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Current Opinion in
Green and Sustainable Chemistry

Greenwashing and sustainable fashion industry

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Abstract

The fashion industry is now in the eye of the storm for what concerns sustainability because of the enormous impact that such a business area has on the environment. To exploit the full potential for circular economy implementation, the fashion industry requires urgent changes adapting much more conscientious business practices, driving consumers to change their perceptions and behaviors toward circular products and services. The renunciation of greenwashing practices and the use of strategy focused on regaining consumer's trust will increase the positive sentiment toward the fashion brands. This work demonstrates to what extent greenwashing may jeopardize the fashion industry in addressing challenges related to the implementation of more sustainable circular economy in the context of designing with intention of recycle, reduction of by-products, lower energy consumption, and wise purchase habits.

This study provides guides for fashion brands about the risks and gains related to the greenwashing practices and sustainable fashion industry. This study sketches also future research opportunities in more sustainable holistic approach of a products' life cycle and how this can be translated into clear, transparent, or reliable certification schemes to prevent the misleading and dishonest marketing strategies helping the consumers to make a responsible choice.

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Current Opinion in Green and Sustainable Chemistry 2022, **38:**100710

This review comes from a themed issue on **Sustainable chemistry for a circular fashion Industry**

Edited by **Pierguiseppe Morone**, **Idiano D'adamo**, and **Gülsah Yilan**

For complete overview of the section, please refer the article collection - Sustainable chemistry for a circular fashion Industry

https://doi.org/10.1016/j.cogsc.2022.100710

Keywords

Greenwashing, Bluewashing, Ethics, Fast fashion, Circular economy, Design for circularity.

Introduction

Along with energy and food industries, clothing is of the main components of humanity [1]. However, does the general public consider the fashion industry as the one responsible for major environmental problems? The most probable answer is "no." One of the reasons for such concessionary approach to the matter is that the fashion industry is a $2.4 trillion-dollar industry that employs 300 million people worldwide. On the other side, it is responsible for 2–8% of the world's greenhouse gas emission, 20% of the world's wastewater, 100 billion dollars lost due to underutilization and lack of recycling, and 9% of annual microplastic losses to the ocean [2]. These numbers are devastating and depict the tremendous impact of this industry, which, in case of other economy sectors, would put a label of the industry responsible for major environmental hazards worldwide.

However, as a response to the damages to the environment, in general, the fashion industry was obligated to adopt a series of changes toward more sustainable business models. It was mainly to form a driving force to create technical solutions and help redefine the regulations to allow for a swift and smooth transition into by-products across value chains. By contributing to a change in mentalities and culture in both, companies, and consumers, this industry sector can enhance the acceptance and desirability of products and services issued from a circular economy where resources are used in a more sustainable way. One of such examples are running footwear, which sole can be recycled and reused either for new footwear or other products [3]. Still, the fashion industry only very recently has started adopting the same patterns to address the challenges, especially in the environmental context. The reason for such a late reaction is that in the global market, the fashion industry was facing different problems, e.g., human rights violations, including the pay out of hunger wages and extremely poor working conditions. Although to some extent, most of these problems persist, the fashion industry started the transition from the linear economy to more circular approach [4]. To better understand the size of the problem with the "fast fashion," it is important to realize that in the North America, e.g., up to 37 kg/person of textile is used annually. The second textile industry consumer is Australia with 27 kg/person/year followed up by Western Europe with 22 kg/person per year [5]. Even though the linear economy model of the fashion industry

