer a research agenda to contribute to filling the research gap on gender diversity in SCM by answering the following research question: **What, if any, is the impact of gender diversity on sustainability management in supply chains?**

The authors acknowledge the difference between sex and gender, where “sex” refers to biological characteristics and “gender” to biological characteristics along with cultural attitudes and behaviours, as recommended by the European Commission<sup>2</sup>. In addition, as part of the opening statements in this article, it is also acknowledged that, following Mayes and Pini (2014) and Grosser and Moon (2019), better women representation alone cannot in itself change/solve gendered organizational practices. Finally, this research is positioned in both a psychoanalytical feminist perspective, in which women’ differences can be seen as beneficial for organizations, and a socialist feminist perspective, in which the focus is on investigating instrumental sustainability management research and practice as a gendered domain (Grosser and Moon 2019).

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<sup>2</sup> <http://genderedinnovations.stanford.edu/terms/women.html> (accessed 7<sup>th</sup> September)

The main contributions of this article are the analysis of the state of the art regarding GD and its potential impact on SMSCs, and the development of a research agenda. Indeed, closing the gender gap is an important Sustainable Development Goal (SDG n°5), adopted by the United Nations (UN) in 2015, which highlights the need for the full and equal participation of women in decision-making (UN 2019). There are, therefore, real economic, social and environmental drivers to stimulating GD overall but it is only to a limited extent that this topic has been addressed from an SC perspective.

The remainder of this article is structured as follows: first, academic and professional literature on GD is explored from a societal and firm perspective and then early and more recent research linking GD with firms and sustainability management is presented. A research agenda is then developed to serve as a guide for further research on the impact of GD on the SMSCs. Finally, conclusions are drawn to summarize the analysis.

## **1. Conceptual background**

### ***1.1. Gender Diversity in Firms and Society Overall***

GD in firms has been shown in several studies to have a positive and important impact on society overall. Some researchers argue that GD in business is necessary for women and for the overall well-being and growth of society, as it brings social and economic value (Borgonovi et al. 2018). For instance, mixed-gender teams or 100% women groups seem to put forward technological solutions that are more cost-effective and have a greater impact on the society than 100% men groups (ibid.). Bridging the gender gap requires tackling multiple root causes, such as accessibility of quality jobs and trainings, educational opportunities, skills, gender biases, and socio-cultural norms (Borgonovi et al. 2018). Hence, the issue is not only company



related, but is also institutional. Some researchers also highlight that efforts to promote GD in top management positions relate to the need for more women leaders in cases where there is a majority of women workers or where the products manufactured are targeted at women (Bilimoria and Wheeler 2000; Mattis 2000); in other words, the need to better represent the workforce and consumers. A lack of GD will even directly hurt the ability of a company's workforce in terms of critical thinking and innovation (Mattis 2000), which may have an impact on the social, economic and environmental performance of the firm.

Recent studies have categorically shown that GD has a positive and significant impact on the financial performance of firms. In addition, having women at the top management level supports companies in dealing with cultural diversity (Hunt et al. 2018; International Finance Corporation (IFC) 2017). Closing the gender gap would also enable companies to “*unlock opportunities for increased profit, growth, and innovation*” through higher return on equity as a result of gender-diverse boards, higher share price, equal men and women influence on strategy development, and excess return on investment for investors (IFC 2017, p. 2). After ten years of studies on GD, McKinsey & Company (2017) were able to show that firms with GD (with three or more women on the executive committee) performed better than others based on nine organizational performance criteria: work environment and values, motivation, capability, leadership team, innovation, coordination and control, external orientation, accountability, and direction. However, quantitative studies considering the impact of GD on the environmental and social performance of firms remain scarce. Potential impacts of GD on the sustainability performance of firms require further research.

### ***1.2. Gender Diversity in Firms and Sustainability Management***

The topic of GD in firms has been mainly approached from a sustainability management perspective (often referred to as CSR, a term coined by Bowen in 1953). Indeed, GD firms' policies find their drivers in sustainability management (Moon 2004) in order to answer market, civil society and governmental requirements. Bowen (1953) highlighted the need for business people to behave ethically, meaning according to society's norms and values, and to follow standards while contributing to the well-being of their employees and the society at large. However, he also recognized that companies were not the only responsible for satisfying stakeholders: since companies were embedded in a broader and complex system, it raised the need to address sustainability management in a holistic manner. Sustainability management was primarily a voluntary initiative for businesses to reduce their impacts on society and to engage with their stakeholders. Today, it has become a 'must' for most businesses and has been integrated into firms' strategies (Dawar and Singh 2016).

Several studies have shown the positive impact of sustainability management on firms, such as raising the level of personal ethics at the board level and ethics in business processes (Rose 2007; Wise et al. 2010), or the integration of sustainable development thinking (Ricart et al. 2005). For the purpose of this article, the focus is on the impact of GD, which is also the emphasis of most research on diversity (van der Walt and Ingley 2003). For example, Eagly (1987) and Eagly and Johannesen-Schmindt (2001) explained that men and women leaders may behave and perform somewhat differently because gender roles have some influence on leadership roles in terms of expectations. Eagly et al. (2003) also identified differences in decision-making processes between men and women. As sustainability is often managed at the senior level within organizations, it is interesting to examine the relation between sustainability management and the composition of boards of directors. Several variables can have an impact on the performance of boards of directors, such as the presence of outside and inside directors, board size, resource and GD, and board member characteristics such as age, cultural

background, religion, skills and experience (Milliken and Martins 1996). Despite upraising forms of gender impact reporting, mostly based on gender ratios, Grosser and Moon (2008) show that this reporting is still idiosyncratic and that some firms may often prefer non-disclosure of gender information, which may, in turn, be a barrier to GD development policies.

