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**THE CIRCULAR ECONOMY IN THE FASHION INDUSTRY AND
THE EFFECTS OF THE COVID-19 PANDEMIC.**

Focus on the Italian market: the Dyloan case study.

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Abstract

The objective of my thesis is to describe and analyze the possible outcomes that the Circular Economy will generate in the fashion industry. The themes of Circular Economy, sustainability, and transparency are gaining a positive momentum within the fashion players, the market demand, and the major stakeholders of the complex and interconnected fashion industry. Despite the strong power of such themes, their impacts on the fashion sector will be affected by the recent outbreak of the Covid-19 virus and its effects (both the current and visible ones and the future unforeseeable ones) on the main aspects of human life and economic models such as consumers behaviors, market regulation, and policies.

The main research question that this paper is seeking to answer and analyze is: can Covid-19 and the issues that it implies, lead the fashion industry towards a shift to a more sustainable modus operandi based on Circular Economy's principles? To answer this research question, we need to discuss the following points. We need to define the challenges that the fashion players are facing due to both the Circular Economy increasing relevance and the Covid-19 pandemic. Defining the new challenges that characterize the sector is functional to identify the main solutions implemented by fashion firms to, at the same time, achieve the Circular Economy and sustainability-related goals and solve the Covid-19 issues. The paper will make a distinction between two main categories of firms. The firms that follow the reactive approach and the ones that follow the proactive approach. A consequent distinction is then made between the incumbents' and the start-ups' ways of implementing solutions to the current challenges. The analysis of the solutions implemented by both incumbents and innovative start-ups focuses on the changes and shifts required both in business models and supply chain relationships. In a likely future economic scenario, after the global pandemic and within an environment where sustainability and circular economy have central importance, which type of firm is more likely to lead the market through the achievement of sustainability improvements and Circular Economy objectives?

The first chapter focuses on the Circular Economy, the definition of the concept, and the evolutionary path that the notion followed across the years. The chapter will analyze the

development of the idea with its four phases that are the preamble period, the excitement period, the validity challenge period, and the future possible scenario. Then it will explore the nexus between Circular Economy and sustainability. The chapter will then provide the actual definition of the Circular Economy and its three principles that are designing out waste and pollution, keep products and materials in use, and regenerate natural systems. Finally, the chapter will present the “*ReSOLVE approach*” (an acronym for regenerate, share, optimize, loop, virtualize, and exchange) that managers can follow in order to enhance Circular Economy inside the company and within its network, with reference both to the business model and the supply chain. The chapter will end with an analysis of the issues, aspirations, challenges, and opportunities of the Circular Economy applied to the fashion industry. We will see that the four main aspirations of the fashion industry concerning the implementation of Circular Economy practices are phase-out dangerous and hazardous substances, transforming design activity, increase the degree of recycling, and making effective use of resources.

The second chapter will instead analyze in-depth the fashion industry and its most relevant market trends. It will start with a general overview of the industry trends, without taking into consideration the consequences of the outbreak of the global pandemic. The trends are divided into three main categories: the global economy (on high alert and beyond China), the consumers’ shifts (next-generation social, in the neighborhood, and sustainability first), and the fashion system (materials revolution, digital recalibration, inclusive culture, cross-border challenges, and unconventional conventions). After this first part, the chapter will explore the effects of the Covid-19 pandemic, highlighting the relationship between the fashion industry’s trends and the changes that derive from the Covid-19 pandemic and its influence on humans values and behaviors. It will then deal with the impact of Covid-19 on the fashion industry, following the same framework used for the first part of the chapter: the global economy (definition of a “*new normal*”), the consumers’ shifts (discount mindset and digital escalation), and the fashion system (Darwinian shakeout and innovation imperative). After this double analysis, the chapter will examine the barriers to the emergence of Circular Fashion (such as old business models, long supply chains, the downward price pressure, and the fast-fashion

movement) but also both the challenges and opportunities that the Covid-19 crisis can offer to the industry.

The third chapter will instead talk about the solutions applied to overcome the interconnected challenges of the Covid-19 pandemic and the application of the Circular Economy's principles to the sector practices and processes. After identifying four main areas that require fashion players' attention (that are: on-demand manufacturing, local vs. global aim, end of fashion seasons, and consumer-first strategies) the third chapter deals with the renovated push towards a more transparent fashion industry (we will see that transparency and traceability are themes that are gaining more and more importance). Moreover, it explores the differences between incumbents' and start-ups' ways of approaching sustainability and circularity. The end of the chapter will focus instead on the Italian market, and the solutions implemented within it by both incumbents and innovative start-ups.

Even if what emerges from our analysis is that start-ups, compared to incumbents, are more likely to effectively find solutions to the actual issues and risks of the fashion industry, the fourth and last chapter will take into account the Italian case study of Dyloan, that is an incumbent of the Italian market. Even if Dyloan is an incumbent fashion manufacturer, it is an innovative and creative company that is now growing and has the potential to capture a large share of the market. This is possible thanks to its sustainability and circularity-related practices, and the highly proactive approach followed in the first months of the global pandemic. The value that this fashion firm delivers to its customers is deeply linked with its ability to integrate traditions, innovations, and technologies for the production of high-quality fashion products, accessories, and goods. We will understand how an incumbent firm can implement solutions that are far from the typical incumbents' reactive approach and that have many points of touch with the proactive approach of innovative and agile start-ups. We will also try to figure out the possible correlations between the growth of the group in the past few months, the sustainability and circularity initiatives, and the Covid-19 pandemic reaction.

1. The Circular Economy

1.1 Development of the idea

In the XXI century – and especially in the last few years – the themes of sustainability and Circular Economy are gaining more and more importance and increasing momentum not only concerning corporate strategies but also political thinking and market regulation. Circular Economy is no more a concept confined to production practices but is now extending its influence and concerns to the societal level implying a customer radical shift in values and behaviors. An increasing share of the world's population is now interested in the topic and is seeking to create and achieve a more sustainable economic landscape to ensure a better future for the next generations.

The objective of this chapter is to introduce the concept of Circular Economy (CE) since a deep understanding of its principles and the creation of a sustainable business model are becoming increasingly necessary to compete and survive in an ever-growing number of markets and industries. Showing the pattern of development of Circular Economy in the economic literature, from the first time it appeared to nowadays, is something challenging. Some of the ideas behind the Circular Economy have always influenced economic thinking and human activities while drawing inspiration from biological processes. However, thanks to the work of Merli, Preziosi, and Acampora who implemented a systematic literature review of CE (Merli, Preziosi, Acampora, 2018), the studies of Blomsma and Brennan (Blomsma, Brennan, 2017), and the work of Kirchherr, Reike, and Hekkert that tried to conceptualize CE (Kirchherr, Reike, Hekkert, 2017), it is possible to identify disciplines, events, and thinkers that have lead particular influence in theme.

At its first moves, CE was an evolving concept that needed a more formal definition of its boundaries, principles, and associated practices. In particular, before 2006, CE was not even a defined field of research and its principles were strongly linked with a variety of disciplines such as Industrial Ecology, Environmental Science, Green Economy, and Bio-Economy. The characteristic that these disciplines share, the aim of minimizing and recycling waste to reduce

natural resource consumption and improve the management of scarce resources, gave birth to the concept of Circular Economy. Industrial Ecology, based on closed-loop cycles, is probably the discipline that has most influenced the definition of CE principles. The link with Bio-Economy, and consequently with bioenergy production, is strong too; these disciplines can be considered as the biological engine of CE since they focus their attention on the renewability of energy and materials within closed-loop cycles. Deep and strong linkages are found also between CE and waste and resource management.

To be more precise the path of development of the Circular Economy's concept can be divided into four different phases.

- The Preamble period, from 1960 to 1985, was characterized by a debate around waste management, with a particular focus on the polluting effect of waste. Thereby, waste handling managerial practices like waste-to-energy, recycling, cleaner incineration, and composting gained special emphasis (Blomsma, Brennan, 2017). During this period, publications such as *"The Tragedy of the Commons"* (Hardin, 1968) increased the awareness that fighting environmental pollution and optimal resource processing are both fundamental for the well-being of the society and the environment. The responsible management of natural resources started to be a necessary feature for sustainable business models. The aforementioned disciplines (such as Industrial Ecology, Environmental Science, Green Economy, and Bio-Economy) gained importance during this first phase generating new ideas, attitudes, and insights and highlighting the importance of using nature and natural cycles as a model for human society and industrial systems.
- The Excitement period, from 1986 to 2013, was characterized by a shift in the meaning of waste. Waste started to be seen as a positive force since it can be a resource and a source of value. During this period, a new emphasis was attached to the importance of extending the life of resources and products. Concepts like product longevity, optimal product lifespan, repair, reuse, refurbishment, and remanufacturing gained a renewed interest. Sustainable Development started to spread since it was considered as an opportunity for managing risk, reducing costs, and delivering innovation and the consequent economic growth. During the Excitement period, a knowledge gap emerged on how to implement waste and resource

management theories in the practical field. Seeking to conceptualize resource life-extending strategies and codify the related practices, numerous waste and resource management frameworks appeared; cycles and circular closed loops were common metaphors used in this context. The concept of CE appeared for the first time in the literature. It happened in 1990 in a study of Pierce and Turner investigating the connections between the natural environment and the human economic activities. A *“closed-loop material flow”* was identified as a characteristic of our economic system. In this system *“everything is input to everything else”* (Merli, Preziosi, Acampora, 2018). After some years also Boulding in *“The economics of the coming spaceship earth”* (Boulding, 1996) focused its attention on the same idea. The world was seen as a *“close system”* in which natural resources available for human activities are limited, and there is the need to preserve them. Other fundamental principles from which the CE took its moves are the principles of the *“performance economy”* (Stahel, 2008), and the *“Cradle-to-Cradle”* (Braungart, McDonough, 2007). The Performance Economy aims at the development of products of better quality, durable, and with a longer life cycle to prevent the excess of consumerism. The Cradle-to-Cradle principle instead, tries to adapt industrial processes to nature; industry must enrich the ecosystem and must ensure that all the materials used during production follow their own regenerative cycle.

- After these first two periods in which CE did not have its own identity, it started to gain a specific meaning and acknowledged importance during the validity challenge period, from 2014 to nowadays. Increasing attention was therefore placed on policy development that can facilitate the transition to a Circular Economy model. In particular, in 2014 with the decision of the European Union to define a Circular Economy-related plan of action, and with the increasing interest in the field exercised by society, CE has become a new socio-economic paradigm, with a specific scope and identity. The European Union issued, respectively in 2014 and 2015, the Communications *“Towards a circular economy: A zero waste program for Europe”* and *“An EU action plan for the circular economy”* recognizing the importance of the Circular Economy theme in the actual world situation. CE here is defined as an economy where *“the value of products, materials, and resources is maintained in the*

economy for as long as possible, and the generation of waste is minimized” in accordance to the efforts to develop a *“sustainable, low carbon, resource-efficient and competitive economy”* (European Commission, 2014; European Commission, 2015). The European Community now is aiming to meet the *“2030 Sustainable Development Goals”* of the United Nations (United Nations, Sustainable Development Goals Platform, 2015) with the enactment of the *“Circular Economy Package”*, considered the next economic policy in Europe. At the same time, many different countries started to implement policies that adopt the Circular Economy as a guiding principle. For example, China gave central importance to CE by issuing the *“Circular Economy Promotion Law”* where CE is considered as *“a general term for the activity of reducing, reusing and recycling in production, circulation, and consumption”* (Chinese National People's Congress, 2008).

- The last period is the future scenario, where it is expected to happen a conceptual theoretical development and a more effective implementation of its principles. A deeper understanding of CE’s relationship with resource life-extending strategies is required to generate synergies between them. The transformational change of our economy will depend on a socio-institutional change that will allow the implementation of such theories.

1.2 Nexus with sustainability

As just demonstrated by the historical development of the concept, CE finds its roots in many and different scientific disciplines, this is why it is always associated with a variety of concepts took from them. The role of CE has been seen as an *“umbrella concept”* that seeks to reduce the knowledge gap by grouping and operationalizing pre-existing notions (Blomsma, Brennan, 2017). Hirsch and Levin define an umbrella concept as *“a broad concept or idea used loosely to encompass and account for a set of diverse phenomena”* (Hirsch, Levin, 1999). This definition shows how CE, by focusing the attention on the common qualities of the concepts it encompasses, creates a new relationship between different and previously unrelated concepts,. CE can exert a catalytic function in waste and resource management fields and, moreover, can offer a new framing of the various resource strategies grouped under its banner. Even if these strategies are not new, CE focalizes on shared traits offering a new perspective and a new

cognitive unit, thus separating these traits from the “*background and identifying the core of the phenomenon*” (Blomsma, Brennan, 2017). This allows the systematic accumulation of knowledge about Circular Economy. In contrast with other umbrella concepts developed in the same period, such as the Green Economy, CE articulates in a more defined and clear way the opportunity of creating value by extending the productive life of resources.

The boundaries between CE and the theories from which it takes its moves are not well defined, they all share the scope of coordinating environmental, economic, and social issues with an approach based on sustainability. Since sustainability seems to be the common trait that CE shares with all the other mentioned disciplines, it is necessary to define this concept to avoid misinterpretation. In the economic literature, sustainability is often associated with the latest trends of green initiatives and prudent decision making that are emerging in corporate practices, but its strongest applications in the economic field are Corporate Social Responsibility (CSR) and sustainable development (Arrigo, 2018). Sustainable development is defined as “*the ability to meet the current needs of the present society without compromising the ability of the future one to meet its own needs*” (Bruntland, 1987). To achieve sustainable development managers of companies should put their efforts into three main areas that together constitute the “*Triple Bottom Line*” of CSR (Elkington, 1997). The first area is economic sustainability that is the ability to generate profit over time to survive and create a healthy economy. This is essential to ensure a long-term horizon to the company; without economic sustainability, the business does not have the possibility of surviving and developing profitable activities that can have positive externalities in a social and environmental perspective. The second area is social sustainability. It aims to ensure healthy and safe working conditions inside the company and to develop better living conditions for people outside the company. The environmental dimension of sustainability instead, which is the last area of the Triple Bottom Line, takes into consideration the well-being of the world and its natural resources. The objective is to minimize the impact of business-related activities on the natural environment trying to avoid waste, pollution of air, soil, and water, and trying to use renewable resources that limit the impact of human economic activities on our planet.

CE and sustainable development are linked together, but their relationship and their reciprocal boundaries are not clearly defined. In particular, there are two opposite ways of interpreting the nexus between them. Some scholars consider CE and its circular approach as a solution to sustainability failures and limitations that are given by the fact that sustainability is mostly based on linear-thinking strategies. (Sauvé et al., 2016). The other way of interpreting the relationship between CE and sustainable development is considering CE as a tool to operationalize and make tangible the principles of sustainability (Kopnina, Blewitt, 2014). However, the main difference between CE and sustainable development is their range of influence. Whereas sustainability comprises three separate levels (economic, environmental, and social), CE aims to minimize environmental issues caused by the actual way of production and consumption. It is just while trying to reach its environmental goal that CE generates positive externalities also on the economic and social levels. In fact, CE displays a way of meeting the goal of environmental sustainability, by integrating an economic evaluation in a long-run perspective, allowing to eventually reach both economic and social sustainability. The holistic view of sustainable development and its three areas of intervention are not part of the Circular Economy view like it is demonstrated by the study of Kirchherr, Reike, and Hekkert. Only 13% of the 114 CE definitions analyzed refer to all three dimensions of sustainability. According to the same study, the most recognized aims of CE are economic sustainability (that is cited by 46% of definitions) and environmental sustainability (cited by 37%–38% of definitions). Caution is needed because this can result in the implementation of a Circular Economy-related models that are partially or even not sustainable in the long run.

Concerning sustainable development and its feasibility, in the long run, economists and environmental scientists are posing a fundamental question: has the development of the men kind already been excessive? For some scholars we already (or we will soon) reached a development that exhausted the carrying capacity of our environment. From this perspective, sustainable development can result as a no-sense concept: the continuous growth, to which the development is associated, cannot be sustainable by definition. This is because the only way the development can be sustainable is when the carrying capacity of the environment is at an equilibrium level. At this equilibrium status, the growth is equal to zero or it is achieved thanks

to improvements of the environment carrying capacity or of the technological progress (Sauvé, et al., 2016).

Sustainable development is linked to linear-thinking strategies. When the capacity of our planet to let human society meet its needs will be exceeded, sustainable development demands a contraction in the consumption of goods and environmental resources. This is the failure of sustainable development that has small or nil benefits for the environment. Most of the time sustainable development has a negative connotation and is related to greenwashing practices of companies and loosely helpful government actions. The failure of sustainable development is the reason why it is better to do not use this term as a unifying concept that encloses all the aspects of the different environmental sciences and this is where the concept of Circular Economy emerges. Sustainable development, from now over, will be a framework in which the concept of the CE is embedded, where the welfare of humans generations (the current and the future ones) is the ultimate goal. The growth efforts of our society must now deal with the unavoidable environment and resource constraints and should follow the guidelines given by the Circular Economy. CE's objective is to remove the linkages between prosperity and resource consumption, by promoting productivity without increasing the negative externalities of the production and the consumption processes. Circular Economy shows how to use goods and services without depending on the overconsumption and extraction of virgin materials. Thanks to the closed-loop systems, it will prevent the disposal of used goods and products in landfills. The solution that CE proposes is based on the reuse and recycling of materials and energy to avoid the use of virgin raw resources. In this way, the ability of future generations to meet their needs is increased and sustainability is more likely to be successful. Both Circular Economy and sustainable development seek to internalize the environmental damages and consider them as costs. The difference is that whereas sustainable development (based on the linear production model) just does it partially, Circular Economy has a more comprehensive approach. Not only negative externalities such as pollution, environmental and health damages are internalized as a cost, but also the use of new materials, resources, and energy and the reduction of our environment carrying capacity.

1.3 Defining Circular Economy

As stated in the first part of the chapter the concept of CE is a relatively young one and has undefined boundaries. This is why several different definitions of CE exist and there is no definition that is commonly accepted by all disciplines and schools of thought. Since there is a lack of agreement on CE definition, confusion may emerge while operationalizing it, generating less effective opportunities for international cooperation. However, at the same time, a narrower definition is not suitable for this concept that has the goal of setting a new socio-economic paradigm for society. CE starts from the assumption that economic growth and development lead to overconsumption of natural resources, to general environmental degradation, and to a reduction in the capacity of the biosphere to reproduce itself. CE makes evident that a shift from the traditional linear model of production and consumption, based on the “take-make-dispose” paradigm, is required. In our actual global economy, resources are taken from the environment to make products that are used and discarded as soon as they are no longer needed or wanted by the owner. The actual linear model of our economy has many limitations and is not suitable for the attainment of the sustainable development goals that are now acquiring importance among the objectives of policy-makers on a global scale.

An important role in the spreading of CE principles and on their definition is played by nongovernmental organizations, such as Ellen MacArthur Foundation. This organization was established in 2010 with the ambition of encouraging the transition to a Circular Economy model. It has central importance not only for its proactive role in the definition and spread of CE principles but also for its focus on the fashion industry. That is why, despite a large number of definitions of CE, the one that this paper takes as a framework is the Ellen MacArthur definition. Circular Economy is defined as *“an industrial system that is restorative or regenerative by intention and design. It replaces the “end-of-life” concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models.”* (Ellen MacArthur Foundation, 2015). Simplifying at the maximum level this definition, the Circular Economy can be seen as an approach that seeks to balance

economic development with both environmental protection and a non-excessive use of resources and raw materials. This is possible since the main idea behind CE is that it *“is restorative and regenerative by design, and aims to keep products, components, and materials at their highest utility and value at all times”* (Ellen McArthur Foundation 2015). The extension of the use of what is taken from nature is a key aspect that needs to be taken into account if the aim is to reduce future access to raw materials and the production of waste. Extending the useful life of products can significantly reduce environmental impact in all the phases of a supply chain. The transition to a Circular Economy model is something that requires a huge and coordinated effort of all the players in the supply chains. It involves all the stages of a product life cycle from the ones inside the firm such as design activities, production processes, and marketing, to the stages of consumption as far as the stages of waste management, recycling, and reuse (Jones, Comfor, 2019). The transition to a Circular Economy may be an opportunity to redefine how production and consumption are organized in the global economy and can help to reinterpret the business models, the relationships inside the supply chain and between firms, markets, customers, and natural resources (Diddi, Yan, 2019). The main focus is on the effective design and utilization of resources to ensure an optimal flow of materials and the maintenance or the increase in the natural resource stock. CE provides firms with the opportunity to innovate not only the product design but also the services offered, and the business models (Todeschini et al., 2017). Simplistically, CE is about rethinking everything we were used to doing, including business models themselves, with the objective of reducing consumption. CE and sustainability issues can exert their influence on businesses in different ways, like changes in customer requirements and values, public behavior and attitudes, and even investor’s interest (Patwa, Seetharaman, 2019). Consumers will play a central role in the transition to a CE. Focusing on providing consumers with more transparent information on the environmental impacts not only of companies but also of their buying behavior is crucial (Jones, Comfor, 2019); the transparency of the communications about the supply chain’s actions and practices needs to increase.

