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Tackling Climate Change with End-of-Life Circular Fashion Practices—Remade in Italy with Amore

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The fashion industry makes a sizeable contribution to climate change. Research on grand challenges has now gained momentum in the management literature, given the vast array of grand challenges that are now globally affecting industries, societies and governments, such as the COVID-19 pandemic, the war in Ukraine and global warming. By coupling paradox theory with the literature on circular economy, this paper investigates the end-of-life circular practices implemented by 'born-circular' Italian fashion companies. The paper focuses on upcycling and remanufacturing, which have been neglected in the literature and whose widespread implementation has been deemed suitable to tackle climate change. The analysis of several in-depth interviews with companies and industry experts results in the development of a process model. The model provides granular insights into the environmental value created by the implementation of end-of-life circular practices by fashion firms in their quest to tackle climate change. The study both suggests that paradox theory is likely to have broader applicability to reconcile a wide set of managerial and societal issues and also supports the argument that overcoming an intrinsic paradox could lead to a strategic pivoting within an industry that might yield a paradigm shift.

Introduction

The paradoxical nature of fashion is eloquently captured by the statement,'*I love fashion, but it's everything I hate*',[1] whose underpinning tensions have been discussed chiefly by Korica and Bazin (2019). They argue that, despite being widely perceived as ephemeral, fashion is a key interdisciplinary concept and a substantial global industry. As such, they urge scholars to consider the industry more seriously, as a set of theoretical tensions, and as an empirical phenomenon of rich potential interest.

The paradoxical nature of the fashion industry along with its highly creative nature (Radaelli et al., 2014) are key departure arguments for this paper, as it endorses the view that the fashion industry is indeed the ideal setting in which business can be reimagined as a force for good.

We aim to respond to the call put forward by George et al. (2016, p. 1880) to inspire management scholars to'turn research into actionable insights to frame and tackle some of the biggest challenges that we face in our global community'. More precisely, with the aid of paradox theory (De Angelis, 2021; Branicki, Kalfa and Brammer, 2022; Smith and Lewis, 2011), this paper focuses on the current detrimental impact of the fashion industry on climate change as a grand challenge to propose an alternative scenario whereby the widespread implementation of specific end-of-life circular fashion practices, such as upcycling and remanufacturing, could ultimately curb its carbon footprint.

The fashion industry accounts for 2% of the world's gross domestic product and is undoubtedly one of the largest and most important consumer industries of the global economy (Global Fashion Agenda and The Boston Consulting Group, 2017). The fashion industry

[Correction added on 15 March 2024, after first online publication: The text in Abstract has been updated in this version.]

[1]Prigent, L. (2016). *J'adore la mode, mais c'est tout ce que je déteste*. Paris: Grasset.

is also a significant contributor to climate change, both positively and negatively. Positively, many fashion companies have now started using sustainable materials such as organic cotton, recycled polyester and biodegradable fabrics that have a considerably lower carbon footprint than traditional materials such as synthetic fabrics, which require vast amounts of energy to be produced. Similarly, sustainable production practices such as using renewable energy sources, reducing water consumption, and minimizing waste are being implemented by many fashion companies to reduce their carbon footprint.

However, the negative impact of the industry undoubtedly exceeds its positive impact. As the press and the academic literature keep reminding us, the fashion industry is destroying the planet. The industry is characterized by an intrinsic tension generated by increasing over-consumption and by a production system that has become unsustainable from the environmental point of view. This industry relies on a linear production system that uses mainly non-renewable resources and that requires the intensive use of water. The huge amounts of waste generated are landfilled or incinerated (EMF, 2017). Furthermore, the industry in 2018 was responsible for about 2.1 billion tons of greenhouse gas (GHG) emissions, a share of 4% of the total global emissions and a figure that is comparable to the combined emissions for France, Germany and the United Kingdom. Around 70% of the industry's emissions came from upstream activities such as material production, preparation and processing[2] (McKinsey and Co and Global Fashion Agenda, 2020). Additionally, the global nature of the industry means that products and raw materials are often transported from long distances, resulting in significant carbon emissions from transportation.[3]

On the other hand, fashion consumers are becoming more aware of climate change and of the impact of the industry on the environment. Their perceptions are driving changes in behaviour, including in buying habits, recycling and education. Fashion companies need to understand the changing attitudes of consumers and respond by offering sustainable fashion choices to meet their needs.

Climate change can be clearly classified as a grand challenge whose complexity and uncertainty are plaguing government and business globally (Ferraro, Etzion and Gehman, 2015; Goworek et al., 2018) and whose proposed solutions are spurring political and social unrest worldwide (Shaw et al., 2018). Indeed, it is'arguably the most significant challenge of the twenty-first century' (Rashidi-Sabet and Madhavaram, 2022, p. 267). The number of studies on grand challenges is growing significantly, as there is an urge 'to guide practitioners' understanding of the nature of the thing they are trying to address' (Howard-Grenville and Spenler, 2022, p. 279).

Because the industry is so resource-intensive, a transition to a circular paradigm is desirable, yet systematic research on the opportunities and challenges of the implementation of this transition is still fragmented. The literature has mostly focused on product life extension through'slow fashion' (Jung and Jin, 2014) and on recycling (Harmsen, Scheffer and Bos, 2021; Niinimäki and Karell, 2020). However, strategies aimed at decoupling waste growth from economic growth in the fashion industry (Sinha, Senthilkannan Muthu and Dissanayake, 2016) are based on a 'waste hierarchy',[4] whereby recycling is not proven to be sufficient to treat all waste produced within the industry. Hence, recently, the industry's discourse on environmental sustainability has shifted from a focus on recycling materials to a more 'holistic' perspective that embraces design for disassembly and upcycling/remanufacturing, and to new business models to keep in loop finished products (DiVito, Leitheiser and Piller, 2023). This shift notwithstanding, very little attention has been devoted so far to upcycling (Cassidy and Han, 2017) and remanufacturing (Dissanayake and Sinha, 2015; Pal, Samie and Chizaryfard, 2021) as end-of-life circular practices to obtain greater environmental gains. Remanufacturing and upcycling are regarded as higher in the waste hierarchy than simple reuse or recycling, and their widespread implementation has been deemed suitable to reduce the carbon footprint of the industry (EMF, 2020). These practices imply a reverse supply chain, whereby used or discarded garments are retrieved from end-consumers and sent back to the retailer or manufacturer, to have their value recovered (Agrawal, Singh and Murtaza, 2015). This reverse logistics process ensures environmental benefits, such as reduced waste by diverting materials from landfill and the conservation of natural resources (energy and materials), yet it poses several challenges to companies implementing it, such as the capacity for planning, controlling

[2]The remaining 30% were associated with downstream retail operations, the use-phase and end-of-use activities.

[3]As a significant contributor to climate change, the industry needs to act now to reduce its GHG emissions. The revenues of the global fashion market are expected to grow at an annual rate of 5.5% compound annual growth rate (CAGR 2021–2026) (Statista, 2021). On the current trend, by 2050, the industry could use more than 26% of the carbon budget associated with a 2°C pathway as defined by the 2016 Paris Agreement (UN, 2016).

[4]The waste hierarchy includes the following waste management operations: (a) waste prevention; (b) re-use and preparation for re-use; (c) material and biological recycling; (d) energy recovery from waste; and (e) disposal to controlled or uncontrolled landfills, land or water. The term 're-use' is defined in the Waste Framework Directive as 'any operation by which products or components that are not waste are used again for the same purpose for which they were conceived' (European Commission, 2018; Article 3).

and—in the end—the capacity to make a profit out of it (Guide and Wassenhove, 2001).