Many articles in the corporate governance research field have highlighted the positive impact of women on boards (Gabaldon et al. 2016), on the quality of sustainability reporting (Fernandez-Feijoo et al. 2012), sustainability perceptions (Post et al. 2011), corporate sustainability (Galbreath 2011) and on sustainability-related actions (Bear et al., 2010; Boulouta, 2013). GD diversity is measured in term of gender ratios mainly at the board level in those studies. In this research field, Dawar and Singh (2016) reviewed the literature on the topic and highlighted several contributions showing a positive or negative relationship between GD on boards of directors and sustainability management (see Table 1).

*Table 1 about here*

From Table 1, it can be seen that GD mostly has a positive impact on the sustainability performance of firms, the composition of the board, its structure and moral duties. However, one study finds no positive correlation between having women on the board and an impact on climate change, and another finds no significant link between having women as directors and corporate philanthropy. It has to be highlighted that studying diversity in board composition is relevant to theory-building since there are links with agency theory, which holds that the board protects shareholders' interests from management's interests, and the resource dependence view, which includes the board as an important strategic resource for a company, through, for example, board members' networks (van der Walt and Ingley 2003).

### ***1.3. Gender diversity and Sustainability Management in Supply Chains***

According to Porter (2011), “*businesses must reconnect company success with social progress*”.<sup>3</sup> Sustainability management is one way to integrate and communicate the social progress of businesses and to go beyond economic performance. Sustainability management can also be addressed within the wider concept of sustainable development, which is defined in the Brundtland Commission report as development that “*meets the needs of the present without compromising the ability of future generations to meet their own needs*” (World Commission on Environment and Development 1987). Sustainable development traditionally consists of three pillars: economic, environmental and social.

To be sustainable, a SC needs to integrate the three pillars in its strategies (Carter and Rogers 2008), fulfill customers’ and other stakeholders’ requirements, and manage SC risks (Seuring and Müller 2008). Since the late 2000’s, several academic publications have investigated how to make SCs more sustainable starting with reverse logistics, green SC management, sustainable SCM and today opening the path to analysis of SC integration of the SDGs (Fritz, 2019). Although the first two pillars have been studied widely in business and SCM, the social pillar is still underrepresented in research and practice (Badri Ahmadi et al. 2017; Carter et al., 2019; Fritz and Silva, 2018; Yawar and Seuring, 2017). Among the issues studied in relation to the social pillar, respect for human rights, monitoring child labor, and employee and consumer safety are well-known global issues. There are, however, several other social issues, among which is gender, marginalised people, minorities (Yawar and Seuring, 2017) but the role of women in SCs has been discussed by sustainability scholars to a limited extent (Zinn et al. 2018). Yawar and Seuring (2017) highlight that ‘gender sensitivity’, ‘equal pay’ and ‘fair treatment’ are frequent social issues studied in SC related to GD and that further research is still needed in this field. Since SMSCs (including CSR) is of utmost importance today in order to ensure sustainable production and consumption (UN SDG 12), and as limited

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<sup>3</sup> <https://hbr.org/2011/02/social-progress-economic-succe> (Accessed March 3, 2020).

research has focused on the role of GD on SMSCs (Zinn et al. 2018), this article contributes to the field by examining the status quo of research on the topic and providing a research agenda.

## **2. Methods**

The research process is a literature review, which is illustrated by the following Figure 1 and further detailed in the sub-sections 2.1 and 2.2 with regards to data collection and data analysis. This research approach was chosen to assess the state-of-the-art on the interlinkages between GD, SCM and SMSC, since it is a topic of increasing importance that requires a basis for further conceptualisation and research (Raghuram et al. 2010).

*Figure 1 about here*

### ***2.1.Data collection***

In order to identify relevant studies in the literature on GD in SCM, a literature review methodology was used following recommendations made by Fink (2005). First, the boundaries of the analysis were defined by the authors by selecting together the following keywords: “supply chain”, “logistics”, “supply chain management”, “women”, “gender”, “female”, “diversity”, “CSR”, “sustainab\*”. Second, the search period was set from 1990 (the starting point for research on GD in SC) to 2018. Third, the selection of reference documents was made with a combination of the keywords on the academic databases EBSCO and Emerald. Examples of keywords combination are: “women” (incl. “women”, “gender”, “female”, “gender diversity”) AND “CSR” AND “supply chain management” (incl. “supply chain”, “logistics”, “supply chain management”); “women” AND “supply chain management”; “women” and “Sustainab\*” (incl., CSR, sustainable, sustainability).

Due to the limited contributions found in these databases, the search was extended to the following databases: Google Scholar, ProQuest, and ResearchGate. The combination of keywords always linked at least the two key concepts we were looking for: gender diversity

(“women”, “female”, “gender”, “diversity”) and supply chain (“supply chain”, “logistics”, “supply chain management”). No types of reference documents were excluded since limited academic publications were found in the initial search on EBSCO and Emerald. The keywords were used in the search field of each database and in each entire reference document since research combining the three concepts of GD, supply chain and sustainability is often only small part of a broader research and consequently does not appear in the title or abstract of the reference document. This search led to a total of 78 reference documents, with 47 academic publications, 16 articles in professional journals, 12 reports, 2 guidance documents and 1 standard.

## ***2.2.Data analysis***

All these reference documents were reviewed (i.e., entirely read) and screened by the authors (i.e., using a qualitative content analysis approach as defined by Elo and Kyngäs, 2008) regarding their relevance to the research. To do so, the 78 reference documents were listed in an Excel document where the researchers justified reasons for exclusion of some reference documents and each researcher revised the other’s analysis as recommended by Tranfield et al. (2003). Reference documents that were addressing only gender equality without any link to SCM or logistics were excluded. In general, reference documents that were not addressing the three concepts of SC (including logistics), GD and sustainability management (including CSR) were excluded. In total, 43 reference documents were found that clearly addressed the three concepts of the research: SC, GD and sustainability management. Of the 43 reference documents, 28 are academic publications, 11 are articles in professional journals and four are reports (see full list in Appendix A).