Circular Economy offers an alternative to the linear model, defining a closed-loop system that aims to overcome the take-make-dispose pattern of production and consumption. A circular closed-loop system, in which the value of materials, resources, and products is maintained in

the system as long and as high as possible, is becoming necessary. The world resources are limited in their total amount and we cannot afford to waste and pollute in the same way we were used to doing till nowadays. We need to limit the pollution and waste that are generated during all the phases of a product's life, such as production, use, and after-use phases (Onur, 2020). In fact, *"today's linear 'take, make, dispose' economic model relies on large quantities of cheap, easily accessible materials and energy, and is a model that is reaching its physical limits"* (Ellen MacArthur, 2017 b). With CE materials are supposed to get recovered for reuse, repair, refurbishment, and remanufacturing; landfill disposal should be limited as much as possible. This is how the highest value and quality are maintained during the product value chain and life cycle; the process remains energy efficient and environmental gains are achieved (Patwa, Seetharaman, 2019). In other words, a CE business model can be viewed as a business model in which the economic value that is retained in products after their first usage is exploited in the production of new objects, commodities, energy, and so on. This is the logic that is behind the value creation process in a circular economy. In a circular business model, there are always practices such as remanufacturing, repairing, reusing, and recycling. This perspective is different from the one of the classical model of linear economy in which a product can build up value throughout the steps of design, production, retail, branding, and marketing and achieves its highest value when it is bought by the end consumer. Instead, when we see this process through the Circular Economy perspective, when the product reaches the end consumer this does not mean that its value has reached its endpoint and its lifecycle is over. In a CE model, when the consumer has exhausted the utility that the product provides him with since the product retains value in the end-of-life phases, the value of the product is simply at its lowest. This value can start to increase again as soon as the end consumer decides not to throw the product away and let it end up in a landfill but to let the product be recycled and reused in a circular way (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018). In this way, economic development and protection of the environment and resources are balanced together. Reuse and recycling are what is needed to avoid waste of products and resources, thus limiting the negative externalities of production and consumption on the external environment. Decoupling economic growth from natural resource extraction and use

might have a positive impact on our planet and put an end to environmental degradation. As a consequence, CE is the basis for generating long-lasting benefits and for guaranteeing an economic system characterized by growth, increasing incomes, and new possibilities for workers (Gazzola, et al., 2020).

1.4 Circular Economy's principles

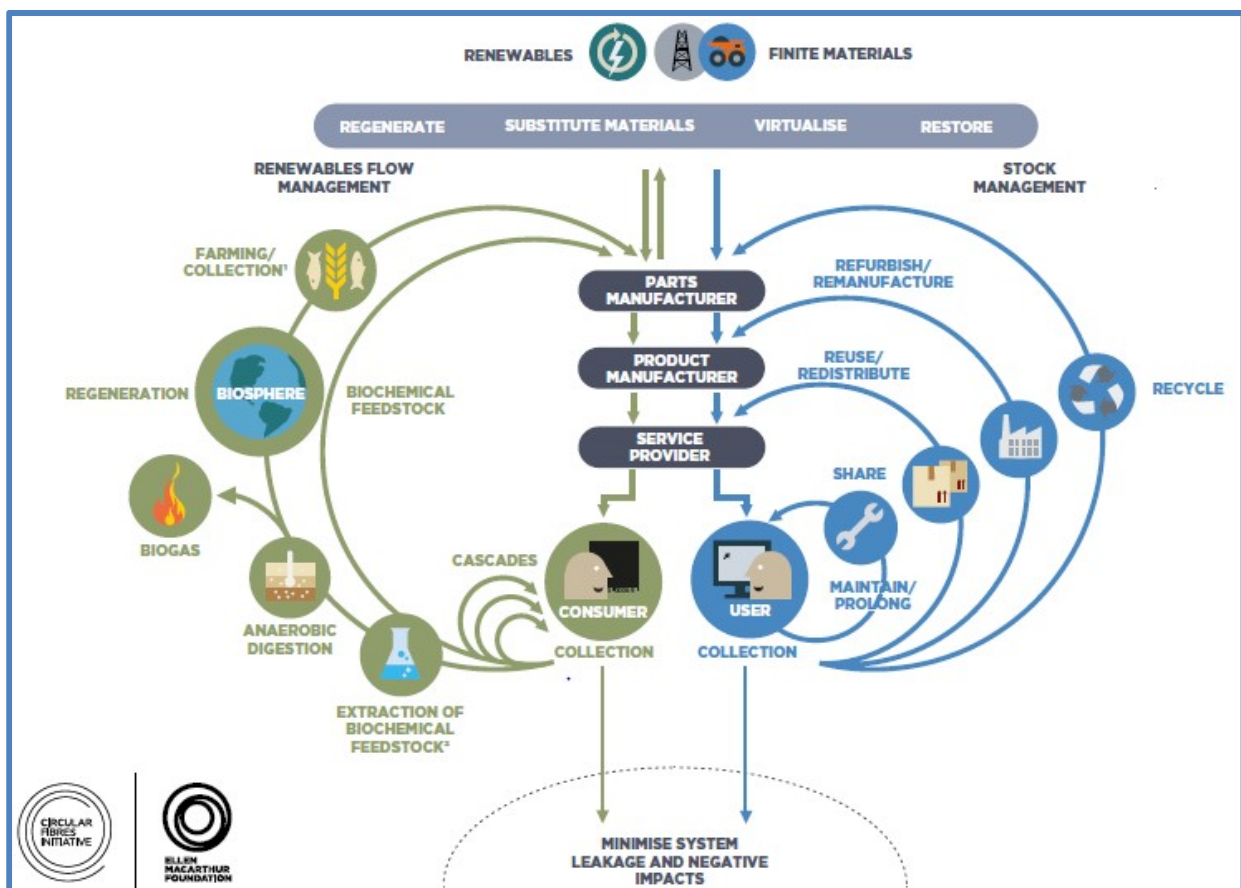
Summarizing what is stated so far, we can conclude that what urges is to disrupt the actual linear system of the global economy. The aim is to create a thriving economy that can benefit everyone within the limits of our *"finite environment"* transforming the way the resources are managed, the products are designed, and the materials are reused after being discharged. To disrupt the linear system, CE works basically on three different principles that are: *"design out waste and pollution, keep products and material in use, and regenerate natural systems"* (Ellen MacArthur, 2017 a).

- Designing out waste and pollution. The way we design things is one of the main causes of excessive waste and pollution of the environment. Decisions taken during the design phase are responsible for more than 80% of environmental impacts. Changing the mindset of product designers to consider waste as a design flaw and to use new materials and technologies, can limit the harming of the environment and can ensure that pollution and waste are designed out products from the early stages of their life cycle.
- Keep products and materials in use thanks to the up-cycling. The main idea behind this principle is creating an economy that uses and reuses materials instead of using them up. The carrying capacity of our environment is limited, as well as the resources that it offers. What is needed is a shift in the way materials are used: products and materials must be circularly kept in the economy. The components of products must be designed in a way they can be reused, repaired, or remanufacture to avoid that materials end up in landfills or incinerators.
- Regenerate natural systems. In the natural environment, there is no concept of waste, everything is maintained in a closed-loop. When something ends its life it transfers its value

and utility to something else. The same can be done in our economy, we should return “valuable nutrients” to the ecosystem to enhance its natural resources.

It is also important to remember that the Circular Economy model makes a distinction between technical and biological cycles. Consumption happens only in the biological ones, where biologically-based elements should be used and designed in a way that allows them to go back into the system thanks to processes that “close the loop” such as recycling and composting. These cycles help to regenerate living systems to provide renewed resources for the system. Technical cycles instead, restore products, their components, and other materials reusing, repairing, remanufacturing, or recycling them.

Exhibit 2: Ambitions for a new textiles economy.



Source: Ellen MacArthur Foundation, 2017 (a). Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

To ensure an optimal result of CE principles when applied to real economic activities and processes, the Ellen MacArthur Foundation provides a list of actions that businesses can follow. This is called the “*ReSOLVE approach*”, and is an acronym for (Ellen MacArthur, 2017 b):

- REGENERATE: Regenerate and restore natural capital by preserving and restoring the health of ecosystems and by returning biological nutrients to the environment and the biosphere cycles after separating them from technical ones.
- SHARE: aims at prolonging product utilization by sharing the use of assets thanks to sharing models or exchange platforms and by reusing assets until they are valuable thanks to reselling channels.
- OPTIMIZE: logistic system and its performance in a way that the time products are used is maximum. This is possible thanks to maintenance, better quality, and design for durability. It is also important to decrease resource usage through efficiency and designing out waste.
- LOOP: products and materials are kept in use thanks to the construction of cycles, the remanufacturing and refurbishment of products and components, and the recycling activities of materials.
- VIRTUALIZE: it means dematerializing the product and delivering its utility virtually. This is possible when products are replaced with services and physical stores are replaced with virtual shops in a way that allows to provide services remotely.
- EXCHANGE: what generally is used as a resource or technologies by choosing renewable sources for materials and energy, using alternative materials as inputs, replacing old technologies with innovation-centric ones that are focused on the delivery of services.

It is important to remember that we are in an era where many new technologies are available and the rate of technological innovation is always increasing. In this scenario, digital technology has the power to encourage and help the transition to a CE by increasing virtualization, dematerialization, transparency in the supply chain, and feedback-driven intelligence. Many examples are suitable while we think about technologies that are useful to fulfill the needs of the new Circular Economy, its principles, and its ReSOLVE approach. Just think about the availability of new materials, cloud computing and storage, 3D printing, and so on.

1.5 CE in the Fashion Industry

As stated at the beginning of the chapter, CE is becoming a pervasive phenomenon that exerts its influence on an increasing number of industries from the oil, gas, and energy production ones, to the automotive. However, from the perspective of this paper, what is interesting is both the applications and the consequences that a CE model generates in the fashion industry. The fashion industry, which works in an almost completely linear way, is the second most polluting industry in the global economy, this is why action is needed and urgent at the same time. The fashion industry is a globalized reality, with the activities of the production process performed in different parts of the world creating a worldwide network of suppliers, investments, revenues, distribution channels, and employment (Jones, Comfort, 2019). The sector's value is of about 1.3 trillion dollars, it employs more than 300 million people worldwide along the value chain and has a significant influence on global GDP (Gazzola, et al., 2020). In the last two decades, in accordance with the fashion statistics of McKinsey, the production of clothing has almost doubled, driven by low prices, a growing middle-class population, increased per capita sales in mature economies, and a Fast Fashion-related increase in the number of collections offered annually to consumers. Fast Fashion has allowed costumers to pay lower and lower prices for garments, thanks to increasingly lower costs of production. What is missing in this equation is the quality of materials used and of final products, an equitable and sustainable production process, and a lower environmental impact. The pressure from media, consumers, and especially from non-governmental organizations (NGOs), such as the Ellen MacArthur Foundation, is driving a shift in the fashion industry in accordance with Circular Economy guidelines. (Jacometti, 2019). This is happening since the sector has been the subject of heavy criticism for its negative externalities on the environment and human health (Gazzola, et al., 2020). It is challenging to quantify the economic value of such negative externalities, although the *"Pulse of the fashion industry report"* (Global Fashion Agenda, 2019) estimated that, if the industry begins to address the negative impacts of the current way of doing business, the total benefit to the world environment and economy could be in the range of about 192 billion dollars in 2030. The main problems and issues that are found in the actual fashion industry are (Ellen MacArthur Foundation, 2017 a):

- Garments are massively underutilized; the average number of times clothes are used before being thrown away has decreased by 36% in the last two decades. Globally, the loss of value that this implies is of about 460 billion dollars per year.
- Less than 1% of all the material used to produce garments is reused to produce new clothes and only 13% of the overall material input is recycled after consumers' use of clothes, cascading in lower-value applications in other industries. A huge loss of material is registered every year, and it is estimated to be around 100 billion dollars per year. Moreover, the disposal implies other additional costs like the ones for landfilling or incineration.
- The fashion industry is reliant mainly on non-renewable resources which amount to 98 million tons per year. Among these resources, there are oil and a wide range of chemicals. These are substances that have negative effects not only directly on the workers, such as farmers or factory employees, but also on the surrounding environment.
- The amount of water used by the industry is high too if we consider that it corresponds to 93 billion cubic meters annually. Moreover high volumes of water containing hazardous chemicals are discharged into the environment, constituting 20% of total industrial water pollution.
- Greenhouse gas (GHG) emissions from the fashion industry due to textile production and other activities is equal to 1.2 billion tons of CO₂ that, to compare this number with some numbers of other sectors of the global economy, is higher than the emissions of all international flights and maritime shipping combined.
- The fashion industry is also one of the major contributors to the issue of plastic polluting oceans; around 0.5 million tons of plastic microfibers are released by plastic-based textiles (like polyester, acrylic, and nylon) due to the washing of garments done by consumers.

According to the *"Pulse of the Fashion Industry"* (Global Fashion Agenda, 2019), the industry growth is expected to continue pointing to the potential for catastrophic outcomes. Total clothing sales are expected to reach the amount of 160 million tons in 2050 – more than three times higher than today's total amount of sales, resulting in an increase in the aforementioned negative impacts. The profitability of the industry, according to the same study, is also at risk. By

2030, there would be a reduction of 52 billion dollars in the profits of the industry, since the negative impacts of the sector are becoming more evident and understood by costumers, leading to reputational issues for brands. Moreover also regulatory trends, thanks to the awareness of the environmental negative impact of the industry that NGOs are spreading, are starting to follow the principles of CE. The industry is being challenged to find solutions to its issues, to become more transparent, and to operate in a more sustainable way (Ellen MacArthur Foundation, 2017 a).

In *“A New Textiles Economy: Redesigning Fashion’s Future”* (Ellen MacArthur Foundation, 2017 a) a new textiles economy based on the guidelines of CE is introduced; it is restorative and regenerative by design and offers benefits for all the elements it involves such as businesses, society, and environment. A new textile economy is rooted in four aspirations that are the transposition of the three principles of the circular economy within the fashion world. In fact, to the first principle of CE, designing out waste and pollution, corresponds the aspiration of *“phasing out substances of concern and microfiber release”*. To the second principle, keep products and materials in use, correspond the second and third aspirations, respectively *“transform the way clothes are designed, sold, and used to break free from their increasingly disposable nature”*, and *“radically improve recycling by transforming clothing design, collection, and reprocessing”*. Lastly, to the principle of regenerate natural systems, correspond the fourth aspiration of *“make effective use of resources and move to renewable inputs”*.

- Phase-out substances of concern and microfiber release: to ensure that a safe material input will avoid negative impacts on the environment and humans’ health during the production, use, and after-use phases of a product. Pollutants and substances of concern are designed out from the beginning. Two are the actions that could kick start this process. The first one is aligning the efforts of the sector regarding innovation, to create safe material cycles, to improve transparency along the supply chain, and to promote common standards to phase out pollutants and substances of concern. The second one is to reduce plastic microfiber shed by garments, also thanks to the use of new materials and production processes.
- Transform the way garments are designed, sold, and used to increase the average number of times they are worn. Clothes are not disposable goods but, to let customers perceive

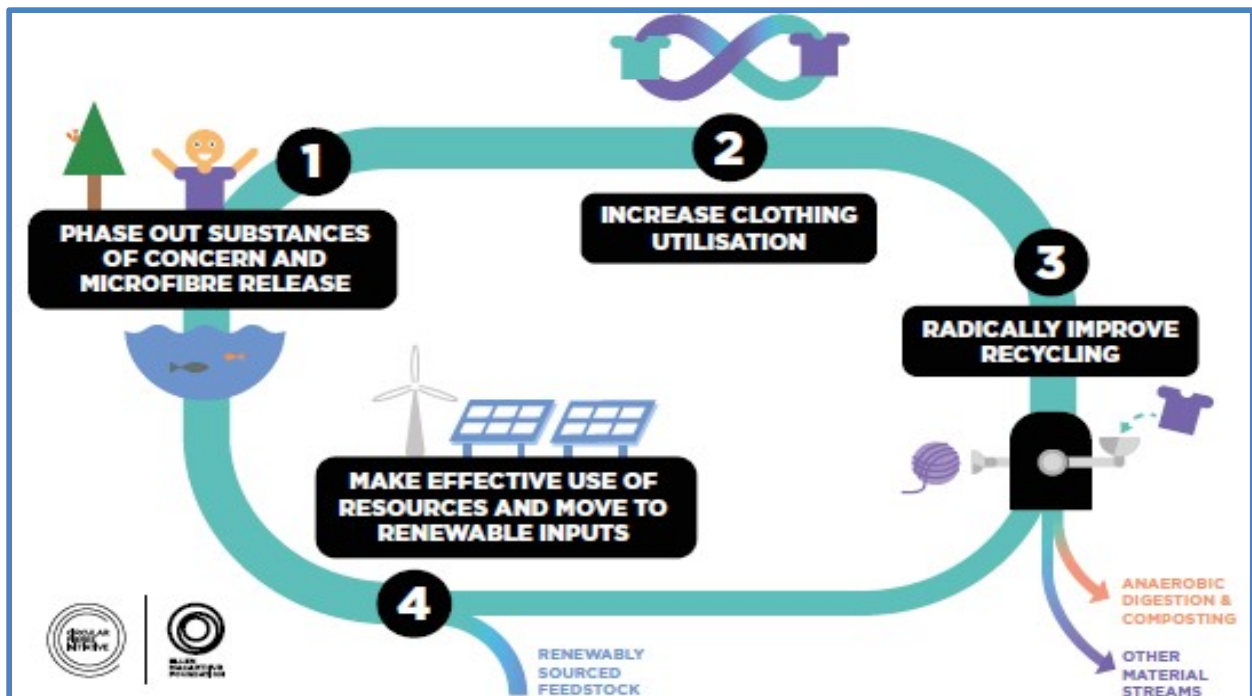
them as durable products of higher quality, there is the need for new business models and better design and production processes. Due to the complex array of customers' desires and needs that garments fulfill, a variety of business models and services is needed in a new fashion Circular Economy. This ambition can be achieved with three main actions. The first one is developing short-term clothing rental models. When a customer is no more interested in a garment, or when a customer desires to change outfits frequently, subscription-based models can be a good opportunity. The rental of garments can increase the utilization of clothes and can capture the value of durability, but the optimization of logistics and marketing is necessary to stimulate the growth of such services. The second action that can be done is making quality and durability more attractive to customers. Many times what prevents customers to buy high-quality, durable clothes is a lack of information, transparency needs to be improved. To increase customer satisfaction a good opportunity is offered by innovations in technologies that allow better fit and customization. The third and last action that can be done is increasing garments utilization thanks to brand commitments and regulation policies.

- Increase the degree of recycling by modifying garments design, collection, and reprocessing. The objective is to capture the value of the materials and garments that are thrown away, as well as to reduce the negative externalities of their disposal. To realize this third ambition there are four areas in which a combination of demand and supply-side measures is required. The first area is the alignment of garments design and recycling processes. The design and production processes need to consider what happens when clothes are no longer used. The actions suggested are the development of an efficient recycling system, the establishment of new functional and recyclable materials, and the development of new tracking technologies for the materials in the recycling loop. The second area is the technological innovation field; the goal is to improve the efficiency and the quality of recycling processes. A collaborative approach to technology in the industry, in which shared efforts and investments are made to improve recycling technologies, is what is desirable. The third area is the use of recycled materials; there is a need for a commitment to use recycled inputs for production and to increase the degree of transparency in the supply

chain. The last area that needs to be developed is the collection of clothes. If recycled materials are used as inputs, a market of non-wearable garments will be likely to exist, improving the opportunities for collectors to make profits from used materials.

- Making effective use of resources and moving to renewable inputs is essential to reduce the consumption of raw material inputs. This is possible thanks to a higher garment utilization and increased recycling (that are respectively ambitions two and three aforementioned). However, new raw material input will be required anyway, but it should be renewable ones. The transition to more effective and efficient production processes – that imply less waste, fewer inputs of resources, less use of water, and the use of renewable energy in an efficient way – can drastically decrease the demand for non-renewable resource input. The inclusion of negative externalities in the costs for firms and companies can facilitate the shift to a CE where there is a better resource use in the production processes and can generate system-wide environmental and societal benefits (Ellen MacArthur Foundation, 2017 a).

Exhibit 2: Ambitions for a new textiles economy.



Source: Ellen MacArthur Foundation, 2017 (a).