is still mostly catalyzed by the consumer trends in those three most developed regions, the first signs of the change can be observed. For example, among millennials, which represent a quarter of the world's population and a segment engaged in global issues, 71% have expressed to want brands more environmentally friendly and ethical, and as much as 61% want them to be more connected to the social issues [6]. Thus, to address these social demands, the transition from "fast and linear" raised a new concept of textile and fashion industry dedicated to more sustainable and circular business models based on, e.g., take-back schemes, clothing swapping, clothing libraries (second-hand clothes), and others [7,8]. To better demonstrate the challenges in this direction, it is worth to mention that consumers are willing to pay premium prices for bio-based clothes and bio-based products; however, in the second-hand market — representing a pillar of the circular economy — the consumers are generally less enthusiastic as they probably associate second-hand clothing to poor quality [9], poor sanitation, brand devaluation, fraud, or social discrimination [10]. This example shows that the fashion industry is calling for a shift toward sustainability. In this sense, in 2022, the EU plans to adopt the EU Strategy for Sustainable and Circular Textiles [11]. One of the aims of this strategy is to define actors and measures to support covering the complete value chain. In this context, several aspects, which are also broadly reflected on the Green and Sustainable Chemistry principles [12], have been recalled in this strategy. For example, design for sustainability — although durability is a key issue, once recycled, the materials should follow-up the life cycle assessment methodology approach. Another relevant aspect is a type of materials and substances used. Although a clear definition of sustainable materials is urgently needed, a priori some hazardous substances, especially polluting water, soil, and air biodiversity, should be banned immediately. Regarding the reduction of microplastic in the environment, the textile industry should also look at reducing the impact of microfiber shedding. Another aspect is related to the better traceability and standardization by, e.g., the introduction of Digital Product Passport (DPP) with the Product Environmental Footprint (PEF) identified to ensure better social acceptance and widen social inclusion along the entire value chain. Among other considerable aspects are also sustainable waste management schemes, including collection, sorting, reuse, and recycling [5]. Therefore, it can be concluded that the EU Strategy for Sustainable and Circular Textiles [11] addresses the majority of problems of the textile industry in a comprehensive manner, and one of the tools to be adopted is, e.g., the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) [13].

The REACH regulation introduced a set of restrictions and procedures to monitor and decrease the use of dangerous substances and protect consumers, workers, and the environment. While considering the influence of those regulations on small- and medium-sized enterprises, the REACH puts the responsibility on manufacturers, importers, and downstream users to register and assess any potentially harmful substances, which they produce, use, and place on the market. Furthermore, the regulations encourage scientific research necessary to develop novel, suitable economically, and technically viable alternatives and technologies, which are less dangerous and sustainable. At the same time, the REACH regulations put emphasis on the reduction of animal testing where possible and allow for joint submission and sharing of information on substances to minimalize testing on vertebrate animals, reduce costs, and increase the efficiency of registration system. A particularly essential element of the REACH regulation, especially in the case of fashion industry and greenwashing, is that European Union citizens have full access to information about chemicals to which they may be exposed. Easy access to the European Chemicals Agency's database, including information about the labeling requirements, allows consumers to make informed decisions about their use of chemicals [13]. Starting in 2020, the European Commission has begun work on a revision of the REACH regulation, some information has already been revised, and all of the updated requirements have been presented by the European Chemicals Agency [14]. The positive impact of the regulations is also visible among the scientific community, which responded with novel techniques to support the health risk management of chemicals. For example, Boogaard et al. proposed human biomonitoring using biomarkers of exposure, as a tool for the regulatory authorities to perform an initial screening of population exposure to chemicals and assist in priority setting [15]. Alternatively, smart or e-textile can be used to prevent, protect, and diagnose the physical state of the consumer [16—18]. Therefore, the legal aspects, as well as social pressure toward a more sustainable economy, push the fashion industry to perform significant adaptation works.

This work presents the most relevant peer-review publications, reports, and newspaper articles published chiefly in 2019—2022 years, in which the main objective was the greenwashing practices in fashion industry and the context of circular and sustainable economy.

