

# Sustainable Regulation as Driver for Transformation in Fashion Industry

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## ABSTRACT

The world is changing incrementally, exacerbating planetary boundaries (Rockström et al., 2009) and, as such, current lifestyles. Environmental pollution is gaining problematic levels, and the textile industry is considered one of the main culprits. The textile supply chain creates different types of waste and scrap that belong not only to the semi-finished product but also to the goods needed in the production stages (Nayak, R. 2019). The textile production process is known to consume resources, once considered unlimited, such as water, which now needs to be totally recovered and treated, fuel from fossil resources and a variety of chemicals on a large scale. Industry estimates show that more than 35 percent of chemicals released into the environment are the result of various textile treatment and dyeing processes (Thiry, 2011). In the Italian landscape there are many examples of companies operating in the textile sector, where we find the closed cycle of production wastewater. The urgency of transitioning to circular and sustainable models has led governments to dwell on the role of textile companies with regard to sustainability, noting that they do not seem to be reforming at a pace and scale that would considerably combat environmental and climate change. The question that arises concerns the emergence of a number of new regulatory proposals and how they will impact within textile companies. Although most of the newer proposals are still a long way from becoming law, some regulations require textile companies to review the way they produce and communicate the nature of their products, involving EU manufacturers, importers, and retailers in the round. As part of the Circular Economy Action Plan, in March 2022, the EU published the “Sustainable Textiles Strategy 2030,” which focuses on circularity of textiles and making brands responsible for waste sent to landfills (Digital Agenda Eu., 2022) and aims to make textiles more durable, repairable, reusable and recyclable. It also pledges to combat fast fashion and unsold textiles and ensure that they are produced with respect for social rights. The European Commission has made its regulatory proposals official, including the proposed Ecodesign for Sustainable Products Regulation, or Espr, which establishes a framework for improving product circularity. Thus, the role of design becomes critical for a more rational use of resources in the development of new products (Thorpe, 2007; Fletcher & Grose, 2012; Fletcher, 2014), which should be designed in a way that reduces waste, scrap, pollutants, and pollution, reaching the zero-waste goal. The treatment of this issue poses two different studies from the outset because the complexities between waste and waste generation in pre-consumption and post-consumption are different. If it is true that rules and standards are the lever of transformation the designer will have to come up with a new design process in compliance with the standard but producing innovation and making sustainability a tangible value in the value chain of the semi-finished or finished product.

**Keywords:** Textile regulations, Textile waste, Fashion value chain, Multistakeholder ecosystems

## INTRODUCTION

The world is changing incrementally, exacerbating the finite nature of planetary resources (Rockström et al., 2009) and, thus, lifestyles. Environmental pollution is gaining problematic levels, and the textile industry is considered one of the main culprits, so much so that, according to the Circular Economy Action Plan, it ranks fourth in terms of the highest use of primary raw materials and water, right after the food, construction and transport sectors; while it ranks fifth in terms of greenhouse gas emissions. Disturbing data published by the European Commission and the European Parliament showing that the textile industry is responsible for 10 percent of the world's greenhouse gas emissions, amounting to 1.2 billion tons per year, which turns out to be more than all international flights and shipping combined.

The textile production process is notorious for consuming resources once considered unlimited, such as water, which now needs to be fully recovered and treated, fuel from fossil resources, and a variety of chemicals on a large scale. Twenty percent of industrial water pollution globally is attributable to textile dyeing and processing. In the Italian landscape, there are many examples of companies operating in the textile sector, where we find the closed cycle of production wastewater. In third-world countries, however, the discharge of untreated wastewater pollutes local rivers, which are used by these same countries as commodities (Garcia-Torres, 2019; Legere & Kang, 2020). Citarum, in Indonesia is considered the most polluted river in the world and receives discharges from thousands of factories, most of them textile. Unfortunately, millions of people live in its basin, which also supplies water to the capital Jakarta. Industry estimates show that more than 35 percent of chemicals released into the environment are the result of various textile treatment and dyeing processes (Thiry, 2011). In addition, synthetic polymers such as polyester, Lycra, nylon, and acrylic, found in the vast majority of fast fashion fabrics, which also contain other chemicals to enhance their performance, release microfibers into the wastewater with each wash cycle. These mix with plankton found in the oceans, which is consumed by fish, thus moving up the food web (Da Costa et al., 2016). Microplastics do not biodegrade and are hazardous to water and the environment, adding to the growing problem of microplastic pollution in the world's oceans and other water bodies and even in the atmosphere; thus becoming a major waste disposal challenge (Sivan, 2011).