2. Fashion Industry and Covid-19

2.1 General overview of the Industry's trends

First of all, we need to define what we mean with the term fashion industry. The fashion industry as a whole is a diversified industry that comprises the apparel, footwear, jewelry, and cosmetic branches. However, this paper will focus the attention on the apparel and footwear segments. From a theoretical perspective, the fashion industry can be divided into two separate but interconnected halves that cannot survive without one another. The first half is based on elements such as consumer desires, status, values, and identity and explains why apparel has historically been a way to identify personal social status. The other half, instead, is based on more tangible concepts such as production activities, processes, and natural resources that are used to make garments. Every garment or product that the end consumer buys should offer the opportunity to identify the origins of the raw materials used in its production process. Nowadays, this is challenging since the supply chains of fashion firms are becoming more and more complex and, moreover, most of the garments are made in factories scattered around the world (especially in South-east Asia countries). It is difficult to have full control of the processes each piece of garment follows. But this was not always the case, in fact, if we take a look at what was happening just 30 years ago, clothing items were still made locally. How did the industry end up here?

Before the Industrial Revolution happened, clothing was hand-made by artisans locally. Then, the Industrial Revolution disrupted the way of producing things. Thanks to the potential of steam power, the growth of the use of machine tools, and the development of factory systems, things could be made not only faster but also in larger amounts. The textile sector was the first one to exploit the opportunities provided by the Industrial Revolution. The invention of the mechanical loom, used in apparel production, is considered the start of the Industrial Revolution. The fashion industry, as well as many other sectors, turned out to be a globalized and interconnected network also thanks to more efficient transportation methods and improvements in worldwide communication technologies. There are two main consequences of

the globalization of the fashion industry; on the one hand, it has resulted in complex and difficult to manage supply chains, and on the other hand, it has resulted in the creation of a worldwide fashion market. These global developments put in place numerous challenges for the fashion industry itself. It becomes problematic to have full control of the processes and stages that clothes follow from the beginning to the end of their life. Elements such as the origin of raw materials, the chemicals involved in the production of the fabric, and the workers' conditions in subcontracted factories are tough to keep under effective control (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018).

For instance, one of the most common pieces of apparel is jeans. They are so common that in 2014 1.2 billion jeans were bought worldwide. We can ask ourselves, what does it take to make each of these pairs of jeans? Which are the steps of the production process that each pair of jeans must follow in order to be sold to the final consumer? What are the consequences and negative externalities of the production process? The first carbon footprint of a pair of jeans takes place during the production process of its main raw material: cotton. Farmers of cotton use 40% of their budget to buy machinery and fuel to make them work, thus emitting greenhouse gases and CO₂. Farmers then spend 35% of their budgets on agricultural chemicals and fertilizers for the soil consuming 16% of all pesticides used worldwide; that's why cotton is seen as the dirtiest craft in the world. Going on, just 20% of the budget is used to buy seeds, and only 5% is used to pay salaries of workers, mostly made up of foreign and undocumented ones. When the cotton is ready, after the harvest and cleaning phases, the crop is generally shipped to China, where most of the world's production of jeans happens. After various mechanical processes, such as carding, twisting, spinning, and stretching (which require electricity and fuel) the cotton is transformed into yarn. Once ready, the yarn is dyed with chemicals in a process that uses tons of water. Most of the time, the water is not treated and ends up in rivers and lakes affecting the quality of water used by food farmers, plantations, and cities. Then, the fiber enters an extremely long and complicated process in which it is woven into fabric and sent to garment factories where it is cut and sewed through more than 37 different steps. The pair of jeans is still not ready. The last phases needed to give the finishing look to a pair of jeans are sandblasting, bleaching, and acid where an extra 5000 liters of water are consumed. In the end,

jeans are ready to travel by track and boat to distribution centers and are transported to stores all around the world. Considering all the different steps that a pair of jeans goes through the final cost to the end consumer seems too low and it is not considering all the negative externalities generated throughout the production process (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018). Moreover, all these steps are performed in factories scattered around the world difficult to monitor and coordinate.

The challenges that firms operating in the fashion industry face regarding the management and control of complex and global supply chains are even more difficult to overcome when we combine them with the goals of cutting costs and incrementing profits (Vogue Business, Cernansky, 2020 b). These goals are essential for companies to reach higher revenues, more profits for shareholders, and economic growth. However, this way of conducting business sees economic growth as the only source of value neglecting social and environmental goals. This is the reason why the fashion industry can be extremely profitable but at the same time is the second most polluting industry in our economic system. Anyway, in the last few decades, something is changing. Social well-being and climate change are becoming more urgent issues in people's minds. An increasing number of brands are concerned about how to integrate both social and environmental sustainability into their business models (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018).

The fashion industry is a vast and uneven sector within which many different macroeconomic, technological, and even social forces can modify the expected outcomes of its evolutionary path. In the past few years, new trends tend to emerge with increased frequency and speed. Knowing the main and latest trends that affect the fashion industry may be helpful to build strong and successful business models in this ever-changing and competitive environment. Concerning the annual report of McKinsey, which each year identifies the “*ten top themes*” of the industry, in 2020, the fashion market was expected to be characterized by a significant shift of the industry towards an increasing digitalization of activities and towards sustainability-related practices (McKinsey, 2020 c). What is interesting is that the report, this year, was published by McKinsey prior to the outbreak of the Covid-19 global pandemic. The expected path of development of the fashion industry has been certainly modified by the Covid-19

implications and by the resulting global economic crisis. Trying to find linkages, differences, and similarities between the sector's predicted path of development before and after the outbreak of Covid-19 can be a value-adding analysis for businesses. This kind of investigation is essential not only to identify which are the tangible changes that Covid-19 brought to the sector but is also essential for fashion firms that have the objective of understanding how to survive and enhance profitability in the actual world scenario. While the pandemic has completely disrupted the fashion scenario and modified the equilibrium and the *modus operandi* of much of the industry, it seems that the long-term challenges of the fashion industry, such as sustainability and Circular Economy, will not be left behind by consumers, firms, investors, and market regulators. Circular Economy will remain a theme of central influence and importance across all the value chain and among all the stakeholders (Vogue Business, Cernansky, 2020 a).

To conduct a systematic analysis of the actual Fashion Industry's situation and the main trends of the market it is necessary to take a step back. First of all, this chapter will identify which were the main market trends before Covid-19. After an analysis of such themes, this paper will identify the main changes that Covid-19 introduced in the way of working, thinking, and doing business. Then, the analysis will focus on the role that the pandemic played in turning these factors into high or low impact factors, changing the market balance, and modifying the path of development of the Fashion Industry.

According to the aforementioned report of McKinsey in collaboration with Business of Fashion (Business of Fashion, McKinsey, 2020 c), the ten top themes that were expected for 2020 (before the global Covid-19 pandemic) in the fashion industry can be divided into three main areas that are: global economy, consumers' shifts, and fashion system.

2.1.1 Global Economy

This first group of trends derives from the macroeconomic course of the global economy as a whole. The main trends that the report identifies with regard to the global economy are two, and they are respectively "*on high alert*" and "*beyond China*" (Business of Fashion, McKinsey, 2020 c).

- On high alert. The general overview of the industry at the beginning of the year suggested that 2020 would have been a challenging year. Some winds of change are blowing on the fashion industry with consequent changes in the equilibrium of many geographical markets that are set to see declines in growth and consumer confidence. The McKinsey Global Fashion Index (MGFI) forecasted that the growth of the sector is expected to slow down to 3% to 4%, with reference to the previous year. Digitalization of operations, increasing earnings, and tackling sustainability are the three main drivers of the industry shift. Even without these economic headwinds, 2020 would have been a challenging time, but significantly more challenging for some fashion firms than for others. Successful companies will be the ones that are agile despite the high levels of uncertainty and risk, which are early movers focusing their efforts on increasing earnings and improving productivity while ensuring flexibility in both operational and financial spheres. Indeed, there is also an increasing request to deliver deep and meaningful change across the supply and value chain (Gazzola, et al., 2020). For fashion companies that are able to become more resilient and take strategic action, there will also be opportunities to capture.
- Beyond China. China is offering to fashion players an outstanding opportunity, but it is not easy to scale up this market. During the last ten years, China was the main driver of the growth of the global fashion industry, accounting for 38% of the total growth of the sector. In particular, the luxury segment is the one that among the others is undergoing great development. Despite what stated so far, the growth of China is set to slow down in the future years. Given this high uncertainty of the Chinese market, fashion brands should focus their efforts toward other growing markets including India, Indonesia, Russia, and some others in the Middle East such as the United Arab Emirates and Saudi Arabia.

2.1.2 Consumers' shifts

This second group of trends is more specific to the customer sphere and derive from the changes in preferences, values, and behaviors of consumers. The increased awareness of consumers regarding sustainability is spreading mainly among the young ones that are starting to prioritize experiences over ownership of products (Todeschini, et al., 2017). The main trends

that the report identifies in the fashion sector due to the consumers' shift of preferences are "*next-generation social*", "*in the neighborhood*", and "*sustainability first*" (Business of Fashion, McKinsey, 2020 c).

- Next-generation social. Even if there is no doubt about the potential power of social media platforms, marketing expenses for traditional engagement models on these platforms are becoming less profitable. Fashion brands need to rethink their strategies to find ways of increasing the engagement rate of the audience, exploiting platforms more effectively, and maximizing returns on marketing expenses. Using the right content on the right platform for each market is essential. The storytelling is expected to increase its importance during 2020 mainly due to high-quality and user-generated content. The sales finalized thanks to social-media commerce are growing and, by 2023, they could account for a fifth of all online sales, especially in China where their value will be about 166 billion USD. This transformation towards a more digital commerce will foster the culture of innovation in the field.
- In the neighborhood. Relationships between fashion players and consumers are characterized by more and more emails, messages, videos, and posts on social networks, but consumers are growing tired of such kind of relationships that can be detrimental to their level of engagement. Moreover, the development of digital practices has increased the expectations for immediacy and convenience. This is why there is a growing tendency for brands to go local (Business of Fashion, McKinsey, 2020 c). This means rump up the presence in neighborhoods and areas that are different from the typical commercial zones. The stores of the future will be smaller and their focus will be on providing services, convenience, customization, and unique and valuable customer experience. Personalization and all the other services offered by brands are increasing their importance in the scale of values of consumers (Gazzola, et al., 2020). "*In the neighborhood*" as well as "*going local*" means being closer to clients and their needs. This new trend is having an impact also in companies' decisions about where to perform production activities. Nearshoring is gaining a positive momentum against offshoring. In addition to the above, the tendency to develop omnichannel strategies will be complementary to the "*going local*" one.

- Sustainability first. Consumers are becoming aware of the devastating effects of the fashion industry on environmental and social levels. This awareness of customers is leading the industry towards change. Fashion firms cannot ignore consumers' preferences and values even amid uncertainty over what sustainability really is and how to implement both sustainable and effective strategies. In 2020 we will see the industry ramping up its sustainable and Circular Economy-related activities. What is relevant with regard to this trend is that it is becoming more and more important not only for customers but also for other stakeholders, NGOs, and market regulators that are introducing new policies concerning sustainability.

2.1.3 Fashion system

The third group of trends is related to what firms are actually doing in the fashion sector, the industry's challenges that firms have to face, and the innovations available in the sector. These elements can be divided into five different categories, that are "*materials revolution*", "*digital recalibration*", "*inclusive culture*", "*cross-borders challenges*", and lastly "*unconventional conventions*" (Business of Fashion, McKinsey, 2020 c).

- Materials revolution. During 2020, many fashion brands will join the "*materials revolution*" characterized by high investment rates for radical experimentation to create fabrics made by recycled or bio-materials, re-engineered fibers, and to integrate artificial intelligence into fabrics and clothes (Andersen, et al., 2019). Moreover, bio-fabrics, re-engineered fibers, 3D-printing, and e-textiles will increase the design opportunities, offering greater efficiency and functionality (Todeschini, et al., 2017). What is relevant is that, according to McKinsey's data, 45% of industry players are taking actions to join this materials revolution and are already looking forward to creating and integrate more innovative bio-based materials in their collections. In this field, collaborations with innovative start-ups can be sources of competitive advantage.
- Digital recalibration. Fashion companies are putting their efforts to become digital and reach more compelling customer experiences and streamlined operations. Simplifying the world scenario there are two types of companies. On the one hand, there are companies, the so-

called “*pure online players*”, that are born digital and are completely based on digital operations and solutions; these companies, during 2020, must re-evaluate their business models and find ways to boost revenues. On the other hand, some other companies are born without the digital aim and are now seeking to integrate digital practices into their businesses. This is why, in the first months of 2020, the tech-focused Nasdaq index was trading at record highs. Together with digital increased importance, many fashion firms are experiencing a decline in brick-and-mortar sales. Fashion companies are therefore trying to reduce store operating costs, re-evaluate their networks, and improve the in-store experience with experiential marketing strategies. The digital shift is forcing brands to focus their efforts on direct-to-consumer business models (Patwa, Seetharaman, 2019).

- Inclusive culture. Since fashion is a creative industry, it should be naturally characterized by diversity, inclusivity, and liberal values. However, what we are used to seeing regarding diversity has been occasionally using black models on catwalks and magazine covers. Now, especially after the “*Black Lives Matter*” movement, something is changing, and over 2020 we expect major brands to create (thanks to a structural change) a truly inclusive culture from the top to the bottom of their companies. Chief of diversity and inclusion officers will increase their relevance, and they will have to ensure diversity also at the top levels of their organizations.
- Cross-borders challengers. Over the past years, a considerable number of new competitors with lean business models, especially manufacturers and small and medium-sized enterprises (SMEs), are selling products directly to consumers cutting out retailers. Asia is the geographic area where this is happening the most, with small companies designing one-off items with the potential to go viral and be sold to customers all around the world. Fashion products sold by this type of company are attractive to consumers, especially the young ones since the price of products can be relatively low and this kind of consumer is less loyal to their favorite brands. Moreover, the improvement of infrastructure and logistics makes it easier for fashion firms to expand beyond their home country markets. To have a profitable lean business model, companies need to focus their efforts on leveraging in-house

design capabilities and e-commerce practices. Collaborations with online commerce platforms can increase the feasibility of these objectives.

- Unconventional conventions. Fashion and trade shows have always been highlights of the industry calendar, creating opportunities to meet buyers, share brand values, give visibility to the brand, and do deals. By the way, technology is having a huge impact on this part of the sector, changing the equilibrium of the game, consumers' expectations, and fashion shows themselves. In recent times, fashion seasons are shorter and the number of collections per year is increased. These are the reasons why manufacturers focus their efforts on increasing the speed of their activities and operations, and retailers are under constant pressure to keep both their windows and e-commerce websites updated. In an increasingly digital environment, online meeting occasions are gaining more and more emphasis and are replacing in-person fashion and trade shows. This also allows to collect bigger amounts of data during the process, experiment with new formats and content, and opening up collections to new and better-targeted audiences. In a not so unlikely scenario, in-person fashion trades and shows are bound to see their relevance decline unless they will deliver and add value for those who attend the events (Daily Telegraph, Armstrong, 2020).

2.2 Impact of Covid-19 on the Fashion Industry

The leaders of the fashion industry were not optimistic about 2020 even before the outbreak of Covid-19 that disrupted not only financial markets but also the global economy as a whole, impacting mainly global supply chains and demand-driven sectors. The fashion industry was already on high alert, but after the unforeseeable coronavirus pandemic and the humanitarian and financial crisis, the industry is now on even higher alert. This humanitarian and financial crisis has hit the fashion industry hard and brands are now dealing with higher levels of uncertainty and risk.

The coronavirus update to The State of Fashion 2020 (Business Of Fashion, McKinsey, 2020 b) seeks to identify how the "*new normal*" will look like in the months following the global pandemic. The scope of this update is to provide insights and tips to fashion managers and professionals as they are now facing high and they will face new challenges in the following

months. In fact, once the dust settles on the actual crisis, fashion will have to deal with a recessionary market, a lower demand, and an industry environment undergoing exceptional transformation and significant changes. The aforementioned report unpacks five areas that will be predominantly influenced by the consequences of Covid-19. The fashion industry will transition through a period of recovery. This period will be characterized not only by a marked reduction in final consumer demand but also by a decrease in spending (McKinsey, 2020 b). We will now analyze the effects of the Covid-19 pandemic by using the same framework used to analyze the industry before the pandemic outbreak.

2.2.1 Rethinking the Global Economy

As just stated, the recovery from the pandemic will be characterized by a recessionary market, where fashion players will have to adapt their operating and business models. The fashion industry is undergoing a tremendous transformation. Companies, to survive the crisis, will have to reinvent their core businesses in order to reach new markets and exploit future strategic opportunities and growth occasions. Some macroeconomic headwinds were already leading companies to reassess their positions and business strategies, but with the advent of the Covid-19 pandemic, a renovate push towards new values is directing companies across different sectors to take urgent action in this field. In particular, the fashion industry is suffering from a lack of consumer confidence, fewer sales, decreased revenues, and locked-down stores. Due to the discretionary nature of their products, fashion firms — in particular the ones relying on non-flexible supply chains — are especially vulnerable to the actual global economy crisis. Fashion is expected to undergo harder times than other discretionary goods: more than 70% of European and North American consumers expect to drastically reduce spending on clothing. As the dust will settle, the luxury sector may suffer even more than other segments, due to its dependency on travel retail, its lower online presence, and its high reliance on experiential in-store sales (Business Of Fashion, McKinsey, 2020 b). To make an example, the LVMH group announced a 20% drop in first-quarter revenues as a result of the Covid-19 pandemic (Vogue Business, Guilbault, 2020). Global value chains are facing the biggest challenges since they need to deal with different restrictions and lockdowns of different facilities all around the world. All actors in

the apparel value chain got to face the negative consequences of the Covid-19 pandemic, however, not all parties and players were equally hit by the crisis. During the first months of the pandemic, since physical stores were beginning to be shut down, brands and retailers have registered a huge reduction of both their revenues and cash reserves. Many fashion brands decided to cancel almost all orders, also the ones already under process. Manufacturing factories were consequently put under strong economic pressure. In particular, for example in Bangladesh and India, while deleting the orders more than 72% of buyers refused to pay the cost of the raw materials already purchased by suppliers, and more than 91% of fashion brands refused to pay for the first production costs already incurred by suppliers. Moreover, during the first months of the Covid-19 pandemic, with the lockdown of parts of China, there was a shortage of raw materials for the fashion players and more than 50% of buyers did not pay orders due to delays in their shipments. The remaining part of suppliers instead was unable to have prices paid by buyers readjusted for the higher raw materials price (EconomicTimes, Raghuwanshi, 2020).

Looking ahead, fashion firms will have to implement recovery interventions both in the short term and in the long one. In the short term, companies will have to focus on the reduction of costs, the cut of production, and the adjustment of product assortments. In the long-run instead, during the recovery period, there will be the need to implement resiliency into the planning and business strategies, reshaping the value chains to get rid of the problem of different regulations in different countries. Fashion players should focus on reassessing their geographic footprint, trying to improve the quality of their networks, and not leave behind growth opportunities. What companies can learn from the global trade disruption, is that there is the need, on the supply chain side, to re-invent the entire value chain. The key is both to identify disruptions before they hit the production process and to enhance and boost the integration of regional supply chains. To survive the supply chain, as a whole, must work as an ecosystem and it should be able to exploit the crisis as a way to reset the business objective and be ready for the future *“new normal”* (Just Stile, Barrie, 2020). Probably we will see the reshaping of many companies inside the fashion industry. Companies are increasing their interest in nearshoring operations seeking to reach higher flexibility and autonomy of

production activities and efficient execution in production facilities. Speed and adaptability will be the two main elements of the “*new normal*” together with digital acceleration, discounting, consolidation, and innovation (Business Of Fashion, McKinsey, 2020 b).

2.2.2 Consumers’ upgrade

Regarding the consumer sphere, “*discount mindset*” and “*digital escalation*” are the two main consequences that Covid-19 introduced in the fashion industry, giving both of them renovate importance and new centrality in consumers’ minds (Business Of Fashion, McKinsey, 2020 b). What is also essential to remember is that consumers are “*getting woke*” even more than they were pre-crisis. Gen-Z and Millennial shoppers are leading this trend, with a focus on trust, sustainable practices, Circular Economy-related activities, and respect for the natural environment.