Yet, a blind spot remains around how remanufacturing and upcycling are implemented by fashion companies. This paper addresses this blind spot by developing a process model that provides granular insights into the implementation of end-of-life circular practices and the paradoxes that they entail for Italian 'born-circular' fashion companies in their quest to tackle climate change. These companies provide an emblematic example of 'real utopias' (Gümüsay and Reinecke, 2022, p. 237), as they enable us to shed some light on a desirable future by providing concrete insights into the feasibility of implementing circular practices. The findings therefore offer some critical evidence on how the industry can be a force for good, showing how companies can deliver environmental value (Battilana, 2018; Ferraro, Etzion and Gehman, 2015) by also being pivotal in addressing the grand challenge of climate change.

The intended conceptual contribution that the paper seeks to envision is twofold, namely to *revise* and to *identify* (MacInnis, 2011). On the one hand, the paper suggests the potential of paradox theory as a theoretical lens through which to address a wide range of societal and managerial issues. By doing so, the paper reveals new insights that stem from the *revised* use of paradox theory. Therefore, the evidence presented highlights how overcoming an intrinsic paradox could lead to a strategic pivoting within an industry that could ultimately yield to a paradigm shift. On the other hand, by *identifying* the environmental value of two practices that seemingly do not sit well with the very ethos of the industry (i.e. its thirst for newness) but that at the same time also stem from its inner ability to provide highly creative solutions (i.e. its distinctive trait), this paper enables scholars to better understand and study the paradoxical nature of the fashion industry in relation to climate change.

The paradoxical nature of circular fashion practices

Paradoxes are defined as 'contradictory yet interrelated elements that exist simultaneously and persist over time' (Smith and Lewis, 2011, p. 382). Paradox theory has received some application in the corporate sustainability literature (Hahn et al., 2018; Ivory and Brooks, 2018); it has also appeared in the circular economy literature (Daddi et al., 2019; De Angelis, 2021; van Bommel, 2018) and very recently in the grand challenge literature, but only in relation to the pandemic (Branicki, Kalfa and Brammer, 2022).

Smith and Lewis (2011) provide a taxonomy of organizational paradoxes, namely *learning, organizing*, *belonging* and *performing* paradoxes. These are in turn linked to the core activities and elements of an organization. *Learning* reflects knowledge, *belonging* reflects identity, *organizing* reflects processes, and *performing* reflects goals. *Learning* paradoxes typically emerge during change and innovation processes, because these involve building upon as well as destroying the past to develop the future. *Organizing* paradoxes arise from the processes that are put in place to achieve a desired outcome. *Belonging* paradoxes emerge from competing identities (individual versus collective identity) and competing values, roles and memberships. *Performing* paradoxes emerge from the conflicting demands of internal and external stakeholders. Tensions can occur also across categories. Today, as globalization, innovation, competition, and social demands create more dynamic and intricate environments, paradox becomes a critical theoretical lens through which to understand and to lead contemporary organizations.

Paradox theory and its dynamics are particularly fit to describe the radical change that is shaking up the fashion industry from its core. Fashion companies are *learning* new business practices (such as circular practices) and new business models in order to be more responsive to changing consumer needs. As for *organizing*, fashion companies are gradually shifting from push production, often leading to overcapacity, to pull production, driven by the consumers' needs, and thus implementing a new organization of their business. In relation to *belonging*, fashion companies' identities have started to be shaped by an entirely new set of values, as they abandon their glamourized and often shallow brand images and embrace a sounder social and environmental posture. Finally, as far as the *performing* paradox has been concerned, fashion companies have started pursuing a wider set of goals that transcend the fashion market and financial achievements.

For the purpose of this paper, we draw on paradox theory to reconcile two different facets of the industry—on the one hand, we have the significant carbon footprint caused by an industry that seeks to minimize its environmental impact by paradoxically implementing a set of practices that are still relatively polluting and detrimental for the environment but for which there is a big hype, such as recycling (Niinimäki and Karell, 2020; Sanchis-Sebastiá et al., 2021; Sandin and Peters, 2018). On the other hand, given the recent acknowledgment of the shortcomings of recycling to solve the industry footprint (DiVito, Leitheiser and Piller, 2023), growing attention is being paid to a set of circular practices that have been overlooked both by scholarly work and by the industry at large, such as upcycling and remanufacturing (Cassidy and Han, 2017; Dissanayake and Sinha, 2015; Pal, Samie and Chizaryfard, 2021). There is compelling evidence that, if widely adopted, these practices truly hold the potential to transform the industry by significantly minimizing its environmental impact (Giutini and Gaudette, 2003; King et al., 2006).

This paradox is particularly puzzling, especially in the light of the concept of the so-called 'waste hierarchy', which addresses the prioritization of waste management options according to environmental and resource efficiency aspects. Waste management operations with negative environmental impacts should be substituted by operations that are considered more resource-efficient and environmentally sound. Product repair, refurbishment, and remanufacturing are often environmentally preferable to material recycling and the manufacturing of new products. Remanufacturing is documented to be the most desirable end-of-life product management option for several industries. It focuses on value-added recovery (Guide, 2000), saves material resources and energy, reduces GHG emissions, and leads to safer handling of potential toxic substances in products (Milios and Dalhammar, 2020); it also creates new employment through the adoption of new business models (Sinha, Senthilkannan Muthu and Dissanayake, 2016). These considerations provide an extremely fertile ground on which we can show how the industry can be instrumental in addressing a grand challenge through raising its moral status by transforming itself into a force for good (Rashidi-Sabet and Madhavaram, 2022).

State-of-the-art on the implementation of circular fashion practices

To tackle climate change, moving away from the current linear system is crucial to keeping within reach of the 2°C average global warming limit. In an attempt to address this grand challenge, the concept of circular economy (CE) has recently gained considerable traction amongst academics (Geissdoerfer et al., 2017), intending to facilitate the transition into *circular fashion* (Dissanayake and Weerasinghe, 2022). According to the Ellen McArthur Foundation (2020), the existing linear system leaves untapped economic opportunities, puts pressure on resources, pollutes and degrades the natural environment and ecosystems, and creates significant negative societal impacts on local, regional and global scales.

The transition towards a more sustainable paradigm cannot be achieved by means of product and process innovation alone but rather via fundamentally altering the logic of the value creation underlying current production and consumption systems (Roome and Louche, 2016). Within the literature on grand challenges, attention has increasingly been devoted to investigating how firms innovate and provide value generation (Battilana, 2018) and more specifically how they deliver environmental value (Ferraro et al., 2015).

The perspective of CE—a production and consumption paradigm for achieving sustainable development (Bansal et al., 2022)—draws on a number of schools of thought, as highlighted in the extant literature (De Angelis, 2021); it has typically been engaged in research dealing with environmental and economic issues, as it provides a unifying framework that can solve the challenge of decoupling growth from environmental impact. By building on the notion of product stewardship (Lamming and Hampson, 1996), CE has been conceptualized as 'an industrial system that is restorative or regenerative by intention and design' (EMF, 2013, p. 7). The notion of CE is based on the establishment of closed production systems, where resources are reused and kept in a loop of production and usage, by generating more value and for a longer period, and where the generation of waste is minimized (Urbinati, Chiaroni and Chiesa, 2017). CE is normally represented by the means of four loops of recovery, namely the 4R framework—reduction, repairing, remanufacturing and recycling (Barreiro-Gen and Lozano, 2020). These loops are in turn related to the four key principles of the CE, namely (1) *product-life extension*: products are designed to be durable and to have a long lifetime; (2) *reuse*: preservation of all of the added value within the product; (3) *remanufacturing*: return a product to like-new condition or better performance at the end of its life, with a warranty to match; and (4) *recycling*: used materials are treated to make them suitable for reuse (e.g. Urbinati, Chiaroni and Chiesa, 2017).

With specific reference to the implementation of circular practices by the fashion industry, Dissanayake and Weerasinghe (2022) identify four strategies throughout the product lifecycle, namely *resource efficiency*, *circular design*, *product life extension* and *end-of-life circularity*. These strategies, their priorities, the relevant practices, as well as the major contributions found in the literature, are summarized in Table 1 below.