The textile supply chain also creates different types of waste and scrap that belong not only to the semi-finished product but also to the goods needed in the production steps (Nayak, 2019). Consequently, the environmental impact is not only on production and pre-consumption but, more importantly, on post-consumption: an exaggerated production of waste that goes to feed licit and illicit landfills halfway around the world, thus favoring waste traffickers (McNeill, 2015). A case in point is the Atacama Desert in Chile, where hills of used clothing are set against red sand dunes, creating the world's largest illegal open-air dump of discarded and unsold clothes from Europe, Asia and the United States. In the absence of precise regulation, unsold garments, after stopping in China and Bangladesh, end up in Chile, because the recycling and

disposal costs turn out to be too high, given the low quality of the garments. The Parliamentary Commission of Inquiry into Illegal Activities Related to the Waste Cycle and Related Environmental Offences (Ecomafie Commission), states that “the presence of structured illicit realities in the sector of collection and recovery of used clothing and textile waste is an established fact, which has been stated and described by operators of the supply chains as well as by authorities and judicial police” (Bicameral Ecomafie Commission, 2022).

The European Green Deal was created to spur a move away from a linear economy model that has proven harmful to our health and the planet. The proposed laws will ensure that more sustainable products are sold in Europe, enabling consumers to take care of resources, save energy, repair and make smart environmental choices, and reduce vulnerability to disruptions in global supply chains (EU Commission, 2019).

The article thus aims to provide an overview of the variety of regulatory tools that affect the fashion industry today, highlighting how these same regulations appear to be crucial for the protection of the fashion system. For this reason, it would appear crucial to have experimental windows for sustainable regulation to be transposed and implemented in not only design, but also management and organizational processes. This study is part of a broader research question aimed at investigating alternative strategies and models through which it would be possible to regulate fashion, intervening in the setting and interpretation of the current environmental goals imposed by the European Green Deal.

## **EUROPEAN REGULATIONS FOR THE SUSTAINABILITY OF THE TEXTILE SECTOR WITH A LOOK AT THE ITALIAN SYSTEM**

Awareness of the need for more sustainable strategies and practices has led to the development of a circular model of production and consumption according to the principles of the circular economy, which aims to develop a regenerative economic system (Pedersen, 2019). The urgency of transiting to circular and sustainable models has led institutions to dwell on the role of textile companies with regard to sustainability, noting that they do not seem to be reforming at a pace and scale that would considerably combat environmental and climate change. The question that arises concerns the emergence of a number of new regulatory proposals and how they will impact within textile companies. Although most of the newer proposals are still a long way from becoming law, some regulations require textile companies to review the way they produce and communicate the nature of their products, involving EU manufacturers, importers, and retailers in the round.

It needs an important look at Italian manufacturing, which is dotted with small-scale realities that, on closer inspection, are committed to sustainable strategies applied to the entire production chain: significant is the example of the Prato District, which has been operating with a circular perspective for 170 years. However, the fashion regime is uncontrollable, as it operates within an unregulated global market that allows the industry to avoid responsibility for social and environmental externalities. The Global Organic

Textile Standards (GOTS), a recognition aimed at ensuring responsible and sustainable development in the textile industry, is committed to filling a national legislative gap (ICEA, 2021), but needs systemic support. Therefore, it becomes urgent to take up the major challenges facing the fashion system, exploring how textile and fashion manufacturing can take up these changes and take action from a systemic perspective, thus promoting a more immediate sustainable transition. The ultimate goal aims to explore how a dominant and unsustainable regime can be transformed into a sustainable one, drawing on the collaboration of small Made in Italy companies aimed at defining alternative ways of shaping the planet. Questions need to be asked about the barriers and constraints to implementing environmental sustainability in the textile industry and whether there is a relationship between the level of awareness, the practices adopted and the performance of the company itself.