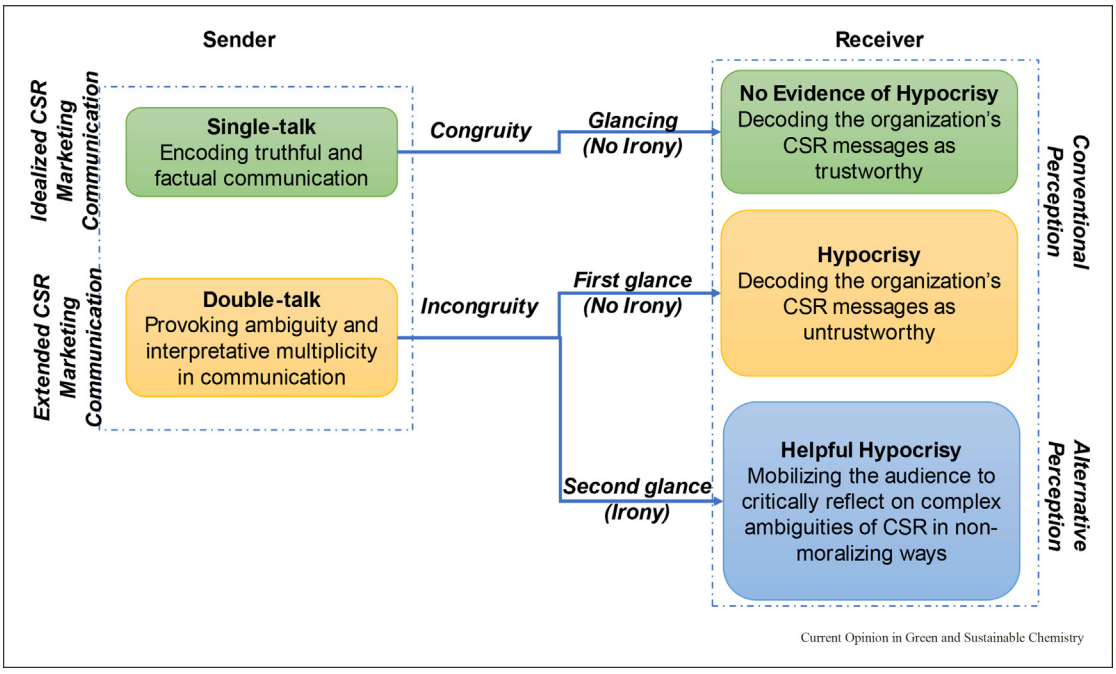
Greenwashing – the fashion industry and consumer responsibility

Due to current challenges, it is expected that all these changes in the fashion industry for achieving sustainability must take place in a short term. To alleviate this pressure, some brands of the fashion industry resort to greenwashing tools and practices. According to Becker-Olsen and Potucek, "Greenwashing refers to the practice of falsely promoting an organization's environmental efforts or spending more resources to promote the organization as green than are spent to actually engage in