As the table shows, there is a rich body of literature on resource efficiency, circular design and product life extension, because these practices tend to be widely adopted. Aligned with the concept of 'waste hierarchy', we focus on the end-of-life circular strategy, which aims to replace the end-of-life concept with restoration (EMF, 2013). As far as this strategy is concerned, reuse and recycling have been extensively studied, while limited attention has been devoted to upcycling and remanufacturing. Many authors have investigated the reuse and recycling of used garments. These two practices are the easiest to implement and the most widespread. In fact, the market for second-hand clothing is growing rapidly (e.g. ThredUP, The RealReal, Alibaba Group), mostly driven by consumers' increasing concerns about sustainability and shifting fashion trends, as well as by stagnating incomes (Valor, Ronda and Abril, 2022). Further, there is a growing interest in selling second-hand goods among conventional retail actors such as Zalando, YNAP and Farfetch (Persson and Hinton, 2023). As far as recycling is concerned, the first wave of environmental sustainability, which started in 2008 in

Table 1. Circular strategies, priorities, practices and key findings from the literature on the fashion industry

Strategies	Priorities	Practices	Key findings
Resource efficiency	Narrowing of the material cycles. Using fewer resources in making products.	Selection and use of **sustainable raw materials**. **Replacement of toxic inputs** with bio-based inputs. **Reducing resource consumption** (e.g. water) and **energy conservation** in manufacturing. **Reducing cutting and production waste** (e.g. fabric) with more efficient cutting patterns (e.g. 'zero-waste design'). **Reducing post-consumer waste**.	Evaluation of **environmental management practices** for minimizing energy waste, water consumption, wastewater generation and chemical waste (Kumar et al., 2022). Development of **business models** to prevent the waste of resources and excessive virgin material extraction (Tunn et al., 2019; see also Pal and Gander, 2018). Adoption of **best practices** for reducing and recycling water after removing pollutants (EMF, 2017; Kant, 2012). Economic and environmental benefits of **sustainable design practices** in relation to zero-waste fashion (Moorhouse and Moorhouse, 2017).
Circular design	Allowing the product to be suitable for several lifecycles.	**Design for longevity**: increasing products' durability and longevity. **Design for customization**: customized fit and style. **Design for disassembly**: allowing easy deconstruction of the garments into useful components (e.g. for remanufacturing). **Design for recycling**: reducing material complexity (e.g. using mono-material textiles). **Design for composting**: using degradable fibres.	**Design strategies** aimed at increasing garment durability and the use of high-quality inputs, as well as incorporating **high-durability requirements** in the process of product development (Bocken et al., 2016). To reduce consumption, designing products to adopt changing needs of consumers or that are **timeless or transseasonal**. Enhancing **emotional attachment** and encouraging **longer use and reuse**. Timeless items retain a higher value on the second-hand market (Dissanayake and Weerasinghe, 2022). **Customization**, where the consumer is a *prosumer*, **improves personal attachment to the product** for a longer period and can be scaled to have mass customization (Dissanayake, 2019). **Design-for-disassembly strategies** determine whether and how easily textiles can be removed to **facilitate repair**, **component reuse**, **recycling** and **remanufacturing** (**Active disassembly** is considered as one of the most important disassembly techniques) (Abuzied et al., 2020; Dissanayake and Sinha, 2015) **Digital technologies** supporting **sorting** and **recycling** technologies, and creating **transparency**, **traceability** and **automatization** (Sandvik and Stubbs, 2019). Designing to use **bio-inspired polymers** in textile manufacturing to achieve compostable fabrics, or clothing made from **degradable or compostable plastics** to replace non-degradable, synthetic plastics (Dissanayake and Perera, 2016).

Table 1. (Continued)

Product life extension	Extending the garment functionality and utilization through a series of practices that minimize the need for raw materials and the use of energy.	**Repairing services** (repair, do-it-yourself and maintenance operations). **Sharing platforms**: garment reutilization through renting, leasing or swapping models.	**Retailers' repairing services** to extend the life of a garment and enhance the relationship with consumers (Geissdoerfer et al., 2020; Lüdeke-Freund, Gold and Bocken, 2019). **Sharing platforms** for collaborative fashion consumption, allowing customers to **use a variety of fashion items** and to keep up with the latest fashion trends while **reducing resource consumption** (Colucci and Vecchi, 2021; EMF, 2017; Iran and Schrader, 2017; Liu et al., 2022). **Definition and typology of collaborative fashion consumption** and the structure for **assessing its environmental effects** (Iran and Schrader, 2017). Consumer preference to **rent rather than purchase luxury products (**e.g. for clothes: Rent the Runway, Chic by Choice, LeTote, Dress You Can; for jewellery: Switch; for handbags: Bag Borrow, Steal) (Feng et al., 2020). Peer-to-peer clothing **swapping facilitates new supply and consumption opportunities**; clothes diverted from landfill to alternative supply chains (Henninger, Bürklin and Niinimäki, 2019)
End-of-life circularity	Capturing the value of materials by closing the resource loops, to divert garments from landfill.	**Reuse**: extending the useful life of textile products through their transfer to new owners. **Recycling**: new products using discarded materials, pre- or post-consumer waste, which are collected, sorted and processed. **Upcycling** (also termed refashioning or remanufacturing): upward reprocessing of waste, recovering the intrinsic value through recycling, recutting and refashioning. **Remanufacturing**: disassembly, restoring, and assembly to make a new garment with a quality that is equal to or better than that of new clothing.	Consumer reuse of a fashion product depends on the **quality** of the product itself (Degenstein et al., 2020) and on the availability of **second-hand clothing retailing or rental platforms** (Lüdeke-Freund, Gold and Bocken, 2019). Uncertain quality or standard of supply make many designers **reluctant to use recycled materials**. Most of the recycling is **downcycling**, namely creating a product that is of lower value than the original one (Dissanayake and Weerasinghe, 2022). **Upcycling gives** new and higher value to discarded materials, stimulating an interest for old fashion products that can be redesigned (Cassidy and Han, 2017; Han et al., 2017). **Remanufacturing** as a superior strategy, **preserving both the raw material content and the intrinsic added value** of the product. Regarded as the definitive form of recycling, **used clothes can be upgraded** to a certain extent by replacing a few pieces of a garment with new fabrics, to provide new **aesthetics, quality, and consumer value** (Dissanayake and Sinha, 2015; Pal, Samie and Chizaryfard, 2021).

the fashion industry, was exclusively addressed by implementing solutions based on recycling (see DiVito, Leitheiser and Piller, 2023). As a result, by 2016, many established companies, such as H&M, Zara, Adidas and Patagonia were engaged in launching collections made from recycled materials.

Quite surprisingly, considering their transformative potential for the industry, an investigation into upcycling and remanufacturing still yields scant and fragmented results, even though these practices have been recognized as a new business opportunity and a major business model for fashion companies (Dissanayake and Sinha, 2015; Pal, Samie and Chizaryfard, 2021). While remanufacturing practices have been extensively documented in the automotive and electronics industries (Casper and Saundin, 2018), the lack of research in the fashion industry demonstrates the intrinsic complexity of this process when applied in a context where the variability of garments returned is high and where there is a rapid change in aesthetics and tastes.[5] On the other hand, the emphasis placed by scholars and industry experts on the desirable adoption of remanufacturing in the fashion industry is supported, because fashion consumption is based on trends, and therefore garments are disposed of when material quality is still high so that it is possible to recover their intrinsic value (Sinha, Senthilkannan Muthu and Dissanayake, 2016). Within this context, there are untapped market opportunities related to providing customer value through new looks and aesthetics for fashion customers (Pal, Samie and Chizaryfard, 2021).

The literature has concentrated almost exclusively on the high environmental (and market) potential of upcycling and remanufacturing in fashion, while stressing the many challenges in implementing the process (e.g. the implementation of reverse logistics systems, the sourcing of sufficient and appropriate inputs/materials, the lack of specialist skills and facilities for sorting, disassembly and reassembly, marketing strategies; see Dissanayake and Sinha, 2015; Pal, Samie and Chizaryfard, 2021; Singh et al., 2019). Scholars have also clarified the key differences between the two practices, which are often confused in practice. While the quality of the remanufactured product is equal to or even better than that of the brand-new product, upcycled products should have just a higher value at retail than the original product and can have a different end-use from the original use (Dissanayake and Sinha, 2015).