## **3. Findings**

### ***3.1. Gender Diversity and Supply Chain Management***

By analysing the articles, three main periods have been clearly determined as shown on the timeline below (Figure 2): the 1990's, the 2000's and the 2010's.

*Figure 2 about here*

The place of women in SCM functions has often been discussed in the professional and academic literature over the last three decades. For instance, during the 1990s and 2000s, many articles in professional magazines, such as *Logistics Management* and *Motor Transport*, commented on the low proportion of women in SCM roles (between 5% and just under 20%, depending on the study) and highlighted that more women were needed in logistics and SCM fields in order to fill the talent gap in this growing strategic function. During the same period, several researchers also focused their attention on women's careers in SCM. Andre (1995) laid the first brick by comparing the difference in perception between men and women regarding their careers. It appeared that women felt that they could not progress as rapidly as men, whereas men's perceptions regarding women's career opportunities were less negative, and that the older the men were, the less negative they were in their perception of women's career opportunities. Drawing on Andre's (1995) article, further research was conducted on career-related perspectives of women in logistics, pointing to the so-called 'glass ceiling' issue, discrimination against women and the need for education for women interested in successful logistics careers (Lynagh et al. 1996, 1999; Murphy et al. 1997). Knemeyer et al. (1999) also highlighted classic sexual harassment issues, the trade-off between work and family and explained that women embracing a logistics career were satisfied with their job most of the time (see also Johnson et al. 1999), even if they regretted perceived gender discrimination and a lack of opportunities for advancement. It has to be highlighted that the majority of references

during this period only addressed the SCM function and not, for example, topics related to GD in executive committees.

During the 2000s, research on the participation of women in SCM departments has become rare. Within the logistics and SCM function, some research focused on the case of the transportation industry, finding the same issues as Knemeyer et al. (1999) but to a higher degree (Kau and Kleiner 2001; Simpson and Holley 2001). It appears that much has been said already about the proportion of women in SCM roles and the issues they face.

Only in the late 2000s and 2010s did a number of research programs start to mention the need to explore this area, and thus the potential impacts of having more women in SCM roles. The first example was Park and Krishnan (2005), who demonstrate that, according to gender aspects, significant differences appear in the supplier selection and evaluation practices. For instance, as part of suppliers' selection and evaluation criteria, it appears that women SC managers pay more attention than their men counterparts to future manufacturing capabilities, the safety record of a supplier and the supplier's customer base, whereas men SC managers are more interested in the economic performance of a supplier than their women counterparts. A second example is Chin and Tat's (2015) study, which analyzed the hypothesis that "*gender diversity moderates the relationship of SCM practices and SC performance*" (p. 38) and found that the "*gender diversity of employees in the manufacturing company has neither a moderating effect nor a direct effect on supply chain performance, although more than 60% of the company executives were women. The absence of gender differences among employees with respect to supply chain performance could relate to the fact that men and women are similar in their SCM practicing levels*" (p. 43). They even argue, based on Aziz and Cunningham (2008), that "*gender differences might be outdated in that gender roles and identity have shifted considerably in the past several years*" (p. 43). However, this research is limited with



respect to generalizability, as it was conducted in a very specific context: data were collected in a single company in Malaysia from the electronic manufacturing services industry.

Another study, conducted by Short et al. (2016), focuses on SC auditing and highlights that audit team gender composition has a significant impact on the number of violations reported: audits by all-women teams and mixed-gender teams yielded more violations. Reasons for this could be that women' approach to gathering and processing information, including their greater skill in interpreting the emotional content of others' expressions (Thayer and Johnsen 2000), as well as their tendency to be stricter rule-followers than men (Portillo and DeHart-Davis 2009), may better equip them to perceive violations in a complex environment such as an SC.

Another, and last, example of interest is research by Kovács and Tatham (2009). They reflect upon the impact of gender on humanitarian logistics performance, considering whether gender, skills and logistics performance were related and pointing to the underrepresentation of women in humanitarian logistics, although women are often the ones who benefit most from humanitarian assistance.

The last two examples above open new research avenues around a potential link between women SC managers and sustainability management, especially toward compliance and a better understanding of women' needs. In addition, the research by Short et al. (2016) on SC auditing highlights particular women characteristics that promote ethical behavior: better rule following, violation detection and understanding of emotional content. However, literature on ethical decision making in SCs is still scarce (Alexander et al. 2014) and so far no conclusion can be drawn with regard to the impact of gender in this area. Finally, Zinn et al. (2018, p. 85) emphasize the need to close this research gap and explore, for example, if there are *“unique skills that women can bring to supply chain decision making, or certain skills more present in women”*.

In summary, although the academic literature has often highlighted the proportion of women in SCM and their perceptions of it, research has almost never focused on their potential particular roles and the impacts they have when they are decision makers. Nor has research focused on the potential particularity of women SC managers' decisions regarding SMSCs.

### ***3.2. Relationship between Gender Diversity, SCs, and Sustainability Management***

In terms of GD at firms' level, sustainability and SCM, to our knowledge limited studies explore and discuss the relationships between them. GD – considered as a gender ratio, is sometimes mentioned as one of the numerous items to consider in order to measure SC sustainability performance (Erol et al. 2011; Nakamba et al. 2017) but limited research focuses on it. Yawar and Seuring (2017) also point out 'gender equality' (i.e. equal treatment of genders and equal rights at the work place) as one of the seven major issues social issues in SCM, but this research does not encompass the need for further GD to enhance SMSCs. Most empirical studies typically focus on the impact of SCM practices on local communities and women labor in developing countries (e.g. Barrientos et al. 2003; Hale and Opondo 2005; Maertens and Swinnen 2012; Prieto-Carrón 2008; Thresh Kumar et al. 2014; Turker and Altuntas 2014). On the managerial side, some companies, such as Nike and Rio Tinto, have launched sustainable initiatives relating to women in SCs (Grosser and Moon 2019) that also mainly focus on women labor in developing countries. Other research, conducted in India by Soundararajan and Brown (2016), looks at working conditions (including women labor) in SCs and highlights the difficulties in implementing sustainability practices in second- and other tier suppliers. From these observations, it can be concluded that the relationship between GD, SC and sustainability management has often been analyzed from a perspective in which women are presented as recipients rather than decision makers.