environmentally sound practices" [19]. In other words, greenwashing is based on highlighting one good practice or only a small part of its activity while obscuring all others that have negative impacts on the environment to present itself as more sustainable than it really is [20]. In case of the fashion industry, greenwashing narrative can be observed as claims of being more sustainable but only improving a negligible part of the fashion brands' collections, or downcycling materials instead of focusing on fiber-to-fiber recycling, or promotion of take-back programs that incentivize guilt-free consumption. Greenwashing actions are industry claims over synthetic fibers' sustainability or promotion of recycled polyethylene terephthalate (PET) in new textile materials [20]. Another common method of greenwashing is eco-labeling or certification of the fashion industry. The eco-labeling or certification are good tools to gain the consumer's trust. Some studies on the consumption theory showed that there is a strong relation between the consumption values and the green trust [21]. Either eco-labeling or certification works for the consumer perception as a mark of superior quality, higher value, and an indicator of a lifestyle [21]. Consequently, this drives to changes in the decision-making process among consumers reflected in, e.g., willingness to pay the premium prices for a particular product as it can be observed, e.g., in case of organic foods, which in general, are more expensive than traditional food products [22]. In addition, the perceived brand reputation is a seal of guarantee driving more favorable purchase decision of consumers of luxury clothing [23], sportswear products [24], or for kids [25]. Braga Junior et al. concluded that consumers are willing to take the risk of greenwashing when they believe in the product [26]. Mandarić et al. also confirmed this showing that the fashion brand sustainability impacts the consumer purchasing decision [27]. Of course, the concern for the environment as a factor of the consumer decision-making hierarchy is far below the price, value, size, quality, style, convenience of purchase, materials, and others [28]. Hence, on one hand, the sustainability is relevant, but on the other, still, economy and consumer opportuneness are more relevant. In addition, when certification processes are not clear, transparent, or reliable, it creates a sustainability conflict by misleading consumers. This only demonstrates that further work is needed to reduce sustainability gaps and greatly influence consumer behavior in order to move toward a sustainable clothing on the priority list [27]. The way to achieve it is to create a shift within consumers' mindset to create a favorable attitude toward sustainable clothing and a stylish perception of sustainable clothes [29]. However, it is especially difficult because of the lack of confidence in the fashion industry sustainability patterns. The recent report of the Changing Markets Foundation demonstrated that there are ten major certifications, labels, and voluntary industry initiatives in the fashion sector (Higg Index and SAC, bluesign, OEKO-TEX, Cradle to Cradle, Ellen MacArthur Foundation, Textile Exchange, The Microfibre Consortium, ZDHC, WRAP, and the EU Ecolabel). Unfortunately, most of these schemes are acting as sustainability decoys for brands, enabling greenwashing on a massive scale, with a lack of transparency, no accountability, and compromised independence common across the initiatives [30]. Among their clients are top brands, which provide false claims with as high rate of 96% [31]. On top of that, in their daily practice, they use ambiguous terms, keywords (e.g., eco-, organic, no chemicals, and sustainable), and strategies to cause false marketing messages. In turn, it drives misinterpretation of green-related terms and fills the gap between consumer expectations and information that companies share [32]. All these can be called "double-talk." As Glozer and Morsing claimed, the conventional definition of corporate hypocrisy is focused on decoupling talk and actions [33]. The biggest paradox is the fact that it is done by brands with high corporate social responsibility (CSR) standards. However, Glozer and Morsing also found that in some cases, the specific ironic situation turns out to be "helpful hypocrisy" mobilizing a critical reflection on complex issue using non-moralizing tools (Figure 1). Although this approach has a positive meaning, it may mislead the social perception and make the message unclear to a vast majority of consumers.

Kesenheimer and Greitemeyer postulated a different theory about greenwashing. This theory shifts the center of attention on consumer instead of the brands. They stated that the value of self-enhancement seems to work against the pro-social and cooperative behaviors we need. For example, narcissism might act as a barrier for pro-environmental behavior, especially that it is important to differentiate between pro-environmental claims and actual behavior because consumers might sometimes just "greenwash their self" [34]. Therefore, it is crucial to create actions and measures to develop sensibility toward more sustainable clothing across the society. It can be done by shifting the consumer decision-making process toward extensive problem-solving, i.e., when consumers are highly involved in the product creation and critically evaluate it based on established criteria. This helps to achieve the transition from passive view or emotional purchase decision model toward cognitive model, in which the consumer on the basis of his/her needs takes a rational decision carefully considering all benefits and disadvantages of the product [35]. Thus, through materiality and embodied learning, the new milieu to acquire latent skills is needed to mobilize affective capacity in sustainable clothing [36]. These activities should be addressed dominantly toward post-millennials, who have growing purchase potential, are more environmentally conscious, and use e-commerce [37] and social media [38] as tools in the creation of the perception about particular aspects of social importance. Therefore, one can state that

Figure 1



Single vs. double-talk in hypocritical CSR marketing communications. Reprinted from Journal of Business Research, Vol. 114, Sarah Glozer, Mette Morsing, Helpful hypocrisy? Investigating "double-talk" and irony in CSR marketing communications, Pages No. 363–375, Copyright (2020), with permission from Elsevier.