- Discount mindset. Nowadays, the bargain shopping culture is being exacerbated by elements such as the rise in anti-consumerism and frugality in consumers’ values and the increase of stock and inventory. In addition, consumers are looking to buy apparel with the best and lowest price possible. Brands need to rethink their broader business mission in order to generate and regain value. A solution to the high levels of inventories of warehouses is using discounting strategies, such as mid-season and flash sales. These strategies are used even if some risks may arise such as consumers getting used to discounting culture (emulating what happened during the 2008 financial crisis), erosions of margins, and cannibalization of full-price sales. At least until the dust of the crisis will settle, the industry will be characterized by a reduction in the consumers' demand and at the same time a price deflation.
- Digital escalation. Social distancing and lockdowns have conferred to digital capabilities a central role with regard to the future of the fashion industry. For fashion players developing digital channels is now an urgent priority of renewed importance across the value chain. For example, in its first quarterly report of the year, Kering saw that its sales were highly increasing in the e-commerce channel. An increase of 21% in online sales is helping the group to reduce the bad impact of Covid-19 on the traditional selling channels’ revenues

(Vogue Business, 2020). The consumer demand on e-commerce sites is not expected to flatten and brands must have fast logistics and efficient operations to deliver with the speed expected by consumers. The lockdown of physical stores and, in general, of the offline retail channels has hit particularly brands that are mostly based on brick-and-mortar sales. Fashion players are now understanding what does it mean to be truly digital-first and, when the crisis will be over, the tendency of consumers to buy online is likely to stick. The reliance of the fashion industry on digital channels, which was already getting stronger before the global crisis, has reached unexpected levels. The first evidence of this digital escalation is given by what emerged in the first month of the year in China. Consumers embraced digital solutions for shopping thanks to the highly responsive behavior of fashion players. Both the brands and the retailers quickly developed new digital-sale channels enhancing their digital capabilities. Many were the collaborations established between fashion brands and platforms such as WeChat, Yizhibo, Xiaohongshu, and Taobao to create live streaming services for fashion customers. From this collaborations new features were created, allowing store assistants to directly message and speak with clients, brands to do broadcasting sessions with influencers, and empty stores to be virtual shopping stages. All these new features boosted customer engagement and sales (Business Of Fashion, McKinsey, 2020 b). Stores are likely to remain a central channel for sales, but their future role will slowly change to allow fashion players to capture more value from consumers while offering at the same time value-adding services. Stores will become a place where brands can showcase their portfolio of products and consumers can directly interact with the brand. Truly omnichannel experiences offered to clients will be now more than ever the key to success (Vogue Business, 2020).

The current pandemic will bring the values proper of Circular Economy and sustainability into sharp focus, intensifying discussions around consumers' over-consumption and firms' irresponsible practices. A gradual transformation of consumers is happening also with regard to what they buy, there is a demand shift that tends to prioritize easy-to-wear items. The recovery of the industry depends also on the consumers' willingness to buy again a wider variety of apparel. The challenge for the fashion industry is assessing whether the shift in demand and

purchasing behavior will lead to any other long-run change in the equilibrium of the market (Vogue Business, Arnett, 2020 b). Within the fashion industry, faster recovery is expected for the segment of footwear and apparel, a slower recovery instead is expected for the branches of beauty, bags, and leather goods (Vogue Business, 2020).

2.2.3 Fashion system transformation

After the outbreak of Covid-19, the fashion system is undergoing a radical transformation of its main characteristic. The *“State of Fashion 2020, Coronavirus update”* identifies the *“Darwinian shakeout”* and the *“innovation imperative”* as the main two trends in the new fashion scenario (Business Of Fashion, McKinsey, 2020 b).

- Darwinian shakeout. The crisis is shaking out the weak fashion players and accelerating the decline of fashion companies that were already struggling before the global crisis. This is leading to new consolidations, divestment, and M&A activities all over the sector since companies want to secure their future, strengthen their core capabilities, and are now seeking to adapt to the new market environment. Also before the Covid-19 pandemic, fashion was already a *“winner-takes-all”* sector, but now, the crisis is intensifying the polarizing nature of the fashion industry, due to the shutdown of physical retail, the reduction in consumer demand, and the lack of investor confidence. A McKinsey analysis showed that even before the crisis 34% of listed fashion businesses in Europe and North America were registering signs of financial pressure. In the McKinsey Global Fashion Index (MGFI) and The state of Fashion 2020 report, more than 50% of fashion firms were classified as *“value destroyers”*— their estimated cost of capital exceeds their profits (Business Of Fashion, McKinsey, 2020 c). After the first months of the pandemic, the number of firms under financial distress is increased to about 80%.
- Innovation imperative. This can be considered as a collection of the trends that were already influencing the fashion system before the pandemic such as *“materials revolution”*, *“digital recalibration”*, and *“unconventional conventions”* (Business of Fashion, McKinsey, 2020 c). In addition, this rush towards innovation is linked also to the *“digital escalation”* trend identified with regard to the consumers’ upgrade. To cope with new regulations and

restrictions, and to mitigate the damage of the crisis fashion firms are adapting to new market shifts with the introduction of new tools and strategies in their business models and also across the supply chain. Fashion companies must assess these innovations and leverage the ones that increase their chances to survive in the new environment. The coronavirus pandemic has disrupted the fashion industry, forcing companies to rapidly innovate and create new practices and processes just to survive. Moreover, companies had to accelerate the adoption of strategies that in the months before the pandemic were just on the trial-stage, such as virtual and digital fashion shows or showrooms, live stream commerce, and 3D design tools, that are now becoming essential and upon which businesses are reliant. The future of the industry will be determined by long term innovation investments and new technologies implemented during the current period of crisis. New processes and routines are emerging across the fashion industry, like an 84% increase in smart working, a 79% rise in online meetings, and a 58% uptick in the flexibility of working hours. Investing in this type of technology, that enables efficient employee interaction, will be useful for teams and companies not only during the pandemic but also in the long-run (Business Of Fashion, McKinsey, 2020 b). Speaking about the link between this trend and the digital escalation of consumers, what is relevant is the new role assigned to stores. With the lockdown of physical shops, brands moved online to increase the level of engagement of consumers. Now retailers need to rethink the purpose of these experiential spaces even if vast numbers close and consumers' behavior is shifting. Despite in the last few months, government restrictions regarding lockdowns are easing, retail is far from its pre-coronavirus way of operating. Before the pandemic, the expected future of retail was completely different. Large-format flagship stores in key geographical locations with in-store spaces, for events, art, and storytelling to increase the engagement of clients is no more how a store is likely to look like in the future. The future format for stores includes safety first, touchless experiences, and a focus on personalization of services offered to clients. Jean-Emmanuel Biondi, principal of retail, wholesale, and distribution at Deloitte, thinks that the post-Covid-19 scenario will include different models and formats of stores. Moreover, customers will have a double willingness of maximizing the time spent inside the shop and reducing the

health risk. Thanks to the advent of 5G and new technologies retailers will be able to gather more data on every single customer and individual behaviors, allowing to push specific and personalized promotions for each consumer. Retailers will also have insights on purchasing patterns in specific locations that can be exploited to improve the in-store experience even further. These are called “*neighborhood stores*” that are more effective than large flagship stores and are in line with the “*in the neighborhood*” trend analyzed earlier in the chapter (Vogue Business, Chitrakorn, 2020).

2.3 Barriers to Circular Fashion

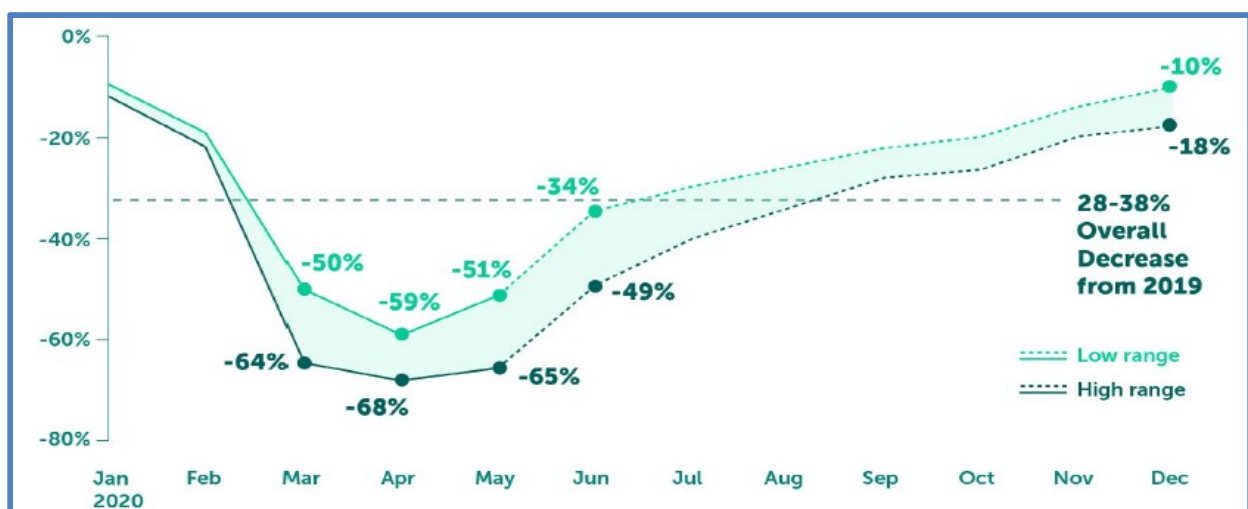
To address the challenges that a firm may encounter while transitioning to a Circular Fashion way of designing, producing, and commercializing products a break with the existing mindset within the organization and also among the business partners along the supply chain is required (Mistra Future Fashion, 2013). Challenges associated both with the way of conducting the business activities and the specific layout of the value chain may emerge. In particular, with reference to the supply chain, which is generally made up of many different actors, it results in a long, complex, and fragmented chain that hampers visibility and is difficult to control. Another type of barrier that might arise in this scenario is given by the downward spiral of price proper of the Fast Fashion. The downward price pressure is induced by consumers that are getting used to buying cheap clothing items characterized by a poor quality level. The value of fashion is deteriorating due to the present oversupply of garments. Moreover, while consumers demand cheaper garments, fashion companies respond by trying to maintain high margins to do not erode profits. Fashion firms pressure suppliers that are incentivized to cut their efforts on sustainability-related practices, both social and environmental. To reach higher levels of sustainability thanks to Circular Economy related practices a shift is required in the business model. In the actual industry scenario, the economic models are driven by profits and consumers by low prices. In order to make progress toward sustainability, each player must recognize the responsibilities that derive from its position and role in the supply chain. Fast Fashion is responsible also for another problem in the industry. The need to constantly change the outfits, typical of the consumers' mindset, generates overproduction, overconsumption, and

waste. Moreover, it transforms garments into disposable items. Another main obstacle for the fashion industry is the competence gap between the ability of managers and employees to begin the Circular Economy journey and the abilities that are required to do so. There is a predominant lack of knowledge in the sector that makes it difficult for firms to break with the actual status quo and develop new business models centered on sustainability and having CE as the core value.

2.4 Covid-19 offers both tremendous challenges and opportunities

Covid-19 is hitting the fashion sector harder than other segments of our global economy since the fashion industry is particularly vulnerable due to its discretionary nature. During the first three months of the crisis, from January to March 2020, the average market capitalization of fashion, apparel, and also of luxury players dropped almost 40% — a much evident decline than that of the overall stock market. This means that across all the value chains in the future months we will see higher levels of financial hardship, joblessness, and even bankruptcy. The McKinsey group foresees that in 2020 the revenues of the global fashion industry (considering only the two segments of apparel and footwear) will contract by a value between 27% to 30% year-on-year. Fashion sales instead fluctuate throughout the year; in April they were down 59% to 68%, in December they are foreseen to be down 10%-18%, compared to the same month of 2019.

Exhibit 3: Expected impact of the Covid-19 pandemic on worldwide fashion sales in 2020.



Source: BCG, Sustainable Apparel Coalition, Higg Co., 2020.

According to the Boston Consulting Group’s analysis, the revenue and profits in both fashion and personal luxury goods – are expected to drop 15% to 25% worldwide in 2020. For the global fashion industry, that could mean up to 270 billion USD in lost sales from the previous year. In particular for companies in the 350 billion USD range of the global luxury market, the decline from 2019 sales could total 100 billion USD (BCG, Seara, 2020).

Exhibit 4: Covid-19 could cost fashion, luxury brands up to 370 billion USD.

	GLOBAL FASHION INDUSTRY IN 2020	GLOBAL LUXURY INDUSTRY IN 2020
SALES	\$220 to \$270 potential decline BILLION BILLION	\$80 to \$100 potential decline BILLION BILLION
	15% to 17.5% total market	20% to 25% total market
EBITDA	\$28 to \$33 potential decline BILLION BILLION	\$15 to \$25 potential decline BILLION BILLION
	15% to 20% total market	20% to 30% total market

Source: BCG, 2020.

The expected scenario for 2021 instead is characterized by positive growth of 2% to 4%. Since the fashion industry is globalized and highly interconnected it is hard for fashion players to plan ahead. While some parts of the world, such as China, are exiting from the crisis, in Europe and the United States the pandemic is worsening. Moreover, in the developing world where poverty and poor health systems are the standards, the outbreak of Covid-19 is hitting the hardest. In these parts of the world, such as Bangladesh, India, Ethiopia, Cambodia, Honduras, and Central-South America, workers of low-cost sourcing and fashion-manufacturing hubs will face periods of unemployment generating a downward spiral that will lead to a further worsening of the situation. Although it is impossible to predict the duration and the severity of the pandemic the fashion sector and the firms that operate within it will certainly struggle for a long period. The

pandemic has the effects of a storm for the industry. The worldwide networks and the high levels of integration that almost all the firms in the supply chains deal with, mean that companies are in trouble. Brands need to manage crises on multiple fronts as lockdowns are happening in rapid succession and are shutting down manufacturing facilities in China, followed by Italy and many other countries around the world. If the crisis is very hard on the supply side, we do not have to forget that also on the demand side the pandemic is generating devastating effects. Consumers are freezing their spending (McKinsey, 2020 b).

Even though what we stated so far can be considered as a big challenge that the fashion industry as a whole has to overcome, the pandemic (on some occasions) is offering some profitable deals to firms that are capable of seizing the opportunity. Firms must keep innovating because this period can be the window of opportunity. Firms have better to use this time to reinvent their business models, rethink what they do and how they do it, create new offerings and values for consumers, and reinvent their brand. Successful fashion players will exploit new technologies to change the way they do business and the way their operating models work. Fashion players will need to integrate agile operations in their business practices as well as flexibility across the value chain. What is crucial, during these months, is adapting to a changing environment and being highly responsive to new consumers' requirements, trends, and needs. Innovations such as 3D printing technologies, live streaming, virtual sampling, virtual reality, AI-supported contingency plans, and long term AI-planning will follow the push given by the market demand. Companies are becoming more interested in nearshoring to fulfill an increased desire for garments made closer to home and in response to the lockdowns of different parts of the world. For instance, a solution typical of the nearshoring activity of firms based on huge and interconnected networks is leveraging small next-to-home manufacturing hubs for capsule collections. Some other solutions to overcome the problems of these big networks and to increase the flexibility of supply chains are backward integration and semi-automation of processes. Also, digitalization can play a central role, even if the digitalization of the company's activities and operations is slower than the one that consumers perceive. The pandemic is forcing fashion players to renovate their attention to digital B2B practices. This, from a sustainability and Circular Economy perspective, is helpful in order to reduce the impact of the

industry on the environment. For example, millions of physical samples produced for physical showrooms are now beginning to be considered unnecessary as well as high-intensity travel to traditional fashion shows, trade shows, and fashion weeks. Moreover, sustainability values proper to Circular Economy are likely to be employed as a way to attract consumers, as messages based on environmental and social values are valuable methods to regain consumers' trust and wallets. Alternative business models' solutions not based on using virgin raw materials in order to create new products, such as recycling, up-cycling, and resale, might register a boost since there are high levels of unsold products and overstock in the fashion system. However, consumers affected by the global crisis and recession will pay more attention to the level of their expenditures, becoming cost-conscious, and cutting unnecessary costs. To enable sustainability to play a central role in the purchasing decisions of consumers, it must be grounded in authentic behavior and tangible practices. Greenwashing practices are no longer accepted not only by consumers but also by policymakers that are now beginning to introduce stricter forms of market regulation on such themes. For sustainability-related innovations to stick, companies should strategically integrate them into their strategies, routines, roadmaps, and operating methods. To do so, substantial changes are necessary to harmonize pre and post-Covid-19 approaches. Fashion firms should scale up the innovations that benefit them the most, implementing trial and error approaches, without leaving behind adaptability, flexibility, and speed (Business of Fashion, McKinsey, 2020 b).

Summarizing what is stated in this paragraph, the Covid-19 pandemic provides the fashion industry with the opportunity to transform the value chains by adopting more sustainable and agile sourcing. In particular, the crisis can accelerate the shift toward a demand-driven supply-chain model (Just Stile, Barrie, 2020). The fashion industry cannot wait to change its way of operating, especially the out-of-date sourcing model that is characterized by three main elements that are long lead times, maximizing the size of orders, and medium to low flexibility. The first short-term priorities of the industry in the wake of the pandemic have been securing inventory, managing the supply chains (also by optimizing the cash flow along with it), and managing the financial risk. What is interesting is that now stakeholders want to shift sourcing volume from China to other countries and what experts expect from this, is the creation of "at-

scale and highly capable” manufacturing clusters in nearshore markets. The industry, in the next few years, will probably see a change in the types of relationships between brands and manufacturers. The shift will be from transactional relationships to stronger supplier partnerships. The goal of this kind of relationship is not only to secure supply but also to foster innovation, have better control over the entire supply chain, and increase transparency levels. This will also allow fashion firms, in the long-term, for collaborating to find new investment models and make industry-wide progress towards the Circular Economy and towards both environmental and social sustainability. Investing in strategic partnerships and innovation, companies will be able to succeed and adapt to the next normal of the fashion market, and seize the opportunity to completely reshape the industry to meet new costumers’ needs and values (Cips, Hart, 2020). A changing consumer mindset was already rising before the pandemic and, after the first months of lockdown, some of its traits such as the renovate attention towards zero waste-producing business models and the new expectations for purpose-driven, sustainable, and CE actions are gaining more importance. The pandemic helped to increase the speed of the rise of such trends allowing the industry to implement a digital step change, season-less design, and corporate innovation. The chance that the pandemic is giving to the fashion industry is not limited to the reset and reshape of the industry itself but it also includes the opportunity to reassess the values by which we evaluate our actions. These opportunities will be better exploited if the industry will learn how to collaborate as a unique entity getting comfortable with the actual high uncertainties and ramping-up future-proofing efforts and possible solutions. Collaboration is essential not only inside a single organization and within its own network but across all fashion players, even between competitors, sharing data and insights, and establishing new sustainability standards (Just Stile, Russel, 2020).

Moreover, to be more precise, in accordance with the Global Fashion Agenda analysis in the *“CEO Agenda 2020 – Covid-19 Edition”* (Global Fashion Agenda, 2020), the managers of fashion companies must focus their attention and efforts on six opportunities that will allow them to rebuild a resilient and sustainable fashion industry. These opportunities are:

- Map the company sustainability level, by mapping social and environmental impacts along the entire value chain.

- Build trust and brand loyalty among customers and all the stakeholders.
- Change the format of the relationships with suppliers and shift to equal partnerships.
- Scaling new business models to address the problems relative to high stock levels and the downward spiral of prices.
- Accelerate the digital innovation and the consequent digitalization of the fashion sector and its business processes.
- Give new life to the e-commerce distribution channel to build the infrastructures of the future.

3. Solutions applied to overcome the interconnected challenges of CE and Covid-19 pandemic

3.1 Four main areas require fashion players' attention

If the second chapter of the paper analyzes the main trends of the fashion market during 2020, we are now focusing our attention on something more tangible. This paragraph will be useful for managers to understand in which fields, related to the fashion sector, the major shifts are happening and in which areas to invest. The time for fashion to reinvent itself is now, even if the pandemic has hardly hit the fashion industry on multiple sides (such as consumer demand, supply chain, and confidence of stakeholders). Even if there is no agreement among scholars about the "*black swan*" nature of the Covid-19 pandemic, it is beyond dispute that it has highlighted the major weakness of the traditional fashion system, the mismatching between the supply side and the demand side of the market. Leaders of fashion companies are aware that the traditional business and operating models are obsolete. Generally, manufacturing facilities start to produce clothing items without any customer feedback and regardless of their needs and preferences. Manufacturers yield items months earlier than the garments are sold by distribution channels. This way of operating easily leads to incredible levels of overproduction and pollution, causing high damages to the environment. This period for the fashion industry offers a double opportunity, from a financial standpoint and an environmental one. These opportunities are both for the major incumbents of the market (like big fashion firms that control complex networks and value chains) and for new entrants (such as innovative start-ups and disruptors) that are facing the perfect time to improve upon their actual status quo. According to the market analysis conducted by the main international consultancy groups such as McKinsey, the Deloitte Group, and the Boston Consulting Group fashion players are operating in an environment dominated by, dynamic competition, sudden changes, and increasing uncertainty. After the analysis of the main fashion trends from 2016 to nowadays, those that will be present in the coming years are the adoption of sustainability practices among fashion players along the entire value chain, improvement of the services and the experience for

customers thanks to digital platforms, and automation of production processes (Gazzola, et al., 2020). However, the four main shifts that are affecting the fashion industry, following the publications of Forbes (Forbes, Magnúsdóttir, 2020), BBC (BBC, McIntosh, 2020), and McKinsey (McKinsey, 2020 a), are on-demand manufacturing, local escalation against the global one, end of fashion seasons, and consumer-first strategies. Managers need to pay attention to do not miss the opportunities provided by the convergence of sustainability, Circular Economy, and coronavirus pandemic themes; these themes can share the same solutions.