In relation to what is needed for effective remanufactured and/or upcycled fashion to occur, some scholars have considered practices that are still regarded as nascent and niche (Sinha, 2016; Pal, Samie and Chizaryfard, 2021; Singh et al., 2019). However, empirical evidence is still scant and fragmented in singular cases, and therefore more granular insights on the process faced by companies to implement such practices is needed to complement what is known so far, beyond definitions and differences and similarities with other industries.

Therefore, although the extant literature points to the significance of end-of-life circularity practices in the transition towards circular fashion (Dissanayake and Sinha, 2015; Pal, Samie and Chizaryfard, 2021), we know little about the processes through which these practices come into being.

By coupling paradox theory with CE, Daddi et al. (2019) find the existence of *performing* and *organizing* paradoxes in fashion. Increased environmental sustainability—via the use of secondary raw materials—compromises quality perception in the high-end, luxury leather industry, and hence compromises profitability (*performing* paradox). Furthermore, the tension between creativity and efficiency highlights a paradox of *organizing*.

By capitalizing on this work, the ambition of this paper is to take a step further. More precisely, our study seeks to provide a finer-grained view of the relevant paradoxes that the implementation of the end-of-life circular practices of upcycling and remanufacturing entail. Because these end-of-life circular practices are emblematic of an original organizational approach to deliver environmental value (Battilana, 2018) to tackle climate change (Ferraro, Etzion and Gehman, 2015), such a finer-grained view is needed to inform valuable managerial insights on how a grand challenge can be tackled (George et al., 2016). The claim that 'there is still little guidance on how business may effectively and positively reduce some of the risk that it faces from environmental issues. There is the need to develop practical solutions to meet environmental challenges' (Lamming and Hampson, 1996, p. S45) still seems to hold its ground. By echoing Battilana (2018), our work embraces the view that this challenge can indeed represent a valuable source for innovation that might enable the implementation of a paradigm shift that could deliver significant environmental value creation to society, to the industry, and to consumers.

More precisely, this study seeks to address the following two research questions. Could the very same paradoxical nature of the fashion industry yield to feasible solutions to address a grand challenge such as climate change? Could the entangling of a paradox lead

[5]Exceptions in fashion studies are Dissanayake and Sinha (2015), who provide evidence from five fashion companies on their remanufacturing reverse logistics process; Sinha *et al.* (2016) who, through the analysis of five cases, suggest how the process of fashion remanufacturing challenges the typical fashion design process; and, recently, Pal *et al.* (2021), who use a single case study to assess the challenges related to the scalability of fashion remanufacturing. Finally, Han *et al.* (2017) identify the differences between upcycled and standard fashion and design, production and research processes using seven UK niche brands.

to a better appreciation of the nature of the problems faced by companies in implementing solutions to climate change?

Methodology

Data collection

What has been lacking in extant research is an in-depth study that explores how companies tackle climate change through upcycling, remanufacturing, and other end-of-life circular practices. By relying on a qualitative inductive approach, our aim is to gain a better understanding of these practices through the experience of those who implemented them and thereby gain fresh insights and unique viewpoints. This approach to empirical research provides a richer and deeper understanding of the meaning that people (i.e. informants) place on actions, events and relationships (Yin, 2011).

With the aim of structuring an analysis characterized by a high degree of significance and theoretical value, we collected data from two samples—company founders or executives (i.e. key informants) and field experts. The first sample comes from the selection, through a purposive sampling approach (Patton, 1990), of 'born-circular' Italian fashion companies that are currently implementing end-of-life circular practices such as upcycling and remanufacturing. A thorough review of the literature suggests that an in-depth exploration of the implementation of such practices by 'born-circular' companies (Colucci and Vecchi, 2021) might significantly benefit the field. 'Born-circular' fashion companies are those companies that are not attempting to implement CE-related practices into an already existing business model, as their business models are 'born-circular' from their very outset, as can be clearly evinced from their mission statements.

Out of 11 companies contacted and willing to participate in the study, key informants from seven companies provided complete and useful information. The sample is diverse and displays a considerable variety of industry sectors, comprising five clothing companies. These companies operate mainly in the premium market segment. The companies' profiles along with a description of their main product and their mission statements are provided in Table A1. The topics discussed in the semi-structured interviews with company key informants followed the main research questions addressed by the CE literature, from which general topics were extrapolated as reported in Table A2. The interviews took place between January and March 2022 and on average they lasted 65 min (see Table A3). The key informants interviewed within each company were mainly the founders and other executives knowledgeable about the upcycling and remanufacturing practices implemented by the firms.

Subsequently, four field experts provided their opinions on upcycling and remanufacturing and were also prompted to discuss the main results obtained from the companies. In their own different capacities, they were all very knowledgeable about the phenomenon of interest for the study and agreed to provide their angle. The interviews took place between March and May 2022 and lasted on average 40 min (see Table A4). The interviews both with the company key informants and with the experts were conducted independently by the researchers in Italian, digitally recorded, fully transcribed, and translated into English, for a total of 135 pages.

Data analysis

We adopted a three-step coding process by creating meaningful groupings from the data through the identification of themes or concepts that have some connection with each other and that are grouped into overarching categories (Corbin and Strauss, 1990). This process allowed meanings to emerge from the data through a constant iteration between emerging themes and concepts and the relevant literature (Gioia, Corley and Hamilton, 2013) towards theoretical progression (Locke, Feldman and Golden-Biddle, 2022). With the aid of a researcher, we independently coded the interview transcripts with the software *Atlas.ti*; we met and discussed our codes at each stage of the coding and reconciled disagreements through discussion. We used *in vivo* codes to generate first-order codes, grouped them into 22 second-order themes, and finally clustered into the following six aggregate dimensions: *assessing the multiple barriers to end-of-life circular practices*, *marketing positioning strategies to boost circularity*, *filling the cultural gap*, *implementing upcycling and remanufacturing*, *implementing other end-of-life circular practices*, and *tackling climate change* (see the data structure in Table A5).

Findings

The next subsections present the findings, organized by our aggregate dimensions. For each of them, we display the evidence as organized by the second-order themes. Some of the most emblematic quotes that emerged during the fieldwork are reported in Tables 2–7.

Assessing the multiple barriers to end-of-life circular practices. In relation to the pursuit of circular fashion, the key informants outlined the presence of several barriers. As for the constraints faced during production, the actual implementation of end-of-life circular practices requires significant investment and a large amount of time, in order to readjust all the production phases, including logistics and distribution. A major obstacle was the circular practice focus on unconven-