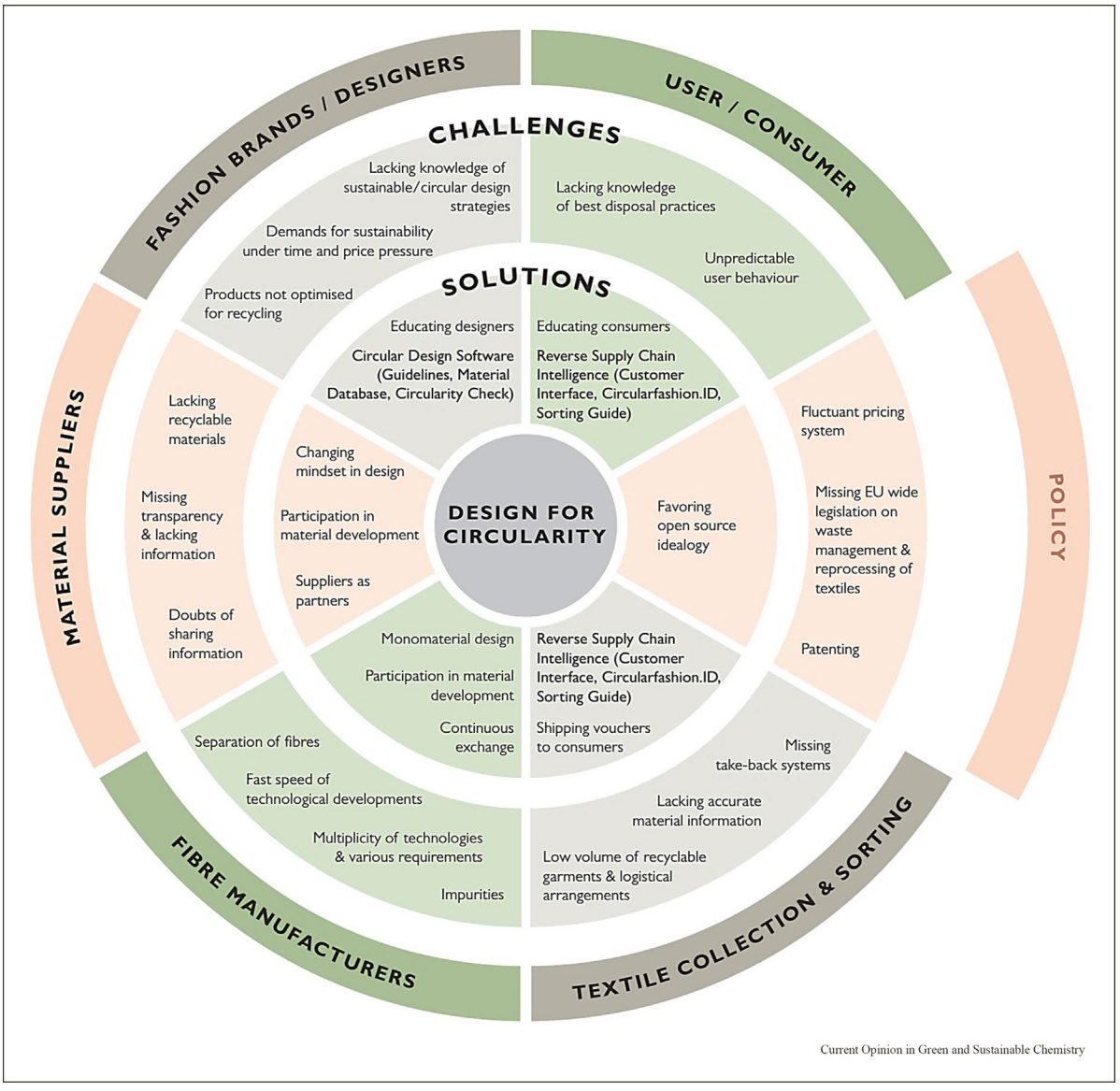
greenwashing has various shades. Szabo and Webster found that organizations can be seen in the scope of green marketing from multiple perspectives, including those with activities directed toward intentional greenwashing (the "evil greener"), unintentional greenwashing (e.g., from their supply chains), no greenwashing (truthful green marketing), and unadvertised green initiatives (the "green blusher") [39]. Szabo and Webster, following others [40], postulated also that the evil greener can be called bluewashing. Bluewashing imitates the UN flag in order to distract consumers from their real poor environmental records [39]. Bluewashing is deceptive marketing used to make costumers believe a company is better, e.g., more eco-friendly, more socially responsible, and more ethical than it is. Thus, bluewashing is actually the worst shadow of greenwashing because it tends to overstate the actual social responsibilities implemented [41].