- On-Demand Manufacturing. An increasing number of industry experts convey the fact that the next normal for the fashion industry will be characterized by on-demand manufacturing. This way of operating can allow fashion brands to increase the speed of their operations and to be more cost-effective. This on-demand model allows cutting off hundreds of orders that might be difficult to be sold. Fabric waste will be approximately close to zero; this is an important goal to achieve since waste in this sector is rampant and expensive. On-demand manufacturing allows the fashion industry to be more sustainable and economical at the same time. Moreover, from the perspective of each firm, costs will be drastically reduced since there is no need for inventories and warehousing, or at least excess inventory will be minimized. The upfront cash need will be downsized too. On-demand manufacturing enables brands to be more efficient. There is no more the need for high quantities of clothes produced with months of advance, concerning the selling time, without any kind of guarantee that these clothes will be sold at the retail level. The on-demand model of production, instead, allows facilities to be turned on by firms only when garments are sold to a customer. Environmental sustainability is increased since leftover inventories of each season are deleted and the practices of sending them to landfills or even incinerate unsold clothes will only be old memories. The pressure exercised by the Covid-19 pandemic will accelerate the shift towards an on-demand manufacturing model. This opportunity should be used to reinvent the fashion business: sustainability will take the place of overproduction if fashion firms do not waste the opportunity to change and improve their businesses (McKinsey, 2020 a). The challenge for the industry is represented by a change of mindset more than high investments in enabling technologies and labor.

- Local versus global. To make on-demand manufacturing more efficient it is essential to locate the production activities close to the end consumer. Thanks to this proximity, brands can sell and deliver their products to customers in a short time eliminating the inventory. Covid-19 pandemic has increased the importance of local manufacturing activities (against the abroad ones) not only for businesses based on on-demand models but also for more traditional business models. The coronavirus pandemic has exacerbated the need for a change in the traditional way of conducting business in the industry, due to lockdowns and closures of factories and the consequent delays in international shipping. The shift towards local production and warehousing can solve some of the problems related to the outbreak of the global pandemic. Local manufacturing facilities can be solutions that help the industry to better match the demand and the supply side of the market. The reason behind the common practice of the industry to produce abroad is the cost advantage. But the overall cost base is not only given by the strict manufacturing cost per unit. Other costs such as warehousing, shipping, and the risks associated with delays (due to the economic cost of time) need to be considered as well. When all these costs are taken into account, the cost of manufacturing abroad is not always lower than the cost of producing locally. The Covid-19 pandemic has brought these concepts into focus. However, the choice of producing locally is not risk-free. The risks are related to the potential loss of skills, crafts, and techniques of a global workforce specialized in production activities. The other main negative impact of an *“only local”* production is on a human level. Supporting the labor force and artisans that have been supporting big brands and fashion firms for years is essential too. The way to overcome all these challenges is balancing together both ways of production, the global and the local manufacturing (Forbes, Magnusdottir, 2020). Moreover, also consumers have increased interest in shopping locally. They think about small retailers that are led by values that are close to their own once. Going local makes it possible for brands to monetize on their stories and their local peculiarities by sharing the values with local consumers with value-adding storytelling practices (McKinsey, 2020 a).
- The end of fashion seasons. Fashion brands adhere to fashion seasons’ schedules, producing a fixed number of collections every year. This way of organizing the production

can force fashion companies (both brands and retailers) to deal with high amounts of inventory that consumers do not buy. Due to this scheduled calendar, manufacturing is done months in advance and any emerging problem along the way can destroy the value and the success of the entire collection. An example of these emerging problems can be the Covid-19 pandemic. The demand has registered a marked unforeseen reduction and now, brands and retailers have to deal with a huge surplus of apparel from the past collection, the Spring-Summer 2020 one (BBC, McIntosh, 2020). The additional problem of fashion seasons is that now, all the clothing from the past season are losing their value being removed from full price selling channels at the end of summer. The solution that brands can take is reducing seasonality and creating a core and replicable set of items. These items must be based on values that respect the aim, mission, and peculiarities of a brand, focusing on its territory-related features and differences with other brands. To follow the traditional schedule of the fashion market, it is detrimental also to the environment. The notion that sees collections as elements characterized by a short life that need to be replaced with the next collections increases the number of garments produced and wasted. By adopting a *“seasonless”* shift, instead, the industry will allow the environment to deal with a smaller amount of negative externalities. The way creatives generate their ideas, design, and produce clothing items, and their creativity will be impacted by this new fashion calendar format. Up-cycling, recycling, and the values proper of the Circular Economy approach will gain momentum in this new scenario (Forbes, Magnusdottir, 2020).

- The consumer first. With the advent of the Covid-19 pandemic, consumers are increasing the share of purchases made online and all brands, even the ones that had not yet developed e-commerce sites, are seeking to develop their online capabilities to maximize the customers’ digital experience. Thanks to the collection of data that online shopping permits, direct relationships between costumers and brands are being fostered and the dialogue between these two parties is becoming more direct. Both the trend to go digital and the collection of data offer the opportunity to better understand the preferences, values, and tastes of clients and match the offering with market demand. The focus now is on the consumer (Forbes, Magnusdottir, 2020). The old way of producing was not

sustainable, and consumers are getting aware of this problem. Their interest in sustainability themes and practices is increasing like the Vogue editor Dame Anna Wintour said in an interview reported by BBC (BBC, McIntosh, 2020). For instance, for Farfetch (an online e-commerce platform) what consumers want is authentic communication from the company, to be sure to buy from companies that have a valuable mission. Farfetch is exploiting the actual industry scenario to refocus the attention on its core values. The company's aim has always been the one to bring together small companies with a great curated assortment and is now highlighting the human aspect. Fashion is the product that they sell, but it also takes the curator, creator, and brand to give the product meaning. The key points that a brand cannot leave behind during this particular period are storytelling, meaning, and purpose (McKinsey, 2020 a).

The trends of developing on-demand business models, going local, giving central importance to customers, and the digitalization of the sector are boosting the already high customer demand for customization and personalization of products and services offered by companies. Thanks to on-demand manufacturing and the increased digitalization of the industry (that allows direct and fruitful relationships with consumers), the demand for customized services and products can be better matched by the offering of fashion brands. The new level of collaboration with the consumer has the potential to increase not only their loyalty and commitment to the brand but also, from a Circular Economy point of view, to increase the environmental sustainability of the industry. From this perspective, the future utopic-best scenario for the fashion industry will be the one in which production is turned on only when the effective need and request of consumers is generated. Higher levels of collaboration, not only with the consumer but also within the whole fashion system between different parties of the supply chain and even between competitors can favor the development of common standards based on a "zero waste" final goal. Upcycling and recycling circular-systems will allow us to reduce the impact of the industry on our planet and its negative externalities on the environment.

In addition to what is stated above, and from a more realistic perspective, what is happening in the actual scenario of fashion the fashion industry is a renovate push of incumbent firms towards the development of collaborations and partnerships with start-up companies to foster

innovation to overcome the current challenges. Fashion firms wonder how they can exploit technology not only for the digitalization of their logistic and sale operations (such as digital showrooms) but also for design activities thanks to the 3D printing and the digital craftsmanship. The recovery of the fashion industry depends on how fast will be businesses to adapt to the new economic environment. Start-up companies in this scenario are facing an even bigger opportunity than the one faced by big incumbents. Unlike the big established brands, which rely on large networks, highly interconnected operations, and consequently slower decision making processes, innovative start-ups can exploit their fast and lean operations, in order to adapt to the changing characteristics of this new risky and uncertain environment.

3.2 Renovated push towards transparency

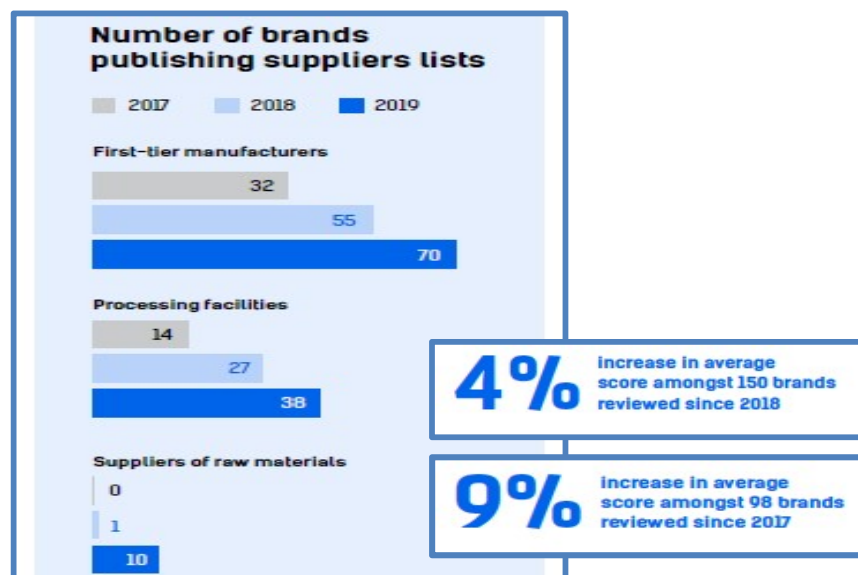
All that we stated so far, the growing consumers' interest in sustainability, the renovated attention paid by fashion player to the Circular Economy, the increasing market regulation, and the need to preserve our environment and its scarce resources is boosting the urge for transparency. Applying traceability to all the stages of production, along a value chain, is essential to meet the increased interest of consumers in sustainability and allow clients to make informed decisions regarding purchase. Some consumers want to buy apparel according to their values and given levels of items' environmental impact. The pull from the demand side is leading retailers to develop a range of instruments and methods to report on sustainability-related actions, commitment, and achievements. However, the accuracy and authenticity of their reports are suffering from the lack of common standards in the field. The risk of greenwashing activities is high. The issues are about the measurement and accounting of circularity and sustainable practices. Over the years, with the aim of favoring the shift towards a more circular and sustainable way of producing, several approaches to measurement have been developed by regulators or even by NGOs. For example, the *"Circulytics"* tool is the latest tool developed by The Ellen McArthur Foundation to measure the circularity of products and business operations (Ellen MacArthur Foundation, 2020). The US Chamber of Commerce Foundation, instead, created a *"Circular Economy Toolbox"* with several different metrics to measure the negative externalities and bad impact of activities. The metrics encompass the

estimated cost-saving, the carbon footprint of each activity, and the percentage of a product that can be recycled at the end of life stage. At the actual stage of our global economy, there is no standard regarding the framework to use to enable companies to assess and report on their sustainability-related improvements (Jones, Comfort, 2019). Even if there is a lack of standards, the European Commission is set to define a textile strategy in the coming months, to lead brands to increase their diligence on reducing social and environmental impact (Vogue Business, Arnett, 2020 a). Another way for fashion brands to organize the way they report is following the guidelines from the Global Reporting Initiative (GRI) that, in October 2016, launched their global standards for sustainability reporting. The GRI standards consider the economic, environmental, and social impacts of companies and show which kind of initiatives they implement to foster sustainable development. These standards have a modular structure that can be kept up-to-date to add relevant new indicators of performance. If we take a look at the stock market another tool is the *“Dow Jones Sustainability Index”* based on an analysis of the corporate, economic, environmental, and social performance of companies. Since the selection criteria of the index evolves year by year and this leads companies to improve their long-term sustainability plan. Another successful set of recommendations are the *“Sustainable Development Goals”*, the seventeen goals created in 2015 by the United Nations. Since the publication of the Sustainable Development Goals, they have been used across all sectors including the fashion industry (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018). Plus, the Sustainable Apparel Coalition developed a specific index, exclusively designed for the fashion sector, the *“Higg Index”* (Sustainable Apparel Coalition, 2012). The group was created by some corporate brands that shared the concern to improve their social and environmental performance. To conclude the analysis of the evaluation tools, there are some industry-specific certificates such as Fair-trade, cradle-to-cradle, Better Cotton Initiative, or ACOTEX for chemicals, ISO certificates for processes, and so on. This certificate system is a good way for brands to control the quality of their processes or the sources of raw materials used, and to communicate effectively with stakeholders inside and outside the company. These tools and certificates are pushing the sustainability agenda forward, but we must pay attention to them. Some of the above-mentioned reporting tools are self-evaluations

made by the company itself (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018).

While the Covid-19 pandemic has partly decreased the number of conversations around sustainability themes, fashion players still face consumer and government pressure to be more transparent on their impact on the environment and society (Vogue Business, Arnett, 2020 a). As demonstrated by Fashion Revolution in the analysis of 250 brands for the “*Fashion Transparency Index 2020*”, brands are increasingly disclosing their approaches, commitments, and policies on social and environmental themes, but we are far from a truly transparent system (Vogue Business, Biondi, 2020). This year, the average score across all brands, for their disclosure of data about sustainability, was 23%, up from 21% registered last year. The percentage increase is still a low score for a market high in need for transparency (Fashion Revolution, 2019 b). Moreover, the fashion industry, together with the textile one, encompasses an interconnected network of different activities, most of the time performed by different actors. All the actors involved in the supply chains of fashion firms should be involved in the transition towards increased transparency, and a lot more need to be done among the industry (Vogue Business, Biondi, 2020).

Exhibit 5: Fashion Transparency Index insights, based on a sample of 250 brands



Source: Fashion Revolution 2019, (b).

According to the “*Fashion Transparency Index*”, 40% of the brands analyzed are disclosing their list of first-tier suppliers, a 5% increase over last year. However, only 24% and 7% of the firms' transparency disclosures involve, respectively, processing facilities and raw material suppliers (Vogue Business, Biondi, 2020). Instead, the “*Pulse Of The Fashion Industry*” score for 2019, constructed by the Global Fashion agenda demonstrates that the fashion sector has improved its social and environmental performances concerning the previous year but at a slower rate. Even if there was an improvement, the fashion industry is still far from being sustainable. Moreover, the findings of the research show that fashion players' implementation of sustainable solutions is not fast enough to mitigate the negative externalities of the rapid growth of the fashion industry. This means that, if the “*Pulse Score*” stays on its current path of development, the gap between the score and the industry output will widen. Remaining on the current path, the industry will not reach the goals of the United Nations Sustainable Development Plan or meet the Paris Agreement (Global Fashion Agenda, 2019).

Exhibit 6: Industry trajectory over the past 3 years. The gap between industry growth and Pulse Score improvements.



Source: Global Fashion Agenda, 2019.

For the vast majority of the world population, retailers are the public face of the industry since they are the connection between the value chain and the final consumers. Thanks to their importance, retailers can play a key role in promoting sustainability, not only among the final costumers but also among producers, manufacturers, and fashion brands (Jones, Comfort, 2019). Despite the *“Fashion Transparency Index”* does not rank how sustainable, circular, or ethical brands are, there is a link between the higher transparency reached by brands and the effective commitment to improving the environmental and societal status quo. For instance, in Europe, something is beginning to reshape the future expectations of the industry. There is a retailer that is taking the step to change the industry. Zalando is Europe’s largest online fashion platform and is now aiming at forcing all the brands that sell through its website to meet certain specific sustainability targets. Zalando made the latest version of the *“Higg Co. questionnaire”* mandatory for all the brands through his platform. The ultimate goal of this move is to communicate the results with consumers and increase the overall transparency of the fashion industry. Self-assessment is an opportunity that is given to brands by the tool; they can track their operations and measure progress made during the path to reach sustainability and circularity (Vogue Business, Arnett, 2020 a). Zalando aims also to support all types of brands, designers, and retailers during the current crisis, strengthening the diversity of the fashion sector. The company is now offering, through its partner program, immediate solutions to clear overstock, increase liquidity, uphold parts of businesses, and expand direct-to-customer relationships. So far, Zalando was able to connect over 1,500 offline shops to its platform, and the requests from retailers to join the program are increasing in their amount. Since the company works with thousands of different brands, its new requirement can be an agenda-setter for the industry shift. (McKinsey, 2020 a).

The digital traceability of clothes is a hot topic, this is why many companies are working to develop instruments to make it feasible. Many NGOs but also companies such as Google are committed to the goal to make supply chains more visible. The garment RFID or smart tag (together with live cams, metric tools, and LCA software) will probably become the access point to all the information that consumers need to make the best choices when buying new clothes (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018). The

complexity and high interconnectedness of supply chains lower the levels of transparency and control achieved by fashion companies and widen the gap between those who reap the benefits from fashion and all the others who pay both the environmental and social costs. An increasing number of brands are introducing innovation in materials used, manufacturing, management systems, and business models that can create value not only for businesses but also for society. In the fashion industry, to boost the shift towards sustainability, partnerships and collaborations are highlighted as fundamental to develop new technologies for traceability, transparency, closed-loop business models, up-cycling, and recycling. The fashion supply chain, which has been highly criticized in recent years, is the center of transparency issues. Therefore, fashion players should be required to apply barcodes on items' tags that enable buyers to discover the initial phases of the lifecycle of the product. Consumers should see which raw materials were used, where, and how garments are made and which is the negative impact of the garment on the environment, the percentage of recycled materials used, and the possibility of the garments or its parts to be recycled one its useful life is over. Reporting requirements should include goals and the assessing methodologies of the performance need harmonization to enable cross-company benchmarking and comparison (Mistra Future Fashion, 2013).

3.3 Differences in incumbents' and start-ups' ways of approaching sustainability and circularity

Fashion brands are adopting methodologies to increase their sustainability. However, one of the main challenges of big fashion corporations with their supply chain scattered around the world is the integration of social and environmental protection in their business models. As we noticed about transparency, every sustainability measure, to be implemented, needs a strict collaboration of all the players involved in a supply chain. Sustainability exceeds organizational boundaries as the vast majority of environmental and social issues are generally faced by second-tier suppliers or further upstream. While small suppliers may not be subject to critiques for not sustainable behaviors, their actions could damage a brand's sustainability performance. Therefore, fashion firms must seek to improve not only their operations' performance but also the performance of their suppliers. However, the ability of suppliers to respect social and

environmental sustainability requirements is often limited by buyers' expectations of low cost and excessive speed (Karaosmana, et al., 2018). The problems and issues faced by big multinationals and global brands were already known some years ago, as the article *"The retreat of the global company"* of The Economist (The Economist, 2017) highlighted in 2017. The Covid-19 pandemic gives to these themes a renewed importance and centrality, accelerating the urgency and, at the same time, the push towards a substantial change in the way of operating of the fashion industry (Dyloan Group, Micelli, 2020 d). For these reasons, the new key actors of the Circular Economy are the innovative start-ups, where all the activities are managed with centralized decision-making processes. Here the control of the supply chain and its transparency and traceability is easier to carry on. In particular, in Italy (as we will explain in the paragraph 3.4 of the chapter), the fashion environment, from a theoretical standpoint, is favorable to the development of circular innovative realities. Even though the environment is characterized by small and medium enterprises, grouped in specialized clusters where the levels of collaboration, trust, and loyalty are already high the innovative start-ups tend to emerge such as independent entities. This type of fashion firm is more capable of adapting to an ever-changing environment where new standards concerning sustainability are being developed.

In the previous chapter, we saw that the business model is a central concept in management theory and practice. We saw also that the fashion sector is facing sustainability issues. One way to cope with these issues is to integrate environmental and social challenges into both the core business and value-creation process of fashion firms. In other words, it is essential to integrate these challenges into the business model. At this point, it becomes a sustainable business model that helps to assess, analyze, manage, describe, and communicate to all the stakeholders the company sustainable practices and value proposition. Such a business model is capable of delivering value to all stakeholders without compromising the natural and social environment beyond the boundaries of the organization. A sustainable business model has at least four main differences from the traditional one. First, it is truly oriented towards sustainable development. Second, it creates a value of three types, that are economic, social, and ecological. Third, is built with the willingness to satisfy the needs of all kinds of stakeholders. And fourth, is based on a systemic perspective where linkages between natural and social environment are taken into

account. The social and environmental issues comprised of the sustainability challenge are simultaneously a threat and a possible source of opportunities for brands. The technological revolution we are facing (3D printing, the Internet of things, artificial intelligence, advanced materials, and so on) has a double effect. Besides it renders obsolete the traditional business models, it generates opportunities to create value in new ways. The sustainability-related issues are also drivers of innovation. The development of smarter and leaner business models that have a reduced footprint on the environment is the new way of answering customers' needs. Some examples are sharing-economic business models, access-based services, upcycling, recycling, and so on (Jorgensen, Tynes Pedersen, 2018). Adopting these new types of business models the global fashion industry will be able to reduce the "structural waste" that characterizes its way of operating. Moreover, new sharing-economic, access-based services, and circular-economic business models are pushing business models to make a step forward. The transformation implies new methods of producing, transporting, consuming, and reusing not only products but also materials and components. These are smarter business models that will use resources more efficiently and customize products and services to improve the offering to customers while reducing their negative externalities (WRAP, 2016).