As part of the Circular Economy Action Plan, in March 2022, the EU published the “Sustainable Textiles Strategy 2030,” which focuses on circularity of textiles and making brands responsible for waste sent to landfills (Digital Agenda Eu. 2022) and aims to make textiles more durable, repairable, reliable, reusable, easier to maintain, renew and recycle. It also pledges to combat fast fashion and unsold textiles and ensure that their production is done with respect for social rights, ensuring product-specific information requirements that will enable consumers to know the environmental impact of their purchases. In an innovative, resilient and competitive textile sector, manufacturers must take responsibility for their products throughout the supply chain, even when they become waste. In doing so, the circular textile ecosystem will be driven by sufficiently prepared capabilities that will lead to innovative fiber-to-fiber recycling, while incineration and landfilling should be minimized (European Commission, 2022).

The European Commission has made its regulatory proposals official, including the proposed Ecodesign for Sustainable Products Regulation, or Espr, which establishes a framework to improve product circularity by including a digital product passport that could store information such as durability and repairability, simplifying repair or recycling and facilitating the monitoring of problematic substances along the supply chain. It could also go on to identify substances that might prevent a product from being recyclable and eventually define how much recycled yarn is used in a garment. The legislation would also require companies to publicly report the destruction of unsold products. Specific measures will also include guidelines to combat the unintentional release of microplastics from fabrics and ensure the accuracy of ecological claims by promoting circular business models.

The eco-design requirements adopted under the Espr would appear to be the same throughout the European Union, but penalties would be set by individual member states, resulting in a differentiation of penalty across states with consequent ineffectiveness of the legislation applied. However, only after the entry into force of the Espr would specific product requirements be established in secondary legislation, in which case products that do not comply with the requirements would not be able to be sold on the EU market. If the legislation goes in this direction it is likely to have a significant impact on how garments are designed and manufactured (European Commission, 2022).

European environmental policy sees Extended Producer Responsibility (EPR) as a breakthrough at the community level, as it encourages companies to design more sustainable and recyclable products and production processes, building on the concept of waste management and environmental pollution. This is the direction toward which companies will grow a willingness for a stronger motivation toward the environment, placing the responsibility for the cost of sustainability, from raw material sourcing, to end-of-life and recycling, in producers rather than local governments. All this is intended to make it easier for the modern manufacturer to anticipate ever-changing compliance requirements.

The urgency for EPR compliance implementation arises from the catastrophic levels and municipal waste that is estimated to rise to 3.40 billion tons globally by 2050 (SAP Italy, 2022). Of this waste, although 80 percent that is landfilled is recyclable, only 20 percent is actually recycled.

Regarding the decree that is to regulate the end-of-life of textile waste (textile EPR), in April 2023 in Italy, the deadline for delivery to the Minister of Environment and Energy Security (MASE) expired. With this regulation, textile importers and manufacturers themselves will become the real end-of-life managers of products placed on the market. The financing and organization of separate collection, preparation for reuse, recycling and recovery of waste will be their sole responsibility. They will have to, in this regard, ensure in agreement with municipalities, the implementation of a nationwide textile waste collection network, selective collection systems along with the design of sustainable textile products suitable for reuse and repair (European Commission, 2022). The legislation has not sparked enthusiasm among manufacturers and distributors, who feel affected by the burdens of a system that remains in the hands of municipalities and their managers. On the other hand, municipal institutions complain about the excessive fragmentation of collection that the new measure would create.

The EPR regulation for textiles could go to increase the environmental quality of production processes, improve legality through accreditation of companies in the supply chain, and invest in eco-design because today the vast majority of products that are not reusable are also difficult to recycle because they are not designed in a way aimed at recycling; an obvious example of this is Fast Fashion, a clothing system designed for a linear economy. The EPR will also have to go to strengthen recycling because to date fiber recovery capacity in Italy is almost absent, if we exclude the excellence of wool processed in Prato's plants.

The EPRP provides substantial funding for the construction of plants that will go to sort the textile collection, as Andrea Fluttero president of UNIRAU states, who makes known his perplexities about the type of plant financed because we are talking about plants to sort the textile collection; but sorting for reuse is quite different from a machine that separates a wool product from that of other fibers; fibers that in the vast majority are always mixed (buttons, applications with other materials such as synthetic leather) that involve very complicated processes. One solution to achieving these goals could be the individual or collective establishment of management systems, or consortia,

subject to the supervision and control of the Minister of the Environment and Energy Security.