Table 2. Assessing the multiple barriers to end-of-life circular practices

Production and supply chain constraints for the implementation of end-of-life circular practices	'Especially for consolidated companies, moving from what they have been doing for decades to a sustainable model is virtually impossible because all machinery, all supply chains, etc. would have to change'.
	'Focus on unconventional fabrics and higher quality, which the fashion industry no longer takes into consideration'.
	'A type of production that is largely incompatible with the low prices to which the fast-fashion market is used to'.
	'The recovery of inventories for upcycling and remanufacturing strategies is often more expensive than any other solutions such as for example incineration or sending scraps and overproduction to developing countries'.
	'The truth is that there is a problem, both at the level of knowledge of the production system and the theme of eco-design, and also of the impossibility of the state of the art, which prevents us from doing what circularity should be within the fashion sector'.
	'Very complex supply chain, long and difficult to trace, often deliberately geared up towards hiding the exploitation of low-cost labour in the textile sector'.
Technical difficulties of upcycling and remanufacturing	'The golden rule is to possibly use materials that are 100% mono-materials made, for example, of 100% cotton, 100% linen, 100% polyester or nylon, etc. This is because, at the end of the life cycle, depending on their nature, if they are natural, they can be reinserted into the soil and it takes little to decompose and become nutritious again'.
	'The majority of garments such as shoes and jeans and the types of materials used are not designed with a view of remanufacturing or upcycling'.
	'Search for suppliers on-site and or through word of mouth along with lengthy price–quantity negotiation'.
	'The fewer constraints in design for upcycling [vis-à-vis remanufacturing] which concern only the choice of suitable fabrics'.
	'I am adopting the upcycling process; I have no problems with product design as I only buy leather and I don't have to disassemble objects and finished products in order to recover the material'.
	'Very high degree of unpredictability about the outcome that would require significant attention during the design and the construction of the garment'.
Lower economic and financial sustainability	'Need for more time to create profitability for the business'.
	'Many emerging brands spend a lot of money to have the initial boom in communication, but they will never have a constant path. They will have an initial boom, with an investment of 50,000 euros in communication, so to speak, they send the t-shirt to some celebrities, but after 6 months you are back to square one'.
	'The longer the production chain, the more it would cost'.
	'Outsourcing of more labour-intensive phases such as the disassembly of the existing fashion item and the fabric cutting'; 'longer times and more skilled labour'; 'higher production costs'; 'higher quality of fabrics and the materials and the more intensive nature of the required labour which would inevitably be located in a developed country because of the high skills involved'.
	'The more important margin is obtained by direct sales; the more we go to mediate with a shop, the more it becomes truly marginal'.

tional fabrics and higher quality, which the fashion industry no longer takes into consideration and that would ultimately lead to a type of production that is largely incompatible with the low prices that the fast-fashion market is used to. For instance, the recovery of inventories for upcycling or remanufacturing strategies is more expensive than alternative solutions.

Furthermore, several limitations were envisaged in relation to the technology, namely the impossibility of the current state of the art for the recovery and recyclability of garments or materials. The same argument was emphasized in relation to the limitations associated with the technological availability and the logistic infrastructure for the implementation of some circular strategies such as remanufacturing, upcycling and rental (e.g. the implementation of reverse logistics).

As for the constraints posed by the supply chain, these were identified by some typical features such as complexity and opacity. In relation to the technical difficulties of upcycling and remanufacturing, the golden rule is to use 100% mono-materials. Often, current garments (e.g. shoes, jeans) and types of materials (e.g. stretch, plastic) are not designed with a view to remanufacturing or upcycling. This leads to the challenge of finding suitable suppliers of materials on-site, which might require lengthy price–quantity negotiation. Although both upcycling and remanufacturing are characterized by a high degree of technical complexity, upcycling has absolutely less stringent constraints on the issue of product design. There was a consensus concerning the lower economic and financial sustainability associated with remanufacturing, which requires a different timeframe and a more systematic approach. To find a solution to the issue of reduced revenue margins, the interviewees recalled how the length of the production chain, from the procurement of materials to the sale of the garment, plays

Table 3. Marketing positioning strategies to boost circularity

Enhancing affordability	'The idea that perhaps is given is that sustainable fashion is only that which is produced with recycled materials, super luxury, with silks artificially made in laboratories and so on … but in reality you are sustainable simply by repairing the things that they broke out of your closet, rather than going to buy second-hand things or trade with friends'.
	'Virtuous industrial process would guarantee greater accessibility'.
	'To increase accessibility preference there is the need to raise margins in B2B relationships rather than B2C'.
	'Sustainable fashion must be democratic: revision of the companies' profit margins'.
	'The high price: a warranty of value not as a hindering factor'.
	'Deferred payment strategies to increase accessibility'.
Image and communication to support upcycling and remanufacturing	'Where the boundaries between fashion and communication are increasingly blurred, causing cataloguing in the minds of consumers based on what they see worn by people'.
	'For me the fact of being able to dictate a way to say: "become one of us if you believe in what we believe" it is a way to create a brand in a post-modern perspective'.
	'Collaboration with various celebrities and artists whose image is highly consistent with the brand image to reach the mass audience'.
	'The corporate blog as a tool to bring more awareness and sensitivity'.
	'Statements on the label such as "this garment has been made" …give value to what you wear'.
	'Creation of a brand equity through the recognition by consumers of what is the vision of the brand or the designer'.
The role of the physical store to communicate value	'E-commerce limits for the purchase of circular garments since it does not provide any explanation of the product or of the fabric used in the garment'.
	'To start immediately by giving an example to the consumer that the evolution of e-commerce will be a mixed form between digital and physical'.
	'Retail as an indispensable showcase for the product and its image and its heritage'.
	'Retail attitude to sell a specific collection of garments at the expenses of other products that come from remanufacturing or upcycling'.
CE as a lever for competitive positioning	'From the moment in which two companies are on the same level as regards product prices but one is sustainable, there is a competitive advantage'.
	'In this sense I define the advantage, not so much in attracting people, but in build loyalty and maintain them once they discover what's behind it and once they perceive the underlying values of our brand'.
	'Difficult to position oneself because sustainability is a chariot on which many are climbing'.

a fundamental role. It widely emerged that entering the circular and sustainable fashion sector consists of getting used to a world that is more expensive, especially today, as the consumer is used to products that must be cheap. Given this widespread trend, the practice of lowering prices, although an immediate and simple solution for these companies, is not aligned with the principles of sustainability and with preventing overconsumption.

Marketing positioning strategies to boost circularity. Interviewees highlighted a widespread misconception associated with circular fashion, namely that it is very expensive, and therefore marketing positioning strategies to boost circularity play a pivotal role. There is the need to establish a virtuous industrial process to enhance affordability and guarantee greater accessibility. The higher price can hinder the widespread diffusion of circular fashion, yet companies must revise their expectations about margins. One of the companies assessed the feasibility of establishing an alternative payment strategy, which allows customers to defer the purchase cost according to their economic situation. This service was not designed to encourage the customer to make an 'easy' purchase, but rather to encourage them to make more informed and intelligent choices, capable of supporting greater product quality and durability.

The empirical evidence highlights how a strong brand image can be a fundamental lever to incentivize consumers to approach remanufactured or upcycled products. According to one of the interviewees, fashion has always existed in the framework of consumption and is strongly dependent on the ideals expressed by a certain group of people to which you want to belong. Many initiatives in terms of image and communication, such as those via social media, could be implemented in the attempt to raise the profile of upcycled and remanufactured products. Circularity could therefore be leveraged to lead to the creation of a brand equity. There is a wide consensus that retail strategy plays a key role in promoting circularity amongst consumers: the brand's shop, evoking the idea of a prestigious tailoring workshop, lends itself to being a major communication channel for customer information and education. The interviewees provided evidence of the fact that, for the same final price offered to consumers, the circular product brings visible distinctive features to the market and thus provides a competitive advantage to the companies.