Many fashion firms are working on increasing their sustainability commitment, but the range of options to become more sustainable is vast. The majority of fashion players follow a soft approach (the reactive approach) and they limit their actions to the fulfillment of the legal requirements and certifications they need. Fashion firms just react to external factors that force them to be more sustainable. Few brands instead have a proactive approach and they take their actions beyond the legal requirements. Inside the category of fashion companies, we can make a distinction between start-ups brands that are born with a sustainable aim, and incumbents brands that need to shift from a traditional business model to a sustainable one. To simplify, we assume that start-ups follow the proactive approach to sustainability, on the contrary incumbents follow the reactive approach. These two different categories of firms face different challenges. Incumbents, while implementing the required changes to be more sustainable, need to deal also with their normal day-to-day operations to keep running their businesses. The required changes can be short-term (that are easier to implement) and long-term changes (that

require longer time and effort). The critical activity of the decision process is to combine both long-term and short-term elements. The incumbents, that try to make the shift in their business model, generally start with some peripheral sustainable initiatives. These are initiatives that are not closely related to the core business model. For instance, if an incumbent wants to turn its supply chain into a circular one that instead of using virgin raw material uses 100% recycled material, this can be an extremely complex and expensive shift that involves all the stages of the supply chain. Therefore, the incumbent will take small steps toward this shift. If we speak about a start-up instead, this can be born with a sustainable aim and can design its supply chain 100% circular from the beginning (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018).

3.3.1 Incumbents' solutions

When transitioning towards sustainability, big established fashion brands are slower than small independent start-ups. This happens because traditional business models have processes in place and workers with a determined way of doing things. Even if, as we stated before, most of the time incumbents undertake sustainability with initial peripheral changes, sustainability is a complex and holistic approach that needs to be a key element in the definition of a business model. The success of an incumbent fashion company is based on the number of sales it makes, the higher the level of sales the higher the success. This system naturally leads the fashion industry, year by year, to produce more items and consume more resources. At the current state of things, given the trend of fast-fashion that is speeding up this process, a sustainable fashion industry sounds like an oxymoron. For fashion brands this means that they should translate sustainability into their entire product cycle, reducing the company's negative social and environmental impacts. Incumbents generally have many different departments or divisions, that is why reporting tools are useful to share decisions, operations, and goals achievement within the brand, its network, and the outside world. There are three levels of actions that fashion players apply when dealing with sustainability and circular economy issues. The first level is strategizing and it happens when managers analyze how the business model works and decide on which areas the sustainability-related performance needs improvements.

Strategizing means to remember that investments needed in the short-run, will lead to environmental improvements and will make economic sense in the long-run. The second level is organizing, implementing, and scaling environmental and circular initiatives. In other words, once the strategy is drafted, there is the need to analyze the brand structure to implement the action plan for future scaling of sustainable initiatives. The last step is maintaining sustainability and increase the level of commitment of all the actors in the network and supply chain (Jorgensen, Tynes Pedersen, 2018).

Fashion companies face various types of tensions when approaching sustainability. Tensions are situations where the choice is between two or more opposed options with different trade-offs. One fundamental tension is between the short-term and the long-term perspective when making decisions. Balancing short-term goals with the development of capabilities that allow firms to achieve a long-term competitive advantage, is challenging. The short-term versus long-term perspective is one of the biggest tensions since it has a great influence on the speed of the decision-making process. In the ever-changing fashion environment brands need to respond to competitors' moves, changing consumer behaviors and preferences, and disrupting innovations. Giving more importance to the speed of the decision process rather than its content can lead companies to a speed trap. In the opposite situation, some brands fall into a slow trap, where they miss opportunities since the quality of content dominates the decision-making process at the expense of its speed. The speed that characterizes the fashion industry puts brands under constant pressure to act fast reducing the quality of the business decision and giving priority to economic profits over sustainability achievements. The profitable way of facing these tensions is using them as a driver for innovation, finding a balance between the opposites. The tensions that arise when transitioning towards sustainability will push fashion incumbents to search for new collaboration models and alternative ways of running businesses. Collaborations could arise between industries, instead of coalitions and partnerships among brands and research institutions (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018).

3.3.2 Start-ups' solutions

Let's get deeper into the examples of fashion startups. These companies were created with a sustainable business model in mind. Some of them were created trying to solve a social or environmental problem. Others instead are conducting their businesses giving the same priority to economic, environmental, and social sustainability-related issues (Andersen, Gjerdrum Pedersen, Diaz Schiavon, Copenhagen Business School, 2018).

Agile businesses, such as innovative start-ups are more dynamic. The company becomes also more efficient thanks to the mix of employee empowerment, innovation towards development, and the ability to bring products rapidly to the market. Agility requires fashion companies to be flexible in front of uncertainty and risks and to respond quickly to environmental changes. To be dynamic implies to continuously update technologies, identify new trends, and translate them into marketing opportunities (Jorgensen, Tynes, Pedersen, 2018). The creativity and agility that contraddistinguish a start-up, together with the flexibility, offer to such companies the possibility to effectively respond to the changes imposed on the market by the Covid-19 pandemic. In the actual economic scenario, a start-up that exploits its natural capabilities will be able to develop innovative solutions to reduce the risks given by the global crisis. This is a new opportunity to scale-up, increase the market power and the market share.

3.4 Focus on the Italian market

The focus of the chapter will now transition to the Italian fashion market analyzing some of the actual changes implemented by fashion firms, incumbents, and start-ups. Thanks to realities such as Fashion Revolution, Eco-Age, Camera Nazionale Della Moda Italiana, and initiatives such as *"Circular Lab"* of Banca Intesa Sanpaolo that supports the Ellen MacArthur Foundation, Italy has an enormous potential to become a leader in sustainability. These realities combined together are creating a new approach of collective support and digital transformation. Moreover, the Italian market is already characterized by an excellent local supply chain (Forbes, Russo, 2019). Italy is the first country in Europe for the production of textiles, clothing, and accessories. In particular, 41% of European fashion production is made in Italy, for a national market-value of

97 billion euros (Corriere Della Sera, Salto, 2020). To protect the fashion market we must also understand its mechanisms. The Italian fashion industry is unique because it encompasses artisans, small businesses, medium companies, and large brands, gaining creativity, flexibility, quality, and sustainability (Il Sole 24 Ore, Flaccavento, 2020). According to the analysis made in the second chapter and the third one, regarding the main trends, shifts, and changes of the fashion industry, we can divide the solutions adopted both by incumbents and start-ups in some subcategories. These subcategories are analogic solutions, such as the slowdown of the fashion calendar, digital solutions, such as digital craftsmanship, recycling materials, upcycling products, and circular-business models implementation, such as recommending and subscription services.

In the category of analogic solutions, one that needs to be mentioned is the Twinset one. Following Varisco's (head of Twinset) point of view, the future will see factories that will reopen in compliance with strict safety regulations and redesigned stores, at least in the sales ceremonial. The Covid-19 pandemic is generating a crisis that will radically change people's behaviors, with inevitable repercussions on the willingness to buy, the relationship between the brands and the consumer, and, in general, on the business model of the fashion sector. During the early stages of the crisis, the first moves taken by Twinset were thinking about a recovery plan and implementing the level of smart working. The agile working format and adaptability were already of high importance in the company operations and the shift to the smart working did not catch the company unaware. The plan of action established was prepared with reference to the letter of Confindustria and Federdistribuzione, which offered a set of possible solutions for the emergency phase. Both the presentation of the collections and the sales operations will change and foresee an increasing role of digital, also because mobility will be limited. The digital will intervene to optimize the supply chain time and to shorten the presentation distances to the wholesalers and then to the final customer. The sampling phase will culminate in very accurate 3D renderings that permit the company to achieve higher levels of sustainability. The changes imposed by the Covid-19 pandemic mean that the value chain must be reviewed and choices made more quickly. The business model now needs to renew itself. The Twinset stores of the future will adapt to the new shopping habits. Twinset plans to renegotiate the rents of its points of sale, with a transition to smaller stores. The company plans

to keep less merchandise in the store, giving digital commerce a complementary role. Stores will be reinvented to be like ateliers, with a sales ceremonial similar to that of extreme luxury, in a one-to-one relationship between customers and staff. Moreover, the company decided that part of the collections will become carry-over garments so that wholesalers will be able to sell them at full price in the next Spring / Summer collection. The decision was made to mitigate the economic impact of the pandemic and enhance the value of the garments of the Spring / Summer 2020 pre-collection. At the same time, the company decided to suspend the deliveries of part of the Fall / Winter pre-collection and move it to the Spring /Summer pre-collection (December delivery) in order to lighten the orders made buyers and retailers (Pambianconews, Sciola, 2020). All the changes introduced by Twinset are in line with the trends of the market identified by the analysis conducted in the previous chapter and following what stated in the *“Rethinking the store of the future”* study made by Vogue Business (Vogue Business, Chitrakorn, 2020).

The decision of Twinset to reshape the timing of its collections is under the movement that aims at slowing down the speed of the fashion industry. This trend was born in contrast to the fast-fashion world that, due to downward pressure for price and fast operations and logistics, is making the negative impacts of the fashion industry on the planet and the environment even more detrimental. The movement is characterized by the willingness of creating fewer collections per year, producing durable and high-quality clothes, and designing out waste from the fashion sector. It took a global humanitarian crisis with the freeze of all activities to convince the fashion industry of the urgent need for a reform of the fashion calendars and a decisive downsizing of the overwhelming power of fast-fashion players. With the pandemic outbreak fashion shows and fashion seasons were completely wiped from the first months of the 2020 fashion calendar. The necessity for the fashion industry to *“skip a season”* is an opportunity that must be exploited. The opportunity is to sell products in-season instead of anticipating the delivery time so that winter clothes will be no more sold in July. It will be up to incumbents to reinvent the fashion calendar and its cycle and favor the industry shift by setting an example for the rest of the players (Business of Fashion, McKinsey, 2020 b).

The first to take action, after recent implementations of sustainable practices (Armani Group, 2018), in an open letter to the American newspaper WWD dated April the 3rd, was Giorgio Armani (Corriere Della Sera, Veneziani, 2020). Armani thinks that the only way out of the current emergency is a careful slowdown of the fashion market. Armani cuts on fashion shows and extra collections and expresses the will to restart from Milan. Gucci and its creative director Alessandro Michele, instead, want to build a new path, far from the deadlines that have been characterizing the fashion world in the past few years. The need for a shift towards a leaner calendar is high. Fashion shows will be twice a year with a consequent reduction in sales volumes, and positive implications for sustainability (Il Sole 24 Ore, Flaccavento, 2020). Armani thinks that the offering is way bigger than the market demand. The industry should focus on smaller collections of higher quality. In the long-run, the company will take into account the possibility to do an upstream integration with the acquisition of its suppliers. This action will have the goal to renovate and enhance value creation in the supply chain. If this will take place there will be a shift in the business model. All the production processes of the company's fashion items will aim to save resources, do more and better consuming less, and be efficient in a sustainable framework. The short term strategy, instead, is based on three defined goals. The first one is slowing down the "fashion cycle" lengthening the time of sale and avoiding the overlapping and shifting-seasons tendency of recent years. The second goal is to reduce the impacts of the waste-full system of fashion shows and trades. The last one is to decrease the number of garments offered (Corriere Della Sera, Veneziani, 2020). The Italian designer will hold his Giorgio Armani and Emporio Armani fashion shows for the Spring / Summer collection 2021 behind closed doors as the Covid-19 situation was still uncertain. The Giorgio Armani shows without guests were broadcasted on television on the 26 September, while the Emporio Armani one was available to stream on a dedicated website on 24 September. Armani has described the crisis brought by the pandemic as an opportunity for fashion to realign collections with seasons and slow down the pace of production. A lot of work still needs to be done in this direction by all the incumbent fashion players.

Other brands followed the example given by both the brands Giorgio Armani and Gucci. Some of them are incumbents such as Brunello Cucinelli and ETRO, some others are start-up

innovative brands such as Gilberto Calzolari, Flavia La Rocca, Marco Rambaldi, and Coliac. For instance, Brunello Cucinelli followed the same approach of Giorgio Armani, with a letter. In Cucinelli's perspective, the changes taking place as reactions to the Covid-19 pandemic mark the beginning of a *"new time"*. In his letter, he speaks about how the pandemic is transforming individuals' behavior and value's relative importance. Despite the drop in sales of the first quarter of the year, the company strength will be following the strategy, vision, and values that are already comprised in the company 2019-28 action plan. The valuable elements of the plan, that have gained renewed importance thanks to the advent of Covid-19, are the flexibility of the supply chain and the development of high-quality partnerships. The flexibility of the manufacturing structure is ensured by a supply chain made up only by Italian firms. This is in accordance with the afore-mentioned trends of going local and nearshoring. Cucinelli believes that what Covid-19 is offering, despite all its negative effects, is *"a fascinating opportunity for us to restore the relationship between humanism and technology, between consumption and the economy, between the spirit and harmony, between profit and giving back"* (WWD, Zargani, 2020). The *"new time"* is the opportunity to readdress our relationship with the natural environment according to its values, and rules such as the ones of simplicity, re-use, and no-waste (Brunello Cucinelli Group, 2020).

Gilberto Calzolari and his brand, instead, have chosen to create just one annual collection that will be enriched with color variations in the second half of the year. This is a virtuous example of sustainability, not only for the attention in the choice of materials of the collection but also for the creation of a new product approach (Gilberto Calzolari, 2020). Flavia La Rocca (winner of the Green Carpet Fashion Awards 2019) has always favored sustainability and quality over quantity. Her brand aims at a production that does not follow or worry about the traditional fashion calendar and system. She is basing her collections on the concepts of modular fashion and modular clothes so that once you buy a product you can have a never-ending wardrobe (Flavia La Rocca, 2020). The clothes are made up of interchangeable modules that, thanks to the use of hidden zippers and other tools, can be matched in different ways to create different combinations again and again. Even the modules from different seasons can be mixed together.

It is difficult for a brand to demonstrate the validity of an idea or a collection without having the time to explain it (Corriere Della Sera, Salto, 2020).

However, how to reconcile the changes needed to slow down the fashion system with the maintenance of the current workforce is, difficult to plan. The management of companies, starting with the CEOs of listed and unlisted companies, independent companies or branches of larger groups, have not developed shared thoughts. A decline in the level of growth and economic feasibility are difficult to combine. Incumbents and brands based on large networks and supply chains will deal with many critical issues while implementing such changes (Il Sole 24 Ore, Flaccavento, 2020).

In the category of digital solutions applied by the Italian players of the fashion market, a remarkable example is the case of Lanieri. Lanieri is a company, based in Biella, that created the first digital platform for the production of tailor-made men's clothing. The company has grown fast, and now is combining the opening of physical stores in the major Italian cities and some of the foreign capitals with its traditional aim, the e-commerce (Il Sole 24 Ore, Crivelli, 2020). Lanieri during the first months of the Covid-19 pandemic, implemented the smart working framework for its employees, increasing the already high number of video calls and online meetings performed inside the company. The digital aim of the company was really useful in the complicated scenario of the global crisis. The strong advantage of this fashion brand is that the tailor-made service is by appointment and their premises are therefore not crowded. The company has transferred online the atelier experience giving to clients the opportunity to book a virtual appointment with the company's style advisors who have become their digital tailors. This way of conducting the business is offering a new opportunity to the clients of the company. The customer orders a product with the advantages proper of the offline selling channel but staying safe in their apartment and receiving the clothes directly to the house. This way of operating allows the company to produce clothes with an on-demand model that can satisfy consumers' requirements improving the quality and efficiency (also from a sustainable perspective) of the service offered. Digital is gaining importance not only for digital commerce and its applications but also for the possibility to create virtual samples, prototypes, showrooms, and fashion shows. For instance, Salvatore Ferragamo, thanks to the collaboration

with Hyphen, has made an entirely virtual showroom to present the collections remotely (Salvatore Ferragamo Group, 2020). Ferragamo's Virtual Showroom allows buyers and partners to browse and view datasheets, photos, and interactive images in 360° version of the products, in an easy to use and protected cloud environment (Fashion Magazine, 2020). Another example is the one given by Giovanni Pungetti chief executive for Greater China and APAC areas of OTB Group, which owns brands such as Marni, Diesel, and Maison Margiela. He embraced experiments with live stream commerce that allows the company to reach every possible consumer in China without physical stores. He believes that everything the group is learning during this crisis will be value-adding capabilities and practices that can be exploited in the future to increase and grow (Business Of Fashion, McKinsey, 2020 b).

Some others among the incumbents of the Italian fashion market are trying to be more sustainable thanks to the use of recycled and regenerated fibers into the production processes of garments. Some of the renowned fashion players undertook sustainability-related actions in the past years, some of them are rediscovering sustainable practices after the Covid-19 outbreak. Examples of such firms are Prada with the *"Re-Nylon"* initiative, Zegna with *"#UseTheExisting"* campaign, Max Mara with *"Cameluxe"* collection, and Gucci with *"Redd+Carbon Neutral"* initiative (MF Fashion, Rezk, 2020). The *maison* of Miuccia Prada and Patrizio Bertelli favored the union of one of Prada's most iconic symbols, nylon, with the work of Aquafil. For 50 years the Aquafil company has been among the first companies in the world known for the production of synthetic fibers, especially polyamide 6, i.e. nylon. The new models of backpacks and bags of the iconic Prada brand are called *"Econyl"* and comes from the recycling of fishing nets and carpeting for floors, supplied by Aquafil (Prada Group,2019). The Zegna group has always been linked with nature. Especially since the 1930s when the founder Ermenegildo Zegna gave life to his *"Oasi Zegna"*, a naturalistic area in the province of Biella that has redeveloped the area. Nowadays the commitment to sustainability themes has been demonstrated by the creative director of the brand, Alessandro Sartori who, during his last fashion show for next spring-summer 2020, brought a green touch in the clothes but also in the choice of location. As far as the creations are concerned, Sartori has created ten of the forty-eight dresses of the collection with recycled fabrics, with fibers that were already existing in the

company and to which he gave new life (Zegna Group, 2020). Max Mara has instead started an upcycling project. Since the Circular Economy is, one of the topics most closely linked to the concept of sustainability, the fashion company, world-famous for its wool and cashmere camel hair coats, decided to reuse surpluses for the “*Cameluxe*” project. This precious fiber will be recovered and mixed with recycled polyester to have an insulating effect. Then it will be reused to give shape to the padding of “*The cube*” collections of jackets of the brand. The process has been developed by Max Mara together with the technology of Imbotex Lab, a Venetian company specialized in the production of textile padding (Max Mara Group, 2019). At this point, we need to take into account Gucci for the second time. The announcement of Gucci's new initiative called “*REDD+*” (an acronym for Reducing Emissions from Deforestation and forest Degradation) is recent. The name is used for all those projects with the scope of reducing emissions caused by deforestation, promote sustainable forest management, and improve carbon stocks. The entire supply chain of the brand will therefore be carbon neutral, a commitment that is part of a series of integrations of the brand in its long-term sustainable activities. The group is giving a tangible example of his commitment to mitigate climate change, protect wildlife, and their habitats while generating a positive impact for local communities (Gucci Group, 2020). All these initiatives undertaken by large companies are examples of sustainability-oriented actions. These kinds of innovations are beginning to reshape the fashion market's landscape. Although the relevance of sustainability and Circular Economy themes is gaining positive momentum in the application from the theoretical field to the practical one, this is not enough. These initiatives represent just a little step of the company and the industry as a whole towards a more sustainable industry, even if implementing them is demanding for the firm and its supply chain. The sustainable initiatives of incumbents are not enough to allow the fashion industry to completely transition to new sustainable business models. What is more likely to happen is a radical transformation of the fashion industry lead by small and independent sustainability-oriented start-ups. These firms can be built up from scratch, following Circular Economy and sustainability principles and prescriptions, being 100% sustainable from the early stages of their operations.

The last type of solutions, that are in line both with the principles of Circular Economy and the reflections deriving by the humanitarian crisis and the Covid-19 pandemic, implemented by fashion players are the ones that involve a new way of doing business, with new forms of business models. The new way of doing business encompasses consumers' subscription models, the re-commerce of used clothes, and upcycling (Fashion United, Yu, 2020). Moreover, the use of e-textiles, 3D-printing, sustainable raw materials, and re-engineered fibers, such as recycled or regenerated fibers and bio-fabrics, vegan-textiles (not-deriving-from-animal textiles) will increase the design opportunities, offering greater efficiency not only in the achievement of sustainability improvements but also of the goals of the Circular Economy. Not the less, the Italian fashion environment has a structure that is particularly favorable to the rise of Circular Economy-related business models. The presence of highly specialized clusters based on strong relationships and trust fulfills the need to create short and highly controlled value chains, starting from the working conditions to the production processes (MF Fashion, Ferraro, 2020). The high presence of small and medium enterprises is instead functional to allow companies to *"be present in the neighborhood"* (cf. local vs. global) and to potentially create strong relationships with their customers (cf. consumer-first). Strong and personal relationships with consumers mean personalization of products and services until the achievement, in a utopic future scenario characterized by the on-demand manufacturing, of the end of fashion seasons.