In Italy, *retex.green* (2022), the first national producers' consortium for the optimized management of clothing, textile, footwear and leather goods waste, was born with the intention of finally making the Fashion System circular, anticipating regulatory decisions on textile recycling and providing a valuable operational tool for all players in the supply chain. The economics of waste management can be very costly if strategies that lead to economic benefits are not applied, and the individual producer may not demonstrate the organizational capacity necessary to manage the waste he generates. The Collective System therefore would go a long way toward providing a viable alternative that would lead to a substantial improvement in waste valorization.

In the Prato district, on the other hand, within the "Prato Circular City" plan, a project of the municipality of Prato aimed at managing the district's transition to a circular economy, the Textile Hub (2022) is being developed, which will allow the processing of 34,000 tons of textile waste per year, recycling at least 94 percent by connecting its cycle to that of local companies.

The desirable goal remains to create an environment within the European Union, conducive to textile and apparel production that collaborates with EU institutions through an ambitious industrial policy, effective research, characterized by a predisposition for 'innovation and skill development, to arrive at the creation of sustainable supply chains. A role egregiously played by Euratex, a Brussels-based European organization representing the European textile and apparel industry, which sees itself as the initiator of the ReHub (2022) initiative. A joint project for industrial upcycling that sees textile waste and circular materials at the center of a plan to achieve fiber-to-fiber recycling of 2.5 million tons of textile waste by 2030 and would yield economic, environmental and social benefits of 3.5 to 4.5 billion euros to the textile recycling industry. The ReHub-supported project, "Transform Waste into Feedstock," aims to build a plant with a capacity of 50,000 tons by 2024.

Such an innovative and experimental push in the regulatory arena may support the textile industry toward an integrated interpretation of sustainability. In fact, in light of the new-profile regulatory bodies and actors that are emerging and populating the fashion system, it would be observable how a linear reading of the same sustainable development goals set forth by the various regional, national and global agendas, itself risks not co-responding to the complexity of the ecosystems of reference and the challenges that plague these same systems. A systemic integration or reading (Griggs et al., 2014; Le Blanc, 2015) of green agendas would be a relevant aspect, as the value chain in textiles and fashion is not circumscribable to the reference company and/or production district alone, but involves a range of actors who, although external, aim to create impact through regulations. Having spaces for experimentation could, therefore, stimulate paths of transformation in highly complex sectors, spaces in which the very boundaries - external actors and internal actors, public entities and private entities - of the textile and fashion value chain are redefined.

## CONCLUSION

Thus, the role of design becomes crucial for a more rational use of resources in the development of new products (Thorpe, 2007; Fletcher & Grose, 2012; Fletcher, 2014), which should be designed in a way that reduces waste, scrap, pollutants, and pollution, reaching the zero-waste goal. The treatment of this issue poses two different studies from the outset as the complexities between waste and waste generation in pre-consumption and post-consumption are different.

Here, the implementation and enforcement of recent regulations will produce a significant change in the management, organizational, production and distribution models of companies, districts and the fashion system understood as a global infrastructure. At the same time, designers, in developing more resource- and waste-conscious design approaches, are no longer dedicated solely to the development of sustainable products, but are extending their reach, succeeding in triggering alternative forms of collaboration across the entire value chain, while respecting its renewed boundaries. In this sense, efforts today would be to turn to building best practices for incorporating regulations into companies, dwelling on the skills needed for the implementation process to be feasible and facilitated.

Designers, then, could leverage sustainable regulation to dress the role of “mediators of transformation” in the fashion industry, thanks to the traditional transversality that characterizes their approaches and knowledge, which makes them able to reconstruct a whole picture of the complexity inherent in both the global challenges and the fashion value chain.

Here, strong collaboration and integration across the entire value chain, involving public and private sector actors, is needed to enact a significant transformation aimed at redesigning the way the apparel system is designed, produced, sold, used, collected, and reused. It needs to be redesigned to last longer and be reintroduced into the production process after its use, never ending up in the scrap heap.

Neo-sustainability defined by Farley and Smith as “the ability of a business to sustain a system by improving its quality and operation within its limits” (Farley & Smith, 2020) cannot be achieved without implementing major changes in the structure of the Fashion System and involves full responsibility for the life cycle of the business product. Sustainability is not only “ecology,” but also human rights, social dignity, and reasonable economies. A sustainable lifestyle is not only based on wealth, but aims to achieve smart, resource and environmentally friendly consumption patterns (Vogt, 2019).

Thus, sustainability represents a responsibility where the textile sector’s challenge is to create a more competitive, resilient and innovative sector that can withstand global crises.

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