Table 4. Filling the cultural gap

Educating the consumers to enable the shift	Consumers are 'getting used to always new trends and extremely low prices typical of the fast-fashion business model'.
	'We have lost this idea of trust, there is no longer a relationship, we don't know who makes the clothes for us, we don't know how they have been made'.
	'We can buy online, 24 hours a day, so much so that everything is so easy to buy that there is no we don't even ask what we are buying. We have lost the pleasure of knowing what one has bought and knowing how it was made'.
	'Learn to distinguish true environmental sustainability from greenwashing, from false claims which are made by big brands, especially fast fashion for marketing purposes'.
	The fashion industry no longer thinks about fabric and quality, consumers should be aware of this by now.
	Companies are 'trying to grow the market of more mature consumers, the children of a consumerism of the 80–90s'.
	There should be 'commitment and responsibility on the part of the consumer both in terms of purchasing decisions and product care to ensure its longevity'.
	'Take-back systems tend to "absolve" the consumer of his/her sense of responsibility', they are not the solution.
Overcoming semantic confusion	'We talk about sustainability and circular strategies with a very superficial understanding about what they entail and often by using the incorrect terms'.
	'Terms that commonly refer to fashion items of 'poor' quality; the message to be offered to potential customers must absolutely not concern the idea of recovering materials, as the term 'recovery' is intrinsically negative and capable of associating in the mind the act of collection of objects and materials almost from rubbish, thus not representing what we actually do through upcycling processes'.
	'Unhinging the sustainability–renunciation binomial in the perception of the consumers. The consumer perhaps thinks that sustainability means renunciation (of quality). This is a paradigm that we need to unhinge to try to transform it into something different'.
New entrepreneurial mindset	'Starting a bit as a joke, we thought that the product that already exists is the one that pollutes the least'.
	'The process, when it comes to upcycling, is a process of rupture not of construction, that is, you must really break the rules, pre-established criteria that, on the contrary, are used for the canonical process of creation. In fact, the designer, instead of starting from the idea, starts from the materials and therefore it is he who must mentally adapt, trying to combine what he has found in order to make it become something else'.
	'The principle of working with the existing, reinventing what is the aesthetics of the product'.
Enhancing transparency	'You are a fast-fashion brand and if you want me, as a consumer, to believe your claims then enable me to know what you are doing; otherwise it is greenwashing!'.
	'So, what we find very difficult to deduce, even from the brands' sites, is exactly what they are really doing and there is no data, alas, because there is still no correct legislation to make sure that brands have to provide this information. Only brands listed on the stock exchange must submit a mandatory Sustainability Report every year'.
	'At the beginning we had to work hard to be understood because in fact sustainability is an issue seen in a rather imprecise and little-considered way. I hope it will be more and more; the signs are encouraging'.
	'Talking about sustainability in a banal and imprecise way tends to make sustainability lose value when instead this is an absolute necessity that we as human beings have at this moment'.
	'Dubious position on certifications whereby companies have to pay very high costs for assessments that in turn have very little communicative value'.
	'Data sharing problem that stems from the amount of data that is not uniformly required from all brands in the fashion system'.

Filling the cultural gap. Everyone agreed that this is a time of seismic change; however, there is a need to educate consumers to fully enable the shift towards circularity. According to a key expert, it is the responsibility of the industry to bring a significant shift to consumers' consumption patterns. This implies rebuilding consumers' trust in those who make the garments, increasing their knowledge of how a product is made, and increasing their capacity to recognize quality and product longevity. Therefore, in parallel with developing strategies to position circular products on the market, our evidence suggests that there is indeed a need to fill the cultural gap concerning understanding circularity and circular products. Indeed, the profound paradigmatic change that embracing end-of-life circular practices requires entails a cultural shift that is still lagging behind shift that is overdue. According to the interviewees, there is a great deal of semantic confusion when discussing sustainability and circularity. Similarly, one interviewee argued for the need to 'usurp' these circular definitions from the negative connotations (e.g. poor quality; the intrinsic negative connotation of the term 'recovery') with which they are always inappropriately, and perhaps irrationally, associated in the collective imagination.

On the other hand, the industry too requires a profound transformation in terms of entrepreneurial mindsets. As stated by one interviewee'starting a bit as

Table 5. Implementing upcycling and remanufacturing

Upcycling and remanufacturing as craftmanship	'Some companies are trying to do the vintage of themselves, the upcycling of themselves, MiuMiu did it, they are doing it in Gucci with The RealReal, but guys we are talking about designers' experiments! And we know very well that they impact more on communication than on actual trade, so it is certainly not easy'.
	'Essentially artistic and non-linear processes where it is important to break all of the mental rules typical of serial production such as economies of scale, large volumes and collection planning'.
	'You have to adapt your creativity to what is currently available'.
	'The process at the beginning would be more empirical, then creation of a standard basic architecture whereby the same item can be declined in different versions'.
	'Products with a high value content mostly conveying concepts of rarity, originality and value at an artisanal level'.
	'All the embroideries and all the prints we make are completely handmade, so we do not rely on companies that make industrial embroideries or prints. This cycle of craftsmanship is always maintained and then, obviously, sustainability is one of our core values'.
Practices to ensure product longevity	'A strategy to make a product that can be dismantled, recycled or even compostable'.
	'Basically, we have two phases to try to extend the life of the product: the first is to offer the possibility of free repair to the garment, in order to try to extend its useful life as much as possible. The second, alternatively, is to work in order to make it circular, that is to try to ensure that a pair of jeans can be easily dismantled or, at the very least, made compostable'.
The garment as an iconic object to be preserved or reworked	'Offer of precise indications on the use of the garments to encourage their correct conservation'.
	'Concept of inheritance and intrinsic emotional value of an object'.
	'Enhancement of second-hand and vintage'.
	'Reimagined collections'. 'Reimagined' dedicated to the recovery and change of use of a fashion item'.
	'I started by going to recover objects inside my grandmother's closet where I was fascinated by her pins and her bags full of trinkets. For me, "objects have a soul and are made to be handed down".'
Small organizational size to implement upcycling and remanufacturing	'Lack of implementation for large players who prefer to focus more on conveying circularity as a message, but often they do not practice what they preach'.
	'Enhance local craftsmanship and productions'.
	'Smaller dimensions favour better working conditions'.
	'The advantage I got, shifting from standardization to upcycling, was more on an intangible and personal level and mainly consists in an improvement in the quality of work'.
	'Birth of designers and small brands born with a sustainable imprinting'.
	'If a company has been established, that is, we are talking about companies that have already been on the market for some time, recreating an infrastructure is complicated, whether it is upcycling, whether it is remanufacturing or any other strategy. If a company starts from scratch it obviously has carte blanche, so it can decide what to do'.
	'Small-medium enterprises have the ability to rearrange themselves towards new sustainable approaches. Larger players might see that there is an incentive to outsource their circular production to Italian tailoring laboratories'.
	'B2B partnership between established brands and small players for the development of sustainable projects and the implementation of upcycling or remanufacturing'.
	'Now we are better placed because from the beginning we have had the moral support from a commercial point of view from the Calzedonia group, which has always believed in us. So, just introducing ourselves to other companies with this name helps us and today we have some really important suppliers, let's think for example of Marzotto'.

a joke, we thought that the product that already exists is the one that pollutes the least'. The design phase was regarded as particularly crucial to ensure the feasibility of both upcycling and remanufacturing, and companies adopted 'Zero Waste Design' or 'Zero Waste Pattern Making' approaches during the development phases to minimize, or even eliminate, the generation of any production waste. There was a strong consensus that consumers suffer from the lack of transparency in the industry, mostly caused by 'greenwashing' and 'information dumping' practices that tend to be widespread in the industry. One key expert further highlighted how recently, through the main social networks, a form of 'social network-mediated activism' has emerged, in which influencers exploit—and at the same time feed—their notoriety to 'point the finger' at large companies without communicating alternative options, namely practical suggestions of real communicative value and that might be concretely applied by their followers.

This lack of transparency mostly depends on the dubious position on certifications but also on the relative inaccessibility of tools such as Life Cycle Assessment and certifications to measure procedural aspects related to sustainability. A possible solution suggested to overcome this lack of transparency is provided by technology. Surely this would align the actions implemented by companies—aimed at enhancing circularity—with the perceptions and expectations of consumers. This closer alignment ultimately would support the marketing efforts put in place by companies.