Sustainable fashion industry

Hence, one may ask if there is a hope to change the fashion industry to the one delivering honest green product, or in other words, truthful greeners. Although the idea of sustainable fashion industry without waste sounds like utopia, it starts to be visible more often. Example of such solution might be *circular:fashion* [42]. *Circular:fashion* relies on the concept of cradle-to-cradle and closed-loop ideology and aims to develop recyclable and biodegradable textiles, products, and full collections. The central point of *circular:fashion* is design for circularity (Figure 2) [43]. However, the implementation of design for circularity is not greenwashing risk-free. Challenges, such as lacking accurate material information, missing transparency, and lacking information and doubts of sharing information, are potential risks for increasing greenwashing practices and require practical measures, such as education program, active participation of all stakeholders in the entire circular value chain, and others to mitigate such risks.

The design for sustainable consumption concept is another approach universally used to justify the sustainable fashion industry. However, similarly to design for circularity, this concept is also not free from risks related to greenwashing practices. Designing for sustainable consumption requires eco-modernist approaches, which seek to modify our present model of production and work against consumerism [44]. In this sense, more environmentally sustainable materials are rediscovered and proposed to consumers. Natural fibers of plant origin, such as cotton, hemp, or protein-type, e.g., wool or silk, start to regain the territory in sustainable fashion industry [45]. However, it is important to underlay that these kinds of fabrics are not exempt from the negative impacts on the environment, especially in the context of extensive land use and landfill, or

Figure 2



Challenges and solutions provided by design for circularity according to *circular.fashion* [43].

use of fertilizer, associated greenhouse gas emissions, soil degradation, and others. Therefore, although natural, they must be produced in the most sustainable way possible to avoid overconsumption of the environment, and the consumers have to be aware about these effects.

In addition, it cannot be forgotten that besides the fabrics, more than 8000 different chemicals are used in textiles [46]. Among those agents are colors, pigments, specialty chemicals used for softening, wrinkle-free effect, oil and water repellence, flame retardancy, antibacterial property, and many more. Although some of them can be substituted by, e.g., eco-friendly auxiliaries for dyeing, including clays or supercritical CO_2 [46] or using alternative methods of textile wastewater treatment [47], there are still numerous problems associated with, e.g., safe dispose of used cloths and the assessment of their impact on human health and environment is practically impossible. Until very recently, the term "sustainability" has been used merely to greenwash and label only marketing hook for the fashion enterprises to profit more. Especially that often claimed in the greenwashing practices, recycling and reusing of textiles were not considered anywhere in the design process, raw material sourcing, and utilization. Therefore, the challenges in the textile recycling have to be seen as the integral element of sustainable fashion industry and not the vague terms of greenwashing practices.

When coming to chemicals used in the textile industry and the need the recycling, the proper legislation should give a hand. The fundamental role of REACH regulations in creating sustainable fashion and textile industry results mainly by indicating approaches for progressive replacement of substances of very high concern (SVHCs) with suitable alternatives, where these are technically feasible and economically viable [48].

Furthermore, the REACH regulation gives manufacturers, importers, and downstream users the tools to neutralize the impact of the chemicals that they use on human health and the environment. It also promotes research necessary to generate novel, sustainable, and environmentally friendly substances and techniques as mentioned above. Finally, the European Chemicals Agency, established under the EU REACH program, provides access to transparent and reliable information for customers, what fights against greenwashing and dishonesty propagated by, e.g., the fashion industry. The REACH regulation is limited, however, to the European Union countries. Over the years, the textile industry has continuously moved to lower-cost manufacturing countries. While the REACH regulation aims to overcome this problem by putting responsibility on manufacturers, importers, and downstream users, the workers as well as the environment are often unprotected in the producing countries. Even though consumers show concern regarding chemicals in everyday products and pollution, they are often not willing to pay adequate prices for product safety [46]. Of course, besides REACH, there are other initiatives, which protect consumers from misleading and dishonest marketing practices. In addition to the aforementioned EU Strategy for Sustainable and Circular Textiles [11], the Green Deal of the European Commission tackles this problem by setting up a standardized methodology to assess companies impact on the environment [49,50]. For example, the USA and the UK have also introduced their initiatives, namely Guides for the Use of Environmental Marketing Claims "Green Guides" [51] and "Green claims code" [52], respectively. They all collectively aim to minimalize the advantage that the companies which practice greenwashing and make false sustainability claims have over honest businesses. Those actions and the introduction of legal regulations, as well as raising awareness in the society, can minimalize greenwashing and increase green trust.