Realities that use innovative materials to produce apparel items such as Orange Fiber, the startup that creates fabrics and apparel items from the orange peels (Forbes, Ricifari, 2018), are becoming more and more common in the Italian fashion market. For instance, the startup Vegea was founded in 2014 in Milan, with the scope of merging fashion with the food waste industry. The startup, in fact, has made a fabric similar to the leather by recovering the waste from wine production, then reusing the skins, the seeds and, grape stems (Vegea Company, 2020). The *"Vegea-textile"*, the skin of wine, won the *"Global Change Award"* in 2017, the prize awarded every year in Stockholm by the H&M Foundation for innovations in the fashion sector. This year, the startup has been included in the European Union project *"Horizon 2020 SME Instrument Phase II"*, receiving funds to continue the research and development activities in the

biomaterials field (Il Sole 24 Ore, Casadei, 2020). Another example is Duedilatte, a startup that transforms casein, a product made from milk, into T-shirts and dresses. The company was founded in 2013 in Pisa and produces clothing using only fabrics made from milk waste, with breathable properties and a delicate touch on the skin. The startup produces types of fiber with various percentages of milk, up to 100% milk, extremely light and moisturizing on the skin (Fortune Italia, Balena, 2018). The last example that we want to take into account is the startup Ecodream founded in 2016 and based in Genova. The company produces bags and fashion accessories with recycled and vegan materials. The interesting thing of this startup is that it does not follow the traditional calendar of the fashion market, it instead produces pieces that are unique and do not follow the fashion calendar seasonality (Ecodream Design, 2020).

Other Italian realities are instead focused on the use of alternative business models such as online commerce sites that offer subscription models to costumers that want to change and exchange clothes with other consumers. The reselling of used clothes is becoming increasingly important in the fashion scenario. For instance, Artknit, a startup founded in 2018, and based in Milan, is an online commerce platform within which the retail activity is characterized by high transparency since the intermediaries are cut off. Another example is Armadio-Verde, the firm that allows its customers to buy, sell, and resell clothes. The system follows three main steps. The first step is the client that sends garments he no longer uses, the company selects only garments in excellent condition, that are sanitized and checked one by one by the Armadio-Verde staff. Garments that the company cannot accept are given to "HUMANA People to People Italia Onlus" (a school and a reception center that has been operating in the suburbs of Maputo for more than 25 years and now welcomes more than 469 children between 6 and 11 years old). The second step is collecting "stars" for each approved garment sent and approved. The "stars" are assigned to everyone, in the same way, depending on the brand, the size of the item, and the type of garment. The accepted garments are published on the website keeping the same value in stars. The third step is using the stars collected to buy clothes, shoes, and bags from the online community. The consumer can add items to the cart and, thanks to the stars, pay only a few euros (Armadio Verde, 2020).

All the examples provided are useful to understand the different applications and solutions that the principles of the Circular Economy can generate once applied to the fashion sector. The creativity that distinguishes the fashion world, will certainly not stop creating new ideas and efficient solutions to the current problems and issues faced by the fashion world.

4. “Dyloan”, an Italian case study

4.1 General overview of the company: history, traditions, and technology

As we already stated, the recovery of the fashion industry depends on how fast will be businesses to adapt to the new economic environment and scenario. Start-up companies are dynamic and characterized by small networks and lean operations. That is why they are facing even bigger opportunities than the ones faced by incumbents. The creativity and agility, together with the flexibility, ensure to start-ups the possibility to effectively deal with the changes in the market and economic environment caused by the global pandemic. A start-up can exploit its natural capabilities to develop innovative solutions and reduce the risks given by the actual economic crisis. However, there is an Italian incumbent of the fashion market that must be mentioned while speaking about sustainability themes and the reaction of firms to the Covid-19 related issues. More precisely, in this chapter, we will talk about Dyloan, an Italian manufacturer and subcontractor of the fashion market. In an ideal matrix that encompasses all the types of solutions that we examined so far, this company leans exactly in the middle. The company is implementing a strategy that has deep linkages with sustainability themes as well as the deep linkages developed with the local territory. Moreover, the solutions implemented by the Dyloan company encompass all the four aspirations of the circular economy applied to the fashion industry. Briefly recalling the four aspirations of circular fashion, they are: to phase out substances of concern and microfiber release; to transform the way clothes are designed, sold, and used breaking free from their disposable nature; to improve recycling activities by transforming clothing design, collection, and reprocessing; to make effective use of resources moving to renewable inputs. Non the less, a peculiarity of this firm is that, during the first months of the pandemic, it was actively involved in the solution of the pandemic issues. Dyloan implemented a project, named BFXMED, changing a part of its business model to produce (thanks to the use of its facilities, experience, and technology) medical coats and other tools for individual security. The firm was able to implement such a huge transformation and respond to market shifts with the same agility and flexibility proper of a start-up. Dyloan has gathered together sustainability issues and technological innovation, as a result of two different

elements. The first one is the R&D focus on sustainable solutions to reduce waste, reach higher levels of products' quality, increase the transparency of the supply chain, and the traceability of garments. The second element is instead represented by a new necessity faced by the majority of fashion players in this actual world scenario, to reinvent the business due to the lockdowns, the crisis, and the shifts in consumers' values and preferences.

4.1.1 The creation of a unique experience

The journey of Dyloan began in 1987, thanks to the founder Anna Maria and Loreto Di Rienzo, to find new ideas, technologies, and innovations to offer innovative solutions for the fashion industry issues. The company was characterized by steady growth, with major investments in R&D activities and human resources. The motto of the company is *"Think locally, act globally"* which is in line with the importance of the local environment outlined earlier in the analysis of the fashion industry trends. In 2003, the current structure of the company was created, with two complementary but distinct branches (ChietiToday, 2017). Both branches have the opportunity to focus on their operations and activities giving life to a new way of thinking about the production and manufacturing processes of fashion items. Nowadays, the company develops, designs, and produces not only in the field of fashion but also in art and design, following the principles of sustainability, circularity, and transparency. The first half of the company is called **Bond Factory** and its main activities are manufacturing and production-related services, in particular the finishing phase of the production process. For instance, the implementation and customization of fabrics, the processing of semi-products and accessories, to the management of finished apparel items, are all activities that are carried out in this division. The experience earned over the years together with the company know-how has allowed Dyloan to improve old technologies and develop new ones related to the management of craftsmanship and the industrialization of production processes. Throughout all the production processes the high quality and the traceability of garments are ensured. The second half of the company, instead, is called Dyloan Studio and has two main activities that are R&D operations and showroom-related activities. R&D has the objective of leading stylists, designers, and also companies to explore possible applications of innovations and technologies to the

fashion sector and its goods. The Milan facilities of the company, thanks to events, seminars, and workshops, is a meeting occasion to implement creativity, develop projects, and create synergies. This division works alongside Bond Factory, creating strong synergies that transform each project into something unique. Dyloan offers services such as engineering support ones, R&D, and the organization of events in which, through collaboration, outstanding solutions take shape. The technologies used by the company are accessible so that the production chain is allowed to work along with designers and fashion schools (Dyloan Group, 2020 a).

The continuous interaction with haute couture designers, international designers, companies producing technologies and new materials, as well as collaborations with some European universities, have allowed Dyloan to develop unique know-how. The know-how represents the excellence and quality of the Italian fashion system, that "made in Italy" that makes Italian manufacturers so admired in the world. Chanel, Louis Vuitton, Giorgio Armani, Ralph Lauren, Valentino, Gucci, Givenchy, Balenciaga, Versace, Dolce & Gabbana, Emilio Pucci, and other great fashion brands are the daily clients of Dyloan. For them, the company creates entire collections and special products with extreme process flexibility and innovative technologies. The characteristic that distinguishes this firm from the others is the balance between high levels of technology and craftsmanship. This balance is expressed in the attention to detail while producing unique pieces that, preserving the peculiar quality, see their entire production cycle in Chieti (ChietiToday, 2017).

4.1.2 The technologies used by Dyloan

The technologies that the Bond Factory uses, are the result of a continuous process of research and development. The goal is to find both innovative ways and new tools suitable to be applied to the creative process of the company's customers. The new solutions are spread, applied, and tested thanks to the work and support of the Dyloan Studio division. Moreover, the use of graphic systems and processing methods (made within the firm and not outsourced), allows Dyloan and its customers to combine the techniques, boosting creativity and innovation and increasing the number of possible solutions. Some of the techniques and technologies used inside the company are thermo-welding, laser-cut, digital printing, embroidery, screen-print,

thermoforming, 3D printing, modeling, ultrasound, high frequency, needling, and laminating (Dyloan Group, 2020 a).

- Thermo-welding is the technique that allows the firm to create, laminate, and decorate apparel items, accessories, and other products. This technique takes the place of the traditional stitching. Dyloan has such a level of experience that its employees can use the developed technologies on almost every type of fabric and any kind of material.
- Lasers are used to cut or carve diverse types of materials and fabrics. Precise cuts and signs are made with the intent to create geometries and other effects. The high variety of machinery used makes it possible to work even on small pieces of fabrics and materials with a continuous process.
- Digital printing technologies permit the company to print not only on every color but also on any kind of support material. The peculiarities of the digital printing technology used by Dyloan are incredible precision, definition, and ability to make color shades. The use of ecological inks allows the company to take a step further in the development of sustainable solutions.
- The embroidery was the first technology that the company developed. Even if it is the most "*ancient technique*" it can still be implemented originally and creatively thanks to the mixing of traditional and modern elements and other kinds of value-adding technologies.
- The screen-print is used when the company has to face special requests concerning the materiality and the final effect of fabrics. Dyloan can integrate more than one technology together with the screen-printing to achieve outstanding results.
- The thermoforming, or also printing impression, is a technology that customizes with embossed design any kind of material composition. Using this technique is fundamental to create small details or complex designs that change the aspects of the raw materials processed.
- The 3D printing instead allows the company to create three-dimensional elements. The process starts with the creation of a digital 3D model and prototype, that allows eliminating the waste of physical prototypes. This technology allows producing garments (or some parts

and components) with higher degrees of freedom concerning the form, color, materiality, and finishing.

- Modeling is a technique that Dyloan has developed over the years. Thanks to the use of molds and CAD processing the company can model clothing items and accessories with a unique ability to create 3D forms, shapes, and silhouettes that are the result of customers' requests.
- The ultrasound technology is a way of cutting, decorating, and finishing fabrics, materials, and clothing. This technology is extremely useful in the generation of defined effects (without creating thickness) since it allows cutting and welding together different pieces of materials or different fibers by merging the borders.
- High frequency (HF) is a technology that derives the field of blisters, adopted and adapted to the fashion industry processes and requirements. After more than 25 years of application in the industry, its evolution is now used to obtain bas-relief elements and details by merging different raw materials and textiles.
- Needling is instead a mechanical technology, which was customized and reinvented by the company. Dyloan can, in fact, create particular designs working just on its final shape and elements such as colors or gradient effects.
- Laminating is a technique used by the company to satisfy the request of consumers in terms of covering fabrics and materials with a laminate surface or a permeating sponge. The evolution of this technique now allows also to produce laminating inlaid with different colors and textures.

With the implementation of crafting and digital manufacturing, greater functionality and personalization are achieved by the use of innovative technologies in the production process. Different technologies are combined together in a creative way to achieve outstanding results in terms of creativity, functionality, personalization, and efficiency (Lineapelle, Dyloan, 2020 a). The company is the connection between creativity and technology: the technologies developed by Dyloan and its know-how allow bringing to life the idea of the designers. After the potential of each technology is revealed to the designer, the technologies that are more suitable for the achievement of the final goal are chosen by the designer himself together with Dyloan's experts

(Lineapelle, Dyloan, 2020 b). Dyloan managers never say no to a project, they just try to find the perfect solution to achieve the goal with the combination of different technologies and techniques following a trial and error process.

4.1.3 Digital craftsmanship

The word “craftsmanship” for the company symbolizes the work that is carried out every day in the day-to-day activities where the artisanal tradition is combined with the use of modern and innovative technologies. That’s why “*digital craftsmanship*” is the leitmotif of the company development. The term digital craftsmanship is used to describes the “*skill of expressing an artistic aim, through the use of soft physical materials together with a system supported by digital elements*”. These digital elements can be of various types such as the technological inspiration, the technology embedded in a project, and the technologies required for the manufacturing and production processes of garments. With the advent of the digital craftsmanship, the future of wearables is now opening up to include programming the whole garment in terms of the materials used to produce it, its form, manufacturing process, level of customization, and the related services (Andersen, et al., 2019).

The “*digital craftsmanship*”, inside the Dyloan company, is maintained in the realization of products and projects from their conception to their production, making craftsmanship and technology interact (Accademia Costume E Moda, The Woolmark Company, 2020). For Dyloan the technology is a tool at the service of the employees and workers to obtain unique results. The collaborations implemented through the years with fashion designers helped the company to understand how technology can become an element of extreme characterization and strength in the realization of handmade products. To obtain unique results it is of critical importance to combine fresh new ideas with the experience of the skilled workers. Since the beginning, the company had in mind the concept of taking tradition and transforming it through the use of technology. This is a winning choice since it gave to Dyloan the possibility to stand out from the rest of the industry. The know-how of the company constitutes a bridge between creativity and technology. Since technology can be considered as something cold and very practical having a way of interpreting technology is the solution that allows creating unique and

innovative products (Camera Nazionale Della Moda Italiana, 2020). With the intent of giving a framework, a meeting occasion, and a reference point to creative, designers, professionals, technicians, and the production workforce, the company will start (in September in Milan) the “*D-House project*” (Dyloan Group, D-House, 2020). Worldwide industry leaders are involved in the project such as Lineapelle, Woolmark, Framis, and Stratasys to focus on the use of technology on alternative, sustainable, and fine materials. The project will create a place where technologies will be evolved moving towards sustainability and where brands, companies, and professionals can discuss every opportunity the technological world has to offer to the textile and fashion industries (Camera Nazionale Della Moda Italiana, 2020). Loreto Di Rienzo explains how this project synthesizes Dyloan's experience: establishing synergies and collaborating with the different actors that make up the fashion industry to create technological solutions applied to fashion products. The aim is to involve all those who are interested in technology (even competitors) to improve together. The bigger the network the higher is the possibility to be successful. There are two main groups of actors that are involved in the project, the “technology manufacturers” and the fashion creatives such as designers, stylists, and brands. The duality of the participants’ composition allows bringing together technology, materials, and creativity that are all the essential elements to create new outstanding performances.

4.2 Dyloan for sustainability and circularity

For Dyloan, sustainability and circularity are fundamental principles around which developing its activities, processes, and operations. This means the company is committed to reduce its environmental impact and preserve the local territory and natural resources. Dyloan, in carrying out its manufacturing activities (with the Bond Factory division), seeks to combine economic growth with sustainable and responsible development. This translates also into the commitment of the company (mainly through the Dyloan Studio) to transmit values such as transparency, collaboration, respect, and trust to the entire supply chain. In this regard, Dyloan has developed various training activities for its employees, such as the program on the management of waste, to increase the levels of upcycling and recycling that follows the production processes. Dyloan can be a point of reference, or an example, for all the fashion

players that want to both integrate sustainability into their strategies and corporate processes and invest in spreading the "*culture of sustainability*" at all company levels.

In other words, for what we mean when speaking about sustainability, Dyloan moves in two directions. The first one is direct to raise its customers' awareness of how sustainability can offer new opportunities in terms of fashion, trends, and therefore sales. The other direction is instead the effort towards the certification of products and materials, interacting with companies that certify their materials too, to create a final product that is the result of a cycle that meets high-quality requirements (Genitron, 2008).

4.2.1 Commitment to "2030 Sustainable Development Goals"

Sustainability is an important principle that is at the basis of the work of Dyloan. The goal is to operate in a responsible manner and be artisans of sustainable economic growth in both its environmental and social aspects (Dyloan Group, 2020 b). The Dyloan's pursuit of sustainability follows the objectives of the Global Agenda for sustainable development, the "*2030 Sustainable Development Goals*" (United Nations, Sustainable Development Goals Platform, 2015). In the last 10 to 15 years, Dyloan's commitment to sustainability has been high and is set to be implemented in the coming years. According to the sustainability-centered analysis, the most relevant goals that need to be mentioned are:

- Responsible production and consumption: the aim is to reduce the consumption of energy and the relative inefficiencies. This is one of the most important challenges for the group. The reduction of the internal consumption levels is maximized thanks to the operational management of waste that proceeds with the revaluation of waste. The efficiency of the production system is monitored through the use of management methods under the ISO9001: 2015.
- Acting for the climate: promoting and strengthening the collaborations with NGOs, "*green*" bodies, and associations. The final goal is to share the commitments to mitigate the negative externalities on the climate. For instance, one of the actions undertaken by Dyloan in this direction is the preference for local suppliers for the creation of a national supply chain reducing transport-related emissions. Another example is given by specific training

programs for all the employees and actors of the Dyloan's supply chain and network, to spread the culture of sustainability and environmental responsibility.

- Use of clean and accessible energy: using just renewable energy sources is one of the goals of the company. This is why Dyloan is investing in increase the energy efficiency of the plants replacing the lighting systems and planning to install solar panels.

4.2.2 Dyloan collaboration with PLEF

The Planet Life Economy Foundation is a non-profit organization that seeks to give substance to sustainability principles by integrating them into practical business practices and operations for managers. The organization promotes a framework for the creation of “*real value*” at all levels of sustainability (the economic level, the social level, and the environmental one). Dyloan has been developing a collaboration with PLEF for more than ten years, intending to embed its operations with sustainability values and principles (Planet Life Economy Foundation, 2019). It all began during the crisis and recession of 2008 when the discussions of happy de-growth began. Loreto Di Rienzo speaking with Paolo Ricotti (the founder of PLEF), came into contact with a new economic vision. If sales numbers cannot increase and a price war is risky and dangerous, the solution is to increase the value incorporated in the products offered to the market. Dyloan decided to translate the challenge of adding value to its products into the commitment to sustainability. This commitment is realized in the following principles.

- Gathering action and thoughts of the “*Sustainability movement*” into a joint project, through partnerships and collaborations, linking new concepts and experiences. Moreover, Dyloan promotes the active exchange between universities, researchers, entrepreneurs, managers, institutions, organizations, and consumers. Some examples of such collaborations are the one with Accademia Costume e Moda, the IED of Rome, and the “*New skills, new textiles*” project developed together with the Camera di Commercio di Chieti and the Istituto d’Arte Nicola da Guardiagrele.
- Contribute to the evolution of the existing socio-economic model towards exhaustive sustainability. The company identifies techniques, applications, tools, and technologies thanks to the continuous investment in R&D. Dyloan, at the same time, builds a solid

scientific and cultural base on which to create, in the long-run, new and more sustainable industrial development policies.

- Develop a problem-solving approach to deal with environmental issues, seeking to minimize the use of virgin raw materials and preserve the environment and its scarce natural resources. For instance, we can mention the use of a fiber derived from the corn the “*ingeo*”, natural resins, and certified organic cotton. Moreover, the group implemented the recycling activities, hence a 100% recycled leather shredded and reconstructed using a natural resin.
- Encourage sustainable development and orient the business model and strategies following the principles and constraints of sustainability (Dyloan Group, 2020 b). CSR (corporate social responsibility) has a central role in Dyloan’s operations and has been developed thanks to the partnerships established with research, experimentation, and development companies. The management focuses on raising employees’ awareness of sustainable practices and techniques. In accordance with what just stated, the figure of the group in charge of sustainability is always present within the company to guarantee efficient and effective management of environmental and social issues. The main objective of the sustainability manager is to assess, evaluate, and reduce the environmental and social negative impact of all the activities carried out by the company. The CSR manager, through ethical and transparent behavior, reconciles the economic objectives of the group with the positive externalities that the company can bring to the environment, the community, and the territory.

4.2.3 Circular Economy in practice:

Both sustainable consumption and production, under the Circular Economy principles, aim to “*do more and better by using fewer resources*”. This translates into seeking to increase the positive externalities of economic activities in terms of well-being, by reducing the use of scarce resources, the levels of degradation and pollution throughout the entire production process and product life cycle. This permits to improve the quality of life. To promote a sustainable and circular economy, Dyloan is currently committed to several projects involving manufacturers,

realities, and institutions. Some examples of Dyloan's commitment to circularity are listed below.