Table 6. Implementing other end-of-life circular practices

The challenge of recycling fibres	'Some materials and types of products (e.g. footwear) cannot be recycled due to the presence of different fibres'. 'Companies are unprepared for the recycling of fabrics'. 'Recycling does not guarantee the quality of the product'. 'Recycling strategy in itself is not a guarantee of sustainability as it produces considerable waste, pollution and it is energy-intensive'. 'Recycling strategy would appear to be the simplest one because it has historically been applied to other sectors as well'. 'Chemical recycling vs. mechanical recycling'. 'Some powder obtained from post-consumer cotton garments could be used as a dye for the jeans'.
Choice of materials: open debate on artificial versus natural fibres	'Innovative artificial materials such as eco-viscose generated from tree bark or Tencel Modal, which is extracted from beech wood'. 'Natural prints, unlike chemical ones, fade in beachwear'. 'Possibly using textiles that are 100% mono-fibre; a fabric produced by many different fibres becomes difficult to untangle'. 'Econyl is a yarn that can be regenerated and recyclable n-times that is obtained from a plastic transformation process'. '100% natural fibers (organic cotton, wool, leather, etc.) are preferable because they are compostable'. 'Eco-leather for vegan lines still contains polyurethane'. 'Problem of plastic microfibers released in washing'. 'Econyl, despite being a regenerated and recyclable yarn n-times, is obtained from a plastic transformation process which very polluting and expensive'.
The implementation of reuse	'It no longer makes much sense to work strictly at the level of collections, so this allows us to have a basic line that is always valid with the usual garments, sometimes renewed slightly in design. It is precisely with a view to thinking that there are some items that you buy almost once in your life that can potentially last you forever'. 'We have given a fairly precise signal, namely that you shouldn't buy if you don't need it just because someone gives you a discount in such a planned way'.

Implementing upcycling and remanufacturing. Fashion companies' take on upcycling and remanufacturing was that these practices are tangible proofs of their craftsmanship. There was a consensus that both practices work well for designers' experiments or in the artisan sector, but that it would be rather difficult to apply them on a large scale for industrial production. To promote remanufactured or upcycled products there is a need to emphasize the importance of the unstandardized process leading to their originality, as designers need to adapt their creative process to what is available. In-depth research into product durability was regarded as a key aspect as it is crucial to implement a circular design from the very outset. Interviewees stressed the importance of thinking of circular methods able to ensure a better conservation of the garment, both with a view to prolonged use and for possible future recycling or remanufacturing activity. It is of paramount importance to offer precise indications on the use of garments to encourage their correct conservation, and the concept of inheritance and the intrinsic emotional value of an object should be emphasized as well. Small firms enjoy a privileged position when deciding to implement remanufacturing and upcycling. This allows them to occupy a niche that is currently unoccupied by the large players. The advantages associated with remanufacturing and upcycling are better suited to small firms, as these practices tend to enhance local craftsmanship and productions. This fact is compounded by the birth of designers or small brands with a sustainable imprinting. Interviewees believed that small firms' ethos seems more aligned with the implementation of circular practices, and implementing circular practices could foster novel forms of collaboration between small firms and larger players.

Implementing other end-of-life circular practices. Both experts and company managers stressed that the implementation of circular practices in the fashion context typically implies the challenge of recycling some types of fibres. Recycling does not guarantee the quality of the new product, and the recycling strategy in itself is not a guarantee of sustainability as it produces considerable waste and pollution and is energy intensive. As for the choice of materials, there is an open debate on artificial versus natural fibres. Amongst the interviewees, there was a clear-cut division between those who were open to and in favour of artificial fibres, and those who were very much against them. Then there was a third category of interviewees who offered a moderate perspective. To encourage the conservation and reuse of existing products, the companies decided to implement particular policies in line with their circular and responsible brand image. These consisted of reviewing the number and timing of any collections and reviewing the promotional policy. A further stance against the phenomenon

Table 7. Tackling climate change

Embracing a normative dimension	'It is becoming imperative to deliver at policy level a firmer protection to the "Made in Italy" fashion by also offering enhanced support to the dying industrial districts, that could contribute to embracing a new approach'.
	'There is no specific EU regulation in relation to supply chain outsourcing (e.g. use of chemicals, blockchain, code of conduct, etc.)'.
	'Conducting due diligence and reporting should be mandatory for all the companies (and not only for those on the stock market)'.
Riding the wave of the shift brought by the COVID-19 pandemic	'The pandemic has brought an awakening of consciences regarding sustainability issues that has pushed fashion companies to become more pragmatic about their objectives and projects'.
Striking a balance for a reduced carbon footprint	'We are aware that we still generate an impact on the environment, but we implement all those actions that attempt to reduce it. Our design department is always looking for alternative options and new solutions that can lower our impact on the environment and our negative impact on society'.
	'Sustainability means trying to do business without damaging the environment and possibly trying to distribute as much as possible the benefits that are generated, in the forms of wealth, among all the people involved'.
	'Finding a real balance, because for example, using econyl-type fabrics has a high environmental impact—on the one hand we have a considerable environmental impact for its manufacturing process, but on the other hand we use waste materials and say that in the end there is a balance. The same thing for fake fur or fake leather which are made of plastic, so there is no real balance!'.
	'Despite the hype [for econyl] it is not a super sustainable material, because in any case you can only continue to recycle it, because once the whole round of recycling is really over, econyl will end up being dumped in the environment; however these fibers take up to five hundred years to deteriorate, OK? And if you burn them, they still create unhealthy gases'.
	'Maintaining quality and aesthetics, while reducing the impact on the environment' or 'relying on a combination of various approaches to form an efficient circular strategy'.
	'Consumers must understand that even if a brand has not killed an animal to produce its products, it has still used litres of water and highly harmful materials to produce a type of clothing defined and promoted as sustainable when, in reality, it has very little or nothing ecological. My philosophy is to have a conscious approach to the consumption of products and the consumer must not automatically deprive himself of certain objects, in order to be sustainable, with a Nazi perspective'.
	'Offensive to talk about degrowth' and raised the rather paradoxical question, 'Is it wrong to go back in order to go forward?' Recycling is often seen as an easier strategy, but which has a high impact on the environment'.
Implementing complementary practices	'For example, we make a donation of 25% of Black Friday proceeds to purchase trees in fire-ravaged California'.
	'A more active engagement with the Ellen McArthur Foundation is indeed necessary'.
	'A more intensive use of renewable energy sources and better waste management practices would be required'.

of over-consumption concerned the choice of whether to implement promotional policies.

Tackling climate change. According to the interviewees there is a need to embrace a normative dimension at the policy level to foster a business vision that no longer aims only at profit maximization but also at pursuing sustainable growth. Initiatives listed to facilitate the shift towards reducing the carbon footprint of the industry would entail the following: financial contributions as part of the Recovery Plan to help companies to achieve sustainable goals and to reduce companies' carbon footprint; due diligence and reporting obligations for all companies, not only for those that are listed; the establishment of objective criteria to measure sustainability; the establishment of EU regulations for supply chain outsourcing concerning the use of chemicals; and the requirement of ensuring traceability with the aid of blockchain technology, triangulation, and obligations for suppliers to have their own ethical code. There was a strong consensus that the COVID-19 pandemic has been a very powerful catalyst for a paradigm shift in the industry. Being a grand challenge too, the pandemic has taught global industries how to suddenly alter their approach to doing business, paving the way to the paradigm shift required by circular practices entails that companies. Furthermore, interviewees remarked that the pandemic has heightened public awareness of climate change, as it has underscored the interconnectedness of global crises and emphasized the need for collective action to address not only immediate health threats but also the long-term sustainability of our planet.

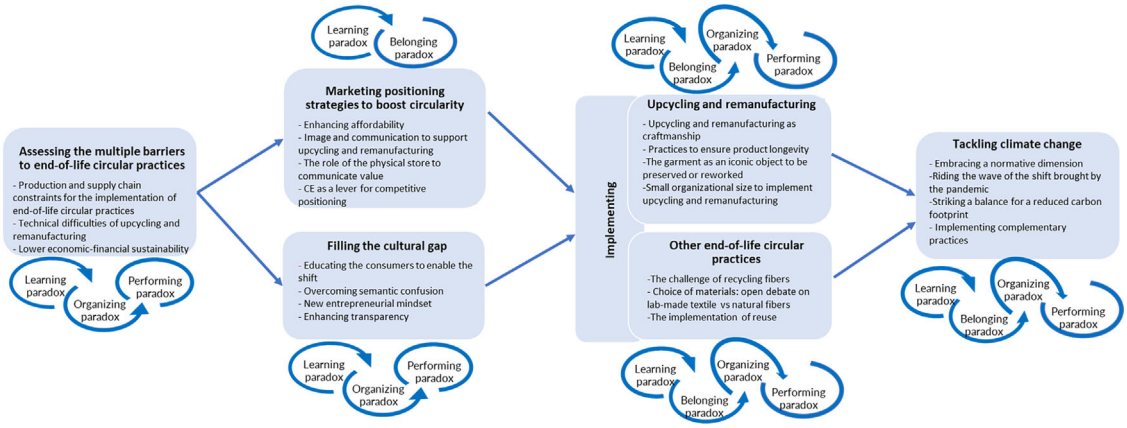

Figure 1. The process model and the paradoxes associated with tackling climate change with circular practices [Colour figure can be viewed at wileyonlinelibrary.com]

According to our evidence, fashion companies can leverage the awareness brought about by the pandemic not only to align with changing consumer values but also to position themselves as leaders in the industry by embracing circular practices.