As long as the awareness among customers will not drive them toward buying highly regulated products to ensure their own safety, the REACH regulation might not be enough to prevent greenwashing and develop sustainable fashion. Unfortunately, despite regulations, it is still more profitable for the big companies to cultivate greenwashing and find ways of omitting the laws by committing various types of sins, e.g.: (i) "Sin of No Proof" when companies make environmental claims but do not provide any information that can prove them; (ii) "Sin of Vagueness" when some companies make environmental claims using the words such as "natural" and "no chemicals" that they might be misunderstood by the customers; (iii) "Sin of Worshiping False Labels" when companies create an impression of a third-party endorsement, while in reality, no such endorsement was made; (iv) "Sin of Irrelevance" when companies state that an environmental claim is not relevant to the product category; (v) "Sin of Lesser of Two Evils" when companies draw the consumer attention away from the "big evil" by introducing a slightly less harmful alternative that still does a lot of damage [53]. It is, therefore, of extremely high importance to build strong customer awareness to change the way textile and fashion industries approach the problem of sustainability.

Conclusions

Although intentional greenwashing actions are from the environmental, social, economic, and ethical point of view unacceptable, they can wake up the consumer perception and turn them toward more sustainable solutions in the fashion industry. However, the question is where the limit in the environmental awareness is and who should be responsible for it. Definitively, both consumers and brands should work hand-by-hand for more sustainable fashion industry, and transparent and reliable certification schemes should serve as a guarantee of sustainability in this economy sector.

Thus, the main objective of this work was to outline the predicted effects of greenwashing on green consumer confusion, green perceived risk, and green trust. A decrease in greenwashing and an increase in green initiatives and more transparent marketing are definitively beneficial to promote the customers' green trust. Green marketing is more efficient and able to encourage green consumption. In addition, consumers need to notice benefits and limited risks of more sustainable clothing, while companies have to reassure customers about their products to provide straightforward evidence that the brand follows ethical principles.

Furthermore, in order to prevent the harmful effects of substances used by the fashion industry, it is first needed to redefine the consumer decision-making process from passive or emotional model toward cognitive model, based on the rational judgment of the consumer's needs. Achievement of this raise of awareness is crucial, while strictly regulating the way fashion companies use diverse greenwashing practices, including green labels and sometimes unclear certification schemes. As such, the industry needs to regain authenticity and trust, three steps, in which this could be achieved are proposed:

1. Need for change: The pressure from customers is driven by initiatives regarding the environmental,

social, and economic importance of textile industry that aim to raise awareness and prevent greenwashing.
2. Tools for change: Development of innovative, affordable, and sustainable ways of recycling for reuse of clothing in the way that neither the process nor the redesigned garments do cause harm to the human health or the environment — industry-driven research.
3. Execution of change: It is important to protect small and medium enterprises working in greenwashing sin-free brands by clear, transparent, or reliable certification schemes to prevent misleading and dishonest marketing strategies.

All these will help to exploit innovative approaches ensuring the circularity of fashion industry and will contribute to the culture of more sustainable and responsible consumption.

Credit author statement

Julia Adamkiewicz: methodology, investigation, writing-original draft preparation.

Ewa Kochańska: conceptualization, writing-reviewing and editing, validation.

Iwona Adamkiewicz: methodology, investigation, writing-original draft preparation.

Rafal M. Lukasik: supervision, investigation, validation, writing-reviewing and editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

Data availability

No data was used for the research described in the article.

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* of special interest
** of outstanding interest

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