- *"Re-fitting, fashion"*. This is a recycling and reuse project developed in collaboration with ITS of Pescara, Ca 'Foscari University, and MIUR. The project intends to enhance the use of new technologies to reinvent and re-enter primary waste and unsold inventories in the fashion marketplace. The project goal is to rethinking, reinvent, renovate the traditional production processes to reduce the amount of waste generated, not only during the production phases but the one due to prototypes and unsold products. The project will generate a sustainable framework and approach to deal with the problem of over-production, working on the upcycling of production waste. Circular Economy principles are met since Dyloan seeks to reintroduce on the market, through variable transformations, unsold or failed garments and fashion products.
- *"Re-Think, Re-Use, Re-Knit Project"*. This project is developed in collaboration with Marina Spadafora and the Fashion Revolution global movement, to stimulate the rise of circular economy practices. Fashion is now based on the concepts of re-think, re-use, re-knit of unsold garments and fashion products through a different design approach. The design approach involves knitwear manufacturers, the spinning mills, and the designers. Dyloan's message is clear: with the support of the technologies available today and creativity, is possible to recover unsold or failed products by transforming them into new, useful, and valuable objects. Fashion Revolution Italia has given its support to this project joining forces to save objects from waste, landfills, and incinerators.
- *"Italo Marseglia – Rubedo"*. On the occasion of the winter edition of Altaroma, Italo Marseglia, with the combined support of Dyloan, IED, and Sophie Hallette presented the Fall / Winter 2019-2020 collection *"Rubedo"*. This is an outstanding example of sustainable and circular fashion. Dyloan has managed the heat sealing of lace and fabrics achieving incredible results in terms of quality, creativity, and colorful final effect, made possible thanks to the use of nets, chantilly, rebrodé, veils, and other assembling techniques.
- *"Arakne Non-Woven"*. The project was presented at the *"2012 Fuori Salone"*. All materials were seen as part of nature and in need to be regenerated. The project was developed in

collaboration with the artist Svetlana Kuliskova. Raw recycled fibers and extremely poor materials were combined such as silk, merino wool, cashmere, cotton, viscose, and recycled jute.

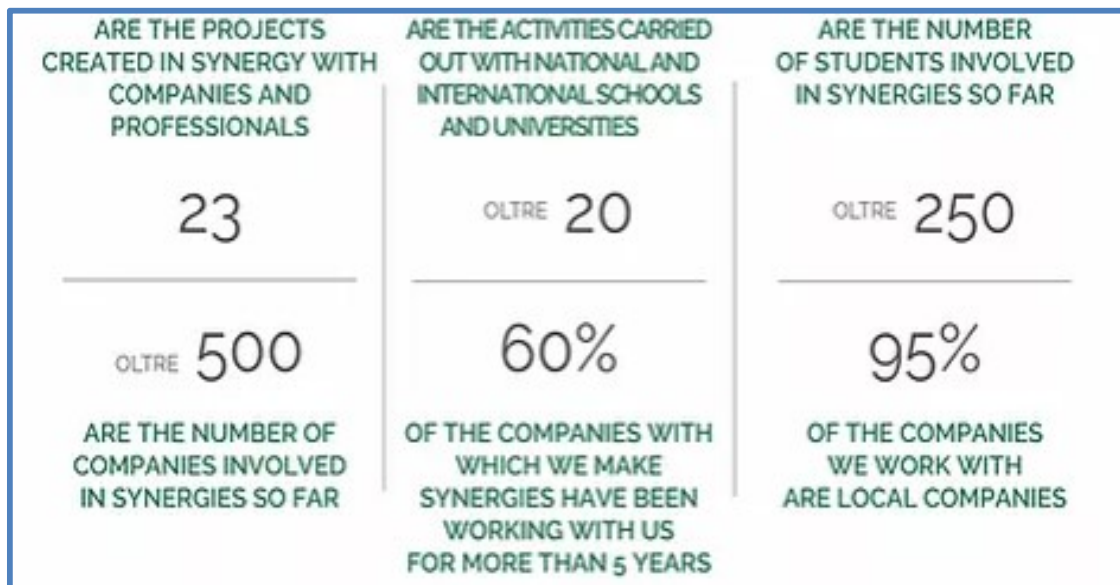
4.3 Synergies and link with the local territory

One of the main elements that characterize Dyloan is the great value that it gives to the synergies with its network of stakeholders. Since the beginning of its journey, Dyloan aimed to become the Italian reference point for quality, innovation, and creativity. The company creates synergies with all the actors of the supply chain, from the students, artists, creatives, and designers to the textile companies, research centers, and trade fair organizations. Since the supply chain is made up of many different actors, Dyloan does not only involve manufacturers and manufacturing companies. The group also collaborates with specialized schools (both national and international) not only to allow students to understand how the supply chain works but also to find the talents it needs. Over time, the company has carried out many projects, collaborating with companies and professionals, intending to transform the supply chain into something tangible by connecting the various companies and players in the local territory. Synergies can be interpreted as the basis of the relationships Dyloan developed over the years with its partners. The final objective of such synergies is promoting the *“manufacture of the future”*, where the excellence of the supply chain is enhanced and a more ethical and sustainable fashion system is ensured (Dyloan Group, 2020 c).

The link with the territory, its culture, and its community has always been of central importance for the Dyloan group. After the outbreak of the Covid-19 pandemic these linkages have gained a renewed importance, following the trends of the fashion sector as a whole (cf. chapter three, local vs. global). The group has great awareness of the need to protect the local territory, from an environmental and a social perspective. This is the reason why the company, for more than 20 years, has enhanced Italian excellence of manufacturing activities, establishing partnerships with over 200 fashion and technology factories, more than 100 creatives (such as designers and stylists), and 100 entities that operate in fashion and design sectors (such as universities and research centers). The trust and loyalty of the members of its local network is a key element for

the Dyloan group to maintain its exceptional made-in-Italy know-how. This link with the territory is set to develop in the future years giving to Dyloan the opportunity to grow despite the actual global economic crisis.

Exhibit 7: Dyloan’s network and synergies.



Source: Dyloan Group 2020 (c).

The strong link with the territory is reflected in the "Made in Locally" project that enhances the excellence of the local territory. Made in Locally is a network of manufacturing companies that comprises all stages of the supply chain (from the wool producer to the embroiderer), based in Abruzzo, and operating in the fashion sector. The motto and declaration of intent of the project are "Aggregate to support and enhance the future". The Made in Locally project was created by Dyloan and four other companies, all based in the provinces of Teramo, with the desire to protect the Made in Italy. The involved companies are moved by the idea that collaboration is the most effective weapon to preserve the local know-how and Italian heritage.

4.4 Reaction to the issues brought by the Covid-19 pandemic

During the first months of the Covid-19 pandemic and the consequent global crisis, the focus of the company on sustainability and circularity practices have increased. The link with the

territory and the synergies created with local fashion players and technological partners seems to have gained a renovated importance, in line with the trends of the fashion sector. With the course of time and given the capabilities of the company, Dyloan has developed more specific trends and research activities. Along this path, the group has noticed how the issues typical of sustainability and circularity are increasingly affecting even those who were not previously interested in such themes.

During the first stages of the global pandemic, the Bond Factory division decided to proactively deal with the current crisis, helping in the present the local community and laying foundations for a future that is still full of uncertainty. The new division “*BFxMED*” was created, starting from April 2020, with the aim of producing made in Italy certified PPE and individual security tools thanks to the Italian supply chain. The experience of the company, active for more than 30 years in the fashion and luxury sector, permits Dyloan to exploit its cutting-edge technologies and the Italian know-how.

The BFXMED division was firstly created to face the emergency and proactively help the Italian institutions and organizations involved in the solution of the pandemic issues. This intent was met thanks to the production of PPE, but now the BFXMED division has become a permanent branch of the Dyloan group to respond to the needs of a changed fashion market, the modified necessities of consumers, and the new reality we have to get used to. The in-depth research of materials, processes, and finishes that have always characterized the Dyloan company, combined with the know-how and experience in the fashion sector, offers the possibility to Dyloan to create solutions characterized by high quality and innovation. The production of individual protective devices (certified by competent institutes), thanks to the antiviral and antibacterial treatments of textiles, is the result of the merging of functionality, quality, aesthetics, and advanced technologies. Even if the BFXMED division is producing protective tools that are suitable for guaranteeing personal safety, the fashionable aspects are not left behind, and all the protective clothing and tools that the company is actively producing are customizable at diverse levels. The Dyloan group manufacture different tools all certified by competent institutions such as masks, protective suits, surgical caps, visors, gowns, and shoes all suitable for guaranteeing personal safety.

The biggest problem in the development of the BFXMED business unit is related to the supply chain. The entire system, know-how, value chain, and infrastructure for PPE production was completely missing in Italy. Dyloan realized that, unlike what happened in China where the conversion of different companies into individual protection tools manufacturers took just a few days, the process would have been longer in Italy. Raw materials, laboratories, certification centers, rules, and some technologies were created as a system from scratch. Dyloan was therefore faced with the double challenge of converting the company and relating to a system that was in the work in progress phase moving the first steps towards its evolution (Dyloan Group, Micelli, 2020 d).

4.5 What comes next?

The technologies that the Dyloan company uses and the services that it provides contribute to the development of sustainable practices and frameworks that the fashion system as a whole can follow to increase the commitment towards sustainability and circularity. The Dyloan company is defining a new path towards the sustainability of the fashion industry, if not globally, at least at the level of the Italian fashion market. This path could be a factor of competitiveness for the Dyloan group, and a growth engine for the spread of renewed sustainability attention. Dyloan can be a point of reference for all the fashion actors that want to integrate sustainability into their strategies, business models, and corporate processes and that want to spread, at the same time, the *"culture of sustainability"* at all company levels.

The company creates synergies with all the actors in the supply chain. Dyloan promotes the active exchange of thoughts, skills, and opinions not only between haute couture international designers and companies producing technologies and new materials but also between universities, researchers, entrepreneurs, managers, consumers, institutions, and NGOs organizations. The final objective of the synergies developed by Dyloan is promoting the *"manufacture of the future"*, where the excellence of the Italian supply chain is enhanced and a more ethical and sustainable fashion system is ensured. The collaborations and partnerships implemented through the years helped the company to understand how technology can become an element of extreme characterization and strength in the realization of handmade

products. The continuous interaction of the different actors that make up the Dyloan's network and the continuous process of research and development that contradistinguishes the firm allows the company to develop unique know-how. The main characteristic that differentiates the Dyloan's know-how from the ones of other fashion players is the balance between high levels of technology and high-quality craftsmanship. This balance of different thrusts has the purpose of generating both innovative ways and new tools suitable to be applied to the creative process of the company clients. Moreover, thanks to the use of graphic systems and processing methods, the group and its customers can combine together different technologies and techniques, boosting creativity and innovation, increasing the number of possible solutions, and achieving outstanding results in terms of functionality, personalization, sustainability, and efficiency.

As we already stated the "*digital craftsmanship*" is the leitmotif of the company development that is present in all the stages of the realization of products and projects (from their conception to their production) making craftsmanship and technology interact. The company operates following the idea of transforming tradition through the use of technology. This is a winning choice since it gives to Dyloan the possibility to stand out from the rest of the industry. The company constitutes the connection between creativity and technology: artisanal tradition is combined with the use of modern and innovative technologies. The experience earned over the years together with the company know-how makes it possible for Dyloan to improve old technologies and develop new ones related to the management of craftsmanship and the industrialization of production processes. The company develops, designs, and produces following the principles of sustainability, circularity, and transparency. Its focus on operations and activities gives life to a new way of thinking about the production and manufacturing processes of fashion items that are closely related to sustainable practices. Dyloan, carrying out its manufacturing activities, seeks to combine economic growth with sustainable and responsible development. This translates also into the commitment of the company to transmit values such as transparency, collaboration, respect, and trust to the entire supply chain. For what concerns sustainability, in fact, Dyloan tries to raise its customers' awareness of how sustainability can offer new opportunities in terms of fashion, trends, and therefore sales. If

sales numbers cannot increase and a price war is risky and dangerous, the solution is to increase the value incorporated in the products offered to the market. Dyloan decision to translate the challenge of increasing the value embedded in the products into the commitment to sustainability is in the wake of the most recent fashion market trends. The company is putting its efforts also in the certification of products and materials, interacting with companies that certify their materials too, to create fashion items that are the result of a cycle that meets high-quality requirements from the beginning to the end (Genitron, 2008).

The Dyloan case study demonstrates that the loyalty of the members of the local network is a key element for maintaining the exceptional made-in-Italy know-how. This link with the territory is set to develop in the future years giving to Dyloan the opportunity to grow despite the actual Covid-19 global pandemic and the consequent economic crisis. The company's latest goal is to implement even more the development of profitable relationships within its network. The aim is to build a framework, a reference point, and a meeting occasion thanks to the "*D-House project*" (Dyloan Group, D-House, 2020) involving all those who are interested in the fields of fashion and technology (even competitors) to improve together. The co-participation of "*technology manufacturers*" and "*fashion creatives*" allows bringing together new technologies, raw materials, and creativity that are the three essential elements to generate outstanding performances in terms of sustainability and innovation. The project will exploit technology to achieve higher levels of sustainability. Brands, companies, and professionals will collaborate, discuss, and explore every opportunity the technological world can offer to both the textile and the fashion industry. The focus will be on the use of technology on alternative, sustainable, and fine materials. Since worldwide industry leaders are involved (such as Lineapelle, Woolmark that have the competence to certify products and processes) the project has the potential to establish and define a new framework for sustainable practices in accordance with the "*new normal*" of the fashion industry providing a new path towards the achievement of higher levels of sustainability.

Dyloan is contributing to the evolution of the existing socio-economic model towards exhaustive sustainability. The company is able to identify the techniques, applications, tools, and technologies most suitable for its scope thanks to the continuous investment in R&D. Dyloan, at

the same time, is committed to building a solid scientific and cultural base from where it can start to create, in the long-run, new and more sustainable industrial development policies. Developing a problem-solving approach to deal with environmental issues, identifying and outlining the best practices to achieve sustainability are actions devoted to the goal of minimizing the use of virgin raw materials and preserve the environment and its scarce natural resources under the principles of Circular Economy.

Summarizing the sustainability commitment of Dyloan, we can state that the company encourages the sustainable development of its entire supply chain and orients its business model and strategies following the principles and constraints of sustainability. Moreover, the actions taken by the firm during the first months of the pandemic are in accordance with the shifts imposed on the fashion industry by the advent of the Covid-19 global pandemic. Non the less the increasing importance of the Circular Economy is not left behind both in the short-run and long-run strategies.

Conclusions

The last objective of the thesis was to describe and analyze the possible outcomes that the Circular Economy will generate in the fashion industry and how these are related to the changes brought by the Covid-19 pandemic. As demonstrated by the analysis conducted by the thesis the impacts of the Circular Economy on the fashion sector are being affected and modified by the outbreak of the Covid-19 pandemic. The recent outbreak of the virus is having a huge impact on consumers' behaviors, market regulations, and policies. The research question that the paper tried to answer is if and how can Covid-19 (and the issues that it implies) lead the Fashion Industry towards a shift to a more sustainable *modus operandi* based on Circular Economy's principles? During the analysis of the actual economic scenario and of the environment of the fashion sector what emerged is that, despite the high amount of negative consequences that the Covid-19 pandemic is generating for the players in all the stages of the fashion supply chain, the actual global crisis can also offer new opportunities to agile, creative, and flexible fashion players. The challenges that the Circular Economy creates for the fashion industry share some common traits with the ones given by the pandemic. This means that the solutions applied to overcome the challenges of the current pandemic and humanitarian crisis can be useful also from a Circular Economy perspective. The four main areas that the paper identifies as fundamental for a business in order to achieve higher levels of circularity and sustainability and, at the same time, to overcome the pandemic issues are on-demand manufacturing, the tendency to go local instead of going global, the end of fashion seasons, and consumers centrality in the business strategies. The performance that a company can achieve in all these four areas can increase thanks to the use of digital practices and the consequent digitalization of some parts of every step of a product life cycle, from digital prototyping to e-commerce.

To summarize the expectations of the different actors of the fashion market we start from the consumers. The fashion market's consumers, as demonstrated by a research of the Boston Consulting Group (BCG, Sustainable Apparel Coalition, HIGG Co., 2020) are increasingly aware and concerned about social and environmental responsibility; they are moving away from their throwaway culture that is all about buying new stuff (Mistra Future Fashion, 2013). The

research shows that 75% of consumers interviewed view sustainability as extremely important. This is further demonstrated by the increase in sustainability mentions on social media, which has been more than proportional with respect to the overall growth of social media posts. This means that, as consumers' expectations and desire for transparent information increase, fashion brands have the opportunity to leverage their work toward better practices. The raising awareness drives consumers to buy from the brands they trust, in fact, the research shows that 38% of consumers switched from their preferred brand to another that credibly stands for positive environmental and social practices. Moreover, young consumers are even more interested in the sustainable practices of fashion players. From the perspective of fashion players, instead, what we see is that even the most successful brands face limits to what they can achieve without collaboration. A strong ecosystem of partnerships (within the companies' networks, supply chains, and also with competitors) is required to identify the best practices and to inspire the implementation of innovative solutions (Global Fashion Agenda, 2019). Sustainability measurement must identify where the negative externalities and impacts are generated within the supply chain. However, the debate is generally confined to the level of the first-tier suppliers rather than considering all the different stages of the supply chain. Unfortunately, most of the time it remains unclear how to drive environmental change and integrate it at further levels in the value chain. Increased cooperation, thanks to partnerships and collaborations, is needed for companies to achieve sustainability goals (Karaosman, et al., 2018). We cannot forget that governments and policymakers can play a dominant role in accelerating the pace of the fashion industry's work toward more sustainable practices and in advancing the environmental and social practices of the fashion players. There is much to be done to create a supportive regulatory framework, which the fashion industry players should seize and seek to further develop also thanks to the intervention of NGOs active in the field (Global Fashion Agenda, 2019).

The characteristics of the business environment, such as the supply chain complexity, the cultural and communication barriers, the power dynamics, the high uncertainty of different geographical markets, and the lead-time pressure, precludes the implementation of sustainable and circular practices. However, the implementation of environmental and social practices

could be a value-adding element for business strategies that permits incorporating higher levels of value in fashion products. A shared vision with all the actors of a firm's supply chain is a key resource that enables companies to move from a reactive to a more proactive environmental approach. A proactive sustainability strategy is dependent on specific processes, the embeddedness of stakeholder integration, the degree of technological innovation, and continuous improvement. Obviously, it is more difficult to implement such radical changes in a complex business environment (Karaosman, et al., 2018). The problems and issues faced by big multinationals and global brands were already evident some years ago, as the article "The retreat of the global company" of The Economist (The Economist, 2017) emphasized in 2017. We cannot state that the Covid-19 pandemic generated by itself all the changes that the fashion industry is undergoing in the present period, but it gives to these issues a renewed centrality, accelerating the urgency and, at the same time, the push towards a substantial change in the way of operating of the fashion industry (Dyloan Group, Micelli, 2020 d).

The Italian market is a perfect environment within which investigating the solutions that fashion players are implementing to overcome both kinds of issues. The Italian fashion industry is characterized by an excellent local supply chain (Forbes, Russo, 2019) and uniqueness since it encompasses local artisans, small highly-specialized businesses in local districts, medium companies, and large brands. For consumers, a "made in Italy" label on a garment means a mix of luxury, high quality, and creativity. The objective for the coming years, for the Italian fashion players, could be to elevate also the sustainability of the Italian fashion supply chain to levels of excellence. After giving some examples of Italian fashion players (both incumbents and start-ups) underling the differences in their approaches to sustainability and highlighting the categories to which the solutions belong, the case of the Dyloan company must be mentioned. Even if from what emerges from the analysis is that innovative, small, agile, and flexible start-ups are more likely to develop effective solutions to the current fashion market issues, anyway Dyloan (an incumbent manufacturer of the Italian fashion market) has the potential to define one of the possible new paths that firms can follow to become more sustainable, circular, and "risk-free" (concerning the risks given by the Covid-19 pandemic). By combining traditions and

technological innovation, the company finds solutions to both the actual issues brought by the pandemic and the challenges proper of the Circular Fashion.

The European Commission forecasts that by the year 2050, the world may need three times more resources than we are currently using, due to both the growth in world population and general consumer demand. The Circular Economy offers logical and sustainable principles to overcome the problems of limited resources and high waste levels. The idea is to keep resources and materials in use, to let them create new additional further value. *“Sustainability in the fashion industry is not just a temporary trend, and it is the contemporary future”* as demonstrated by the next generation that is slowly inclining towards transparency, ethics, and sustainability. Collaboration between different entities and continuous technological innovations are the key elements to achieve a more sustainable Circular Fashion (Patwa, Seetharaman, 2019).

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