SDG 5 aims to “Achieve gender equality and empower all women and girls”, with a focus on gender equality as not only a “*fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world. [...] Providing women and girls with equal access to education, health care, decent work, and representation in political and economic decision-making processes will fuel sustainable economies and benefit societies and humanity at large*” (UN, 2019). More specifically, SDG 5.5 looks at the need for GD in all decision-making processes: “*Ensure women’ full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life*” (UN 2019). Contrary to the focus of most of the research on GD revised in this article, these goals clearly justify and emphasize the need to define how women can participate effectively in decision making processes and what the impacts of such GD can be.

#### **4. Research Agenda on Gender Diversity and Sustainability Management in Supply Chains**

To date, no research has focused on the impact of GD on SMSCs. This is why, in order to contribute to closing the gap highlighted by Zinn et al. (2018), it is necessary to build a research agenda in the same vein as that of Jüttner et al. (2003) and of Williams et al. (2008). More specifically, the proposed research agenda is inspired by Dawar and Singh’s (2016) synthesis of research on GD and corporate governance and applies it to GD and SMSCs. Since Dawar and Singh’s study is totally embedded in corporate governance, we transfer this research to the SCM field. The research agenda therefore explores the impact of GD in SCM departments on sustainability management and, more specifically, the link between the presence of women SC managers and decisions taken in favor of SMSCs.

*Table 2 about here*

As can be seen in Table 2, eight (8) research questions (R) were developed and associated to possible theoretical backgrounds to explore the link between GD and SMSCs (including CSR and its environmental and social levels). These are non exhaustive suggestions based on well-known theories mobilised in SC and gender studies, other theories could also be relevant. The economic performance in sustainability is considered an underlying prerequisite of the other two dimensions, as it is already widely covered in previous studies (Boukherroub et al. 2015; Rubio et al. 2008), in SCM practice (Pagell and Shevchenko 2014) and in GD (e.g. McKinsey 2017).

In relation to the environmental and social levels of sustainability, many functions of an SC have to be integrated via an environmental and social-friendly policy to reduce environmental impacts: design, purchasing, manufacturing, packaging, transportation and take-back operations (also known as reverse logistics). Hence, additional research questions arose: i) In these different functions of SCM, does GD have an impact on the environmental/social performance of an SC? ii) Does GD influence the environmental/social performance of one of these SC functions more than another? and iii) In these different SC functions, do different genders act in ways that are more environmentally/socially friendly based on their responsibility level (i.e. managers and workers)?

Furthermore, the literature on GD and sustainability management does not, according to the authors' review, address the impacts of an equal share of women and men on boards of directors well. This is another research gap that could be addressed when considering SCs.

Any further research on the social and environmental dimensions regarding GD for SMSCs would contribute to enriching academic and practitioner knowledge. However, since sustainability should be understood as the intersection between social, economic and environmental pillars, contributions that encompass these three dimensions are highly

encouraged. More specifically, longitudinal empirical studies using interviews and statistical methods are needed to analyze perceptions, correlations and effects of GD on SMSCs.

## **5. Discussion and Conclusion**

Drawing on Zinn et al.'s (2018) recent call for more research on GD in SCM, this article presents the state-of-the-art literature on the potential impact of GD on SMSCs and offers the first research agenda that contributes to filling this gap. In view of a lack of empirical research and limited output from academic publications in the SCM and sustainability management fields on the impact and added value of GD, the proposed conceptual reflection and research agenda show that more academic literature on the impact of GD on the sustainability management and performance of SCs could greatly illuminate the emerging reality for both researchers and practitioners. Indeed, where there is currently a call for more women in top management positions for several reasons, among which the need to report more on gender ratios (Nakamba et al., 2017; ETI 2018) due to several stakeholders' pressures (e.g. governments, general public), current findings do not allow a clear understanding of the impact of GD and there is currently a call for more women in top management positions. More empirical longitudinal studies are needed to show whether there are impacts of GD on the sustainability management and performance of SCs and what these impacts may be. In addition, GD is mostly measured as a gender ratio (Ozar 2006) in firms and SCs. Those studies would enable to set up new ways to assess GD and even its contribution to sustainable management in SCs. With regards to research, it appears that a wide range of theoretical backgrounds may apply to studies on this emerging topic: e.g. resource-based-view (Barney 1991) and natural resource-based-view (Hart 1995), stakeholders theory (Freeman et al. 2010), institutional theory (DiMaggio and Powell 1983), or even behavioral contingency theory

(Crozier and Friedberg 1977). Mobilizing those theories in further empirical studies would enable to determine which one would be the best framework to understand the underlying issues of GD and sustainable management in SCM, but also contribute to enriching those theories thanks to new research fields.

This article contributes by identifying gaps in the research and in practice concerning the impact of GD on the sustainability management and performance of SCs. By combining knowledge of the impacts of GD on SMSC, this article makes a theoretical contribution by developing a clear agenda for research into the effect of GD on SCs with regard to the sustainability management of both firms and SCs. To the best of the authors' knowledge, there are to date no clear findings on the impact of GD on SMSCs, other than at the upstream level where women are mostly presented as stakeholders in need of support but not as potential change-makers for more responsible SCs. However, the lack of research on the social dimension of sustainability in SCM often pointed out (e.g. Carter et al. 2019; Fritz and Silva 2018; Yawar and Seuring 2017; Seuring and Müller 2008) could be softened by increasing research on GD in SCM. Furthermore, research looking at the impact of GD on SMSC would support the creation of knowledge on the SDGs and their implementation along the SCs, especially SDG n°5.

In practice, one contribution of this article is to draw attention to the gap in knowledge relating to women's roles in SCM and to propose research questions that should also be investigated in firms and along SCs. Managers and researchers are thus encouraged to collaborate in order to establish, with the use of empirical data, what contributions GD at the director, board and logistics/SCM levels can make toward more sustainable supply chains. In this context, commonly used theories in SCM can be useful (Resource Based View, Natural Resource Based View, Institutional Theory, Stakeholder Theory) but social sciences theories like the Behavioural (Contingency) Theory also seem to have a promising future in the field.

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## Figures

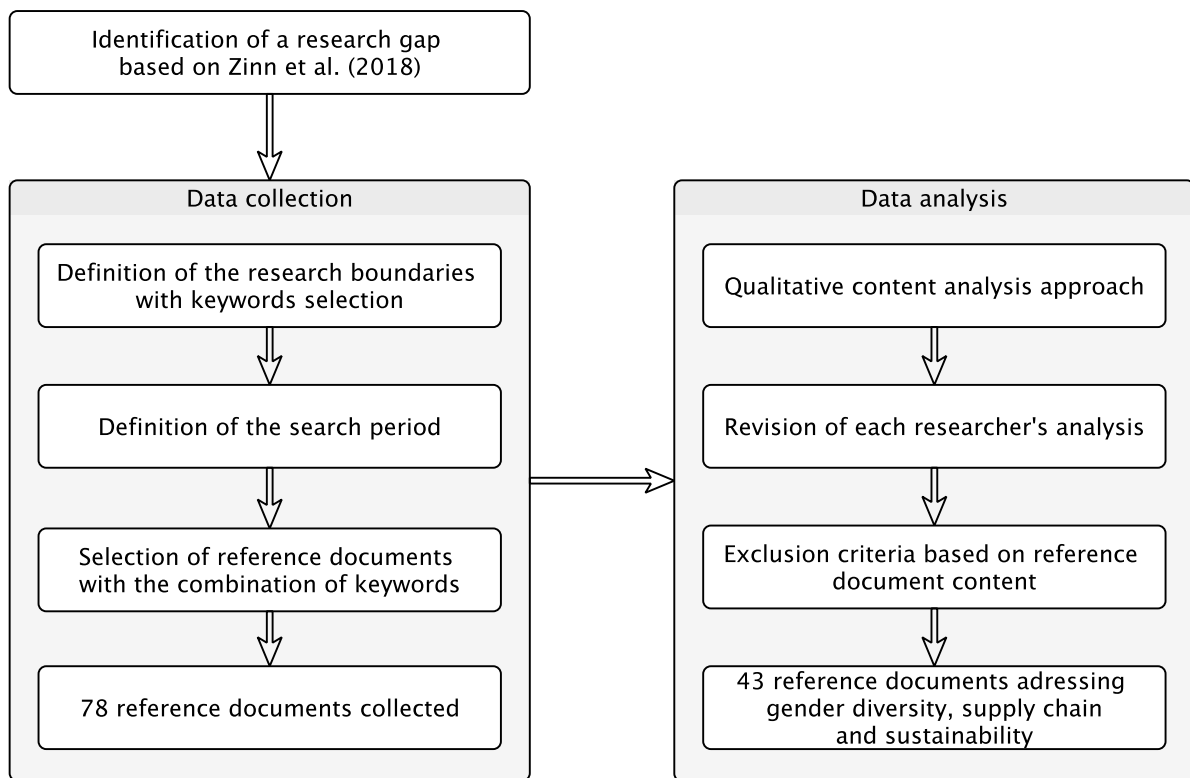


Figure 1: Research approach (own elaboration)

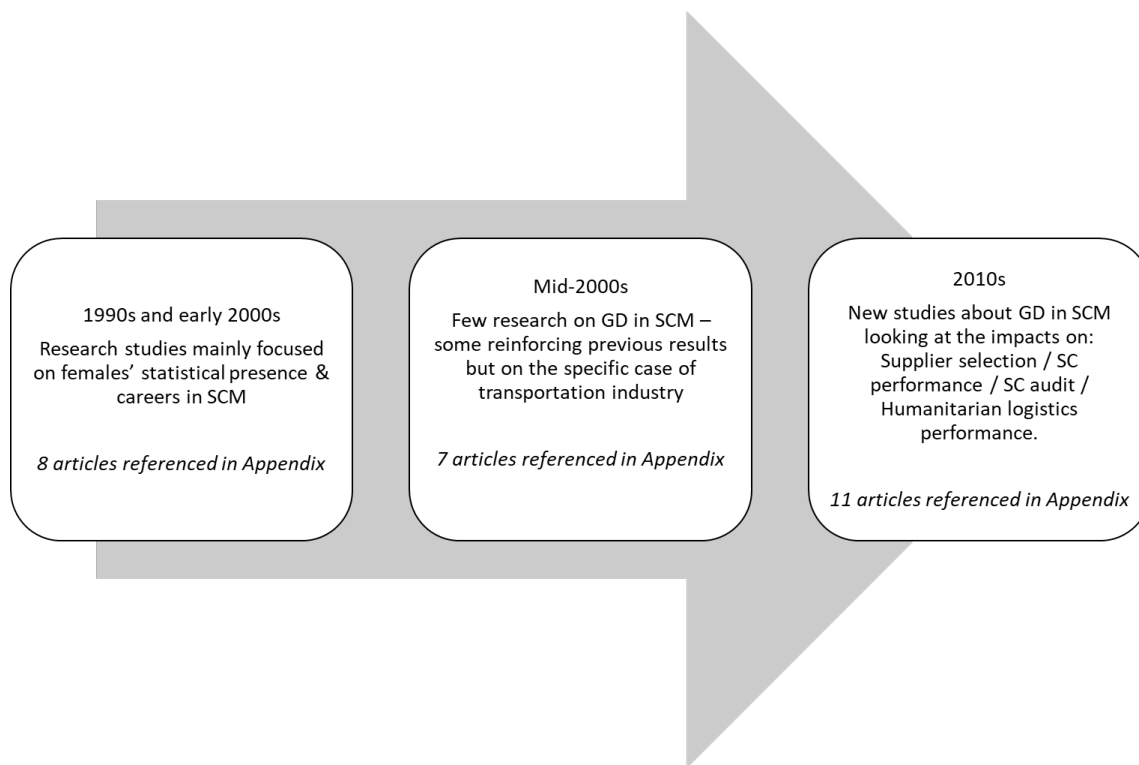


Figure 2: Research timeline (authors' own elaboration)

## Tables

Table 1: Relationship between board of director gender diversity and sustainability management (adapted from Dawar and Singh, 2016)

Research focus	Relationship	Reference
Relationship between environmental management and board composition	Positive	Post et al. (2011)
Relationship between sustainability management and board characteristics	Positive	Krüger (2009)
Impacts of diversity of board resources and female directors on sustainability ratings	Positive	Bear et al. (2010)
Structure of the board in socially responsible firms	Positive	Webb (2004)
Link between females on boards of directors and corporate sustainability	Positive	Galbreath (2011)
Relationship between female directors and moral duties of boards	Positive	Flynn and Adams (2004)
Board composition and impact on climate change	Negative	Galbreath (2009)
Impacts of a high proportion of females on boards on the social responsibility of firms	Positive	Bernardi and Threadgill (2010)
Impact of board diversity on firms' corporate social responsibility	Positive	Harjoto et al. (2015)
Link between board diversity and corporate philanthropy	Not significant	Coffey and Wang (1998)



Table 2: Research agenda for examining gender diversity in the sustainable management of supply chains (based on Dawar and Singh, 2016)

Types of gender diversity	Observations/findings related to sustainability management	Possible research questions to further investigate the relationships between GD and sustainability management in SCs	Possible theoretical background and research questions
Female director	<ul style="list-style-type: none"> <li>• Positive relationship between CSR and board characteristics (Krüger, 2009).</li> <li>• Positive relationship between females as directors and the structure of the board in socially responsible firms (Webb, 2004).</li> <li>• No significant link between board diversity and corporate philanthropy (Coffey &amp; Wang, 1998).</li> <li>• Positive impact of diversity of board resources and female directors on CSR ratings (Bear et al., 2010).</li> </ul>	<ul style="list-style-type: none"> <li>• What relationships exist between the sustainability management of SCs and the presence of a female director at the head of the company?</li> <li>• What relationships exist between females as directors and socially responsible SCs?</li> <li>• Does the presence of females as directors influence the philanthropic activities along the SC?</li> <li>• To what extent does the presence of females as directors have an impact on the CSR ratings of a SC?</li> <li>• To what extent does a female director affect the degree of philanthropy in a SC?</li> </ul>	<p>As shown by Touboulic et al. (2015), the most common theories used in sustainability management in SCs are:</p> <ul style="list-style-type: none"> <li>• Resource-based-view (Barney 1991) and Natural resource-based-view (Hart 1995): these theories highlight that SCs need to identify their key resources to show their competitive advantage to perform well on environmental, social and economic challenges. This includes inter-organisational and intra-organisational resources (Touboulic et al. 2015). In this view, we propose R1) Could GD be a key resource to contribute to sustainability management in SC?</li> </ul>
Females on boards	<ul style="list-style-type: none"> <li>• Positive relationship between companies with a higher proportion of females on boards and social responsibility (Bernardi and Threadgill 2010).</li> <li>• Positive relationship between female directors and the moral duties of a board (Flynn and Adams 2004).</li> <li>• Negative relationship between board composition and impact on climate change (Galbreath 2009).</li> <li>• Positive relationship between board diversity and firms' CSR (Harjoto et al. 2015).</li> <li>• Positive relationship between the number of females on boards and corporate sustainability (Galbreath 2011).</li> <li>• Positive relationship between environmental CSR and board composition (Post et al. 2011).</li> </ul>	<ul style="list-style-type: none"> <li>• What relationships exist between females on boards and socially responsible SCs?</li> <li>• What relationships exist between the presence of females on boards and the moral duties of the logistics/SCM department?</li> <li>• What relationships exist between females on boards and the impact of a SC on climate change?</li> <li>• What is the relationship between the presence of female employees on boards and the CSR responsibility/sustainability of the SC?</li> <li>• What is the relationship between green SCM (GSCM) and the presence of female workers on boards?</li> </ul>	<ul style="list-style-type: none"> <li>• Institutional theory (DiMaggio and Powell 1983): this theory tells that a firm is influenced by coercive, mimetic and normative pressures from different stakeholders and institutions that pushes it to behave in a responsible manner according to society's expectations to gain legitimacy. In the SC context, this theory is often used e.g., to identify drivers for sustainability standard adoption, the role of governments for sustainability management in SCs (Touboulic et al. 2015). With such a view, it could be relevant to investigate R2) whether an emphasis on GD in a certain SC could influence other SC to adopt similar practices (mimetic pressure), or R3) the impact of government regulations on GD along the SC</li> </ul>
Females as logistics/SC managers	<ul style="list-style-type: none"> <li>• Most empirical studies focus on the impact of SCM practices on local communities and female labor in general or their working</li> </ul>	<ul style="list-style-type: none"> <li>• What relationships exist between sustainability management in SCs and female logistics/SC managers?</li> </ul>	

	<p>conditions in developing countries (e.g. Barrientos et al. 2003; Hale and Opondo 2005; Maertens and Swinnen 2012; Prieto-Carrón 2008; Thresh Kumar et al. 2014; Turker and Altuntas 2014; Grosser and Moon 2019; Soundararajan and Brown 2016)</p> <ul style="list-style-type: none"> <li>• Gender equality is one of the social issues in sustainability management in SCs that requires further research (Yawar and Seuring, 2017)</li> <li>• Gender ratio is one of the numerous items to consider in order to measure SC sustainability performance (Erol et al. 2011; Nakamba et al. 2017)</li> <li>• Limited knowledge on relationship between gender diversity and sustainability management in logistics/SCs (Zinn et al. 2018)</li> </ul>	<ul style="list-style-type: none"> <li>• To what extent does the presence of female workers as logistics/SC managers affect the CSR/sustainability ratings of SCs?</li> <li>• To what extent does the presence of female workers as logistics/SC managers affect the social responsibility of a SC?</li> <li>• What is the relationship between GSCM and the presence of female workers in the logistics and/or SCM function?</li> </ul>	<p>(coercive pressure), or R4) the impact of society's expectations regarding GD (normative pressure).</p> <ul style="list-style-type: none"> <li>• Stakeholders theory (Freeman et al. 2010): this theory highlights the importance of primary and secondary stakeholders for a firm since they exert pressure and have specific requirements that impact the firm's strategy. This theory is also used to analyse SC stakeholders (Touboulic et al. 2015). It could be relevant to look at R5) GD impacts on SMSCs by analysing female and male workers as different stakeholder groups rather than considering them as usual as employees.</li> <li>• Gender schema theory (Bem, 1981) explains how characteristics related to sex and gender are integrated and persistent in a group of individuals. It would be relevant to use it to R6) understand how stereotypes impact women's role in SMSC.</li> <li>• Social identity theory (Tajfel and Turner, 1986) explains behaviour between different groups of individuals depending on perceived differences of status and the legitimacy and stability of this status, to move to a desired group. This theory could be used R7) to understand hierarchical moves within an organisation and potential gender preferences to be appointed as SC manager.</li> </ul> <p>Other theories might also be relevant such as the behavioural contingency theory (Crozier and Friedberg 1977): it enables to understand</p>
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			<p>strategic behaviours of people within an organization. Recently, Ruel (2019) shows the usefulness of this theory for SCM research field. Fahimnia et al. (2019) also highlight the relevance of behavioural studies in SCM, called “Behavioural Operations and Supply Chain Management”. Regarding GD, it could be relevant to R8) analyse whether different genders have different strategic behaviours to enhance sustainability management in SCs.</p>
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## Appendix A: Reference documents analyzed to develop the research agenda

Reference document	Type of reference document
Andre, R. (1995). A comparison of career status and attitudes among men and women in logistics. <i>Logistics and Transportation Review</i> , 31(2), 179-190.	Academic
Anonymous. (1996, November). Women make gains in logistics. <i>Logistics Management</i> , 11, 25. Retrieved from ProQuest	Professional
Anonymous (2000) Women in logistics. Issued 2000. <i>Air Force Journal of Logistics</i> . Retrieved from ProQuest	Professional
Barrientos, S., Bianchi, L., & Berman, C. (2017). Women workers in global supply chains: Rights and remedy. Retrieved August 29, 2019, from <a href="https://www.research.manchester.ac.uk/portal/files/63552201/Women_workers_briefing_paper.pdf">https://www.research.manchester.ac.uk/portal/files/63552201/Women_workers_briefing_paper.pdf</a>	Report
Barrientos, S., Dolan, C., & Tallontire, A. (2003). A gendered value chain approach to codes of conduct in African horticulture. <i>World Development</i> , 31(9), 1511-1526.	Academic
Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. <i>Journal of Business Ethics</i> , 97(2), 207-221.	Academic
Burkitt, J. (2010, July). More women needed at top. <i>Motor Transport</i> , 12. Retrieved from ProQuest	Professional
Burnson P. (2017). Women leaning into logistics. <i>Logistics Management</i> . Retrieved from ProQuest	Professional
Chi, T. (2011). Building a sustainable supply chain: An analysis of corporate social responsibility (CSR) practices in the Chinese textile and apparel industry. <i>Journal of the Textile Institute</i> , 102(10), 837-848.	Academic
Chin, T. A., & Tat, H. H. (2015). Does gender diversity moderate the relationship between supply chain management practice and performance in the electronic manufacturing services industry? <i>International Journal of Logistics Research and Applications</i> , 18(1), 35-45.	Academic
Cleary, J. (2005, December). More women in logistics can only be for the best. <i>Motor Transport</i> , 23. Retrieved from ProQuest	Professional
Cooper, M., Richardon, H., & Jones B. (2000). Women forge logistics careers. <i>Journal of Commerce</i> . Retrieved from ProQuest	Professional
Dawar, G., & Singh, S. (2016). Corporate social responsibility and gender diversity: A literature review. <i>Journal of IMS Group</i> , 13(1), 61-71.	Academic
ETI (2018). <i>Gender inequality in international supply chains: Snapshot analysis</i> . Retrieved August 29, 2019, from	Report

<a href="https://www.ethicaltrade.org/resources/gender-inequality-international-supply-chains">https://www.ethicaltrade.org/resources/gender-inequality-international-supply-chains</a>	
Fernandez-Feijoo, B., Romero, S., & Ruiz, S. (2012). Does board gender composition affect corporate social responsibility reporting? <i>International Journal of Business and Social Science</i> , 3(1), 31-38.	Academic
Gabaldon, P., De Anca, C., Mateos De Cabo, R., & Gimeno, R. (2016). Searching for women on boards: An analysis from the supply and demand perspective. <i>Corporate Governance: An International Review</i> , 24(3), 371-385.	Academic
GFRBC (2018). <i>Session note - Investor taking a gender perspective to responsible supply chains</i> . Retrieved August 29, 2019, from <a href="https://mneguidelines.oecd.org/global-forum/2018-GFRBC-Session-Note-Gender-in-global-supply-chains.pdf">https://mneguidelines.oecd.org/global-forum/2018-GFRBC-Session-Note-Gender-in-global-supply-chains.pdf</a> .	Report
Grosser, K., & Moon, J. (2019). CSR and feminist organization studies: Towards an integrated theorization for the analysis of gender issues. <i>Journal of Business Ethics</i> , 155(2), 321-342.	Academic
Hale, A., & Opondo, M. (2005). Humanising the cut flower chain: Confronting the realities of flower production for workers in Kenya. <i>Antipode</i> , 37(2), 301-323	Academic
Johnson, J. C., McClure, D. J., & Schneider, K. C. (1999). Job satisfaction of logistics managers: Female versus male perspectives. <i>Transportation Journal</i> , 39(1), 1-19.	Academic
Kau, S., & Kleiner, B. H. (2001). New developments concerning discrimination and sexual harassment in the transportation industry. <i>The International Journal of Sociology and Social Policy</i> , 21(8/9/10), 165-174.	Academic
Knemeyer, A. M., Murphy, P. R., & Poist, R. F. (1999). Opportunities for women in logistics: An analysis of student perspectives. <i>Transportation Journal</i> , 39(1), 34-41.	Academic
Kovács, G., & Tatham, P. (2009). Humanitarian logistics performance in the light of gender. <i>International Journal of Productivity and Performance Management</i> , 58(2), 174-187.	Academic
Lynagh, P. M., Murphy, P. R., & Poist, R. F. (1996). Career-related perspectives regarding women in logistics: A comparative analysis. <i>Transportation Journal</i> , 36(1), 35-42.	Academic
Lynagh, P. M., Murphy, P. R., & Poist, R. F. (1999). Career perspectives of women in distribution: Congruency or contrast? <i>International Journal of Physical Distribution &amp; Logistics Management</i> , 29(3), 192-207.	Academic
Maertens, M., & Swinnen, J. F. M. (2012). Gender and modern supply chains in developing countries. <i>Journal of Development Studies</i> , 48(10), 1412-1430.	Academic
Mayer, R., & Pini, B. (2014). The Australian mining industry and the ideal mining woman: Mobilizing a public business case for gender equality. <i>Journal of Industrial Relations</i> , 56(4), 527-546.	Academic
Murphy, P. R., Lynagh, P. M., & Poist, R. F. (1997). Women in logistics: Some food for thought. <i>Distribution</i> , 96(3), 68.	Academic

SDC (2017). More women in manufacturing could aid in closing the skills gap - A new study confirms the importance of increasing the amount of women in the manufacturing workforce. Retrieved June 13, 2019, from <a href="https://www.sdexec.com/sourcing-procurement/news/12327899/more-women-in-manufacturing-could-aid-in-closing-the-skills-gap">https://www.sdexec.com/sourcing-procurement/news/12327899/more-women-in-manufacturing-could-aid-in-closing-the-skills-gap</a>	Professional
SDC (2018). Top women in the supply chain. Retrieved June 13, 2019, from <a href="https://www.sdexec.com/professional-development/article/21015342/top-women-in-the-supply-chain">https://www.sdexec.com/professional-development/article/21015342/top-women-in-the-supply-chain</a>	Professional
Nix, N., & Stiffler, D. (2016). <i>Women in Supply Chain Survey, 2016 Survey</i> . Retrieved from ProQuest	Professional
O'Marah, K. (2014). Women in supply chain: Role models for our daughters. Retrieved June 13, 2019, from <a href="https://www.sdexec.com/sourcing-procurement/article/11318992/too-often-women-take-the-role-of-facilitating-collective-victory-even-at-their-own-expense-in-terms-of-recognition-and-advancement">https://www.sdexec.com/sourcing-procurement/article/11318992/too-often-women-take-the-role-of-facilitating-collective-victory-even-at-their-own-expense-in-terms-of-recognition-and-advancement</a>	Professional
Park, D., & Krishnan, H. A. (2005). Gender differences in supply chain management practices. <i>International Journal of Management and Enterprise Development</i> , 2(1), 27-37.	Academic
Prieto-Carrón, M. (2008). Women workers, industrialization, global supply chains and corporate codes of conduct. <i>Journal of Business Ethics</i> , 83(1), 5-17.	Academic
Pullins, E. B., Reid, D. A., & Plank, R. E. (2004). Gender issues in buyer-seller relationships: Does gender matter in purchasing? <i>Journal of Supply Chain Management</i> , 40(2), 40-48.	Academic
Short, J. L., Toffel, M. W., & Hugill, A. R. (2016). Monitoring global supply chains. <i>Strategic Management Journal</i> , 37(9), 1878-1897.	Academic
Simpson, R., & Holley, D. (2001). Can restructuring fracture the glass ceiling? The case of women transport and logistics managers. <i>Women in Management Review</i> , 16(4), 174-182.	Academic
Soundararajan, V., & Brown, J. A. (2016). Voluntary governance mechanisms in global supply chains: Beyond CSR to a stakeholder utility perspective. <i>Journal of Business Ethics</i> , 134(1), 83-102.	Academic
Thresh Kumar, D., Palaniappan, M., Kannan, D., & Shankar, K. M. (2014). Analyzing the CSR issues behind the supplier selection process using ISM approach. <i>Resources, Conservation and Recycling</i> , 92, 268-278.	Academic
Trunick, P. A. (2007). Women in logistics - One challenge for the supply chain profession will be bridging the gender gap. Retrieved from ProQuest	Professional
Turker, D., & Altuntas, C. (2014). Sustainable supply chain management in the fast fashion industry: An analysis of corporate reports. <i>European Management Journal</i> , 32(5), 837-849.	Academic
World Economic Forum (2018). Global Value Chain Policy Series - Gender (written by Barrientos, S. & Pallangyo, C., 2018).	Report
Zinn, W., Goldsby, T. J., & Cooper, M. C. (2018). Researching the opportunities and challenges for women in supply chain. <i>Journal of Business Logistics</i> , 39(2), 84-86.	Academic

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