Tackling climate change mostly requires striking a balance. This notion permeated all the quotes that were collected. Other interviewees highlighted other types of tensions that the industry has to overcome to strike a balance, such as maintaining quality and aesthetics while reducing the impact on the environment, or relying on a combination of approaches to form an efficient circular strategy that is closely aligned with the definition of innovation. Concerning the specific issue of reducing GHG emissions, several interesting paradoxes were raised, ranging from how it felt offensive to talk about degrowth to the need to go back in order to go forward. A similar contradiction emerged regarding the hype for materials that are recyclable (such as the econyl) but which, when the whole cycle ends, will take 500 years to degrade, or like the case of faux leather or faux fur, which are made of plastic-based fibres. Similarly, it was highlighted that for the industry to reduce its carbon footprint, recycling should be reduced in order to reduce the emissions and energy consumption associated with recycling. Companies should also engage in nearshoring to minimize the emissions associated with logistics, and they should do so only with those companies that engage in sound environmental practices. Another set of complementary practices to reduce companies' carbon footprints were identified. These entailed a vast array of initiatives, ranging from embracing a business vision that no longer involves profit maximization but rather sustainable growth with respect to the environment to abolishing seasonal collections and promotions, as well as creating partnership with the Ellen McArthur Foundation.

Discussion of the findings

Exploiting our data structure, we focused on the connections among aggregate dimensions to develop a model explaining how end-of-life circular practices are implemented by fashion companies in their quest to tackle climate change. A process model was then developed, as depicted in Figure 1, in which the interrelationships among the aggregate dimensions and the second-order themes are shown. Our findings suggest that companies can manage this process through six phases, where tackling climate change is the outcome of the whole process implemented by the companies in order to create environmental value. This process model delivers a novel framework that highlights the relevant paradoxes associated with end-of-life circular practices (and in particular with upcycling and remanufacturing) that fashion companies need to overcome in order to deliver environmental value for tackling climate change.

As the model shows, the study provides evidence of the underlying dynamics of the implementation of such practices by unpacking the mechanisms through which companies first assess the multi-level barriers, and then boost circularity through marketing positioning strategies while at the same time trying to fill the cultural gap. These mechanisms represent the means through which companies are able to overcome several paradoxes (Daddi et al., 2019; De Angelis, 2021). In line with this, the study provides a finer understanding of the relevant paradoxes that the implementation of such practices entail. These relevant paradoxes will be discussed in relation to the respective aggregate dimensions depicted in the process model.

While extant research has identified barriers to the implementation of CE in general (De Jesus and Mendonça, 2018; Kirchherr et al., 2018), our study, in contrast, provides an exhaustive taxonomy of these

hindering factors specifically associated with end-of-life circular practices in the fashion industry. These are production and supply chain constraints, the technical difficulties of upcycling and remanufacturing, and lower economic and financial sustainability. Some of these barriers are in line with the challenges of upcycling and remanufacturing highlighted in previous work, especially with those related to material sourcing and having the appropriate skills and technology (Pal, Samie and Chizaryfard, 2021), while others, related to time and financial concerns, are new. Within this context, companies first need to overcome a *learning paradox* by embracing new production-, supply chain- and technology-related dynamics; an *organizing paradox* by implementing a new design ethos and finding new suppliers and highly skilled labour; and a *performing paradox* by assuming a longer perspective on profitability.

Unlike research on the drivers of CE based on secondary data and that is unspecific about the type of practice implemented or the sector analysed (de Jesus and Mendonça, 2018), our model highlights the pivotal role played by marketing (Hughes et al., 2019), as several marketing positioning strategies are adopted to boost circularity effectively. Amongst these are enhancing the affordability of circular products, the key roles of image and communication to support upcycling and remanufacturing, the importance of the physical store to communicate value, an investigation of how circularity can be used as a lever for competitive positioning, and the need to educate the consumer to enable a shift towards circular fashion. Within this context, companies first need to overcome a *learning paradox* by engaging in new marketing activities to support circularity and also to face a *belonging paradox* by revisiting the traditional role of the physical store. While confirming the central role played by marketing (Rashidi-Sabet and Madhavaram, 2022), this finding raises the interesting question of whether it is possible to pursue competing goals by preaching the value of sustainability while promoting consumption. The evidence presented seems to be in favour of supporting this *performing paradox*.

The findings also highlight the importance of filling the cultural gap. The companies' marketing efforts in fact evolve—on the one hand in parallel with the need to educate consumers; and on the other hand, with the need to overcome the semantic confusion that permeates the industry, with companies. In particular, there is the need to overcome the semantic confusion that permeates the industry, as companies use 'upcycling' and 'remanufacturing' interchangeably (*learning paradox*). This confusion affects consumers' perceptions of circular fashion. To fill the cultural gap, a *belonging paradox* needs to be overcome, as a new entrepreneurial mindset is required to deliberately address sets of actions that are needed to combat the existing lack of transparency (*performing paradox*). This result adds weight to the importance of a cultural shift emphasized by Okereke, Wittneben and Bowen (2012). More precisely, within this context the *belonging paradox* requires a cultural shift that involves both fashion firms and consumers, and it must entail a proactive approach by the former to achieve the desired cultural shift by the latter (Chatzidakis and Shaw, 2018).

As for the stage of implementing upcycling and remanufacturing, our results provide additional nuances to the necessity of adopting both structural and processual changes, as highlighted by Okereke, Wittneben and Bowen (2012). Both practices have been envisaged as expressions of craftmanship that deliver a higher value added than the original item (in contrast to recycling). The companies also implement a set of practices to ensure product longevity. They all see the garment as an iconic object to be preserved or reworked and believe that their small organizational size is better suited to implementing upcycling and remanufacturing. Despite their ethos in relation to circular fashion, they all acknowledge that recycling fibres is still a challenge.

Besides upcycling and remanufacturing, companies implement other end-of-life circular practices, for which a major concern relates to the choice of materials, with there being an open debate on the desirability of experimenting with lab-made versus natural fibres. They also find it necessary to couple upcycling and remanufacturing with the implementation of reuse. Within the context of the implementation of end-of life circular practices, companies need to overcome all four paradoxes. They need to start by overcoming a *learning paradox* in order to implement structural and processual change, by also overcoming a *belonging paradox* by revisiting their identity in terms of the craftmanship value they provide, which now must incorporate some environmental value. They need to overcome an *organizational paradox*, by setting up new practices by liaising with new partners, and a *performance paradox*, by also delivering new goals such as product longevity, fostering an emotional attachment between the product and consumer, and offering indications about the best way to conserve the product.

Tackling climate change also requires embracing a normative dimension that provides incentives and a legal framework to enable the shift (Teeter and Sandberg, 2017). Conversely, there is a widespread acknowledgment that the COVID-19 pandemic has been a powerful catalyst for a change of paradigm. However, in order to pursue a reduction of GHG emissions it is necessary to strike a balance between competing interests for a reduced carbon footprint, and there is a need to engage in other complementary practices. In this context, companies need to overcome all four paradoxes. They need to start by overcoming a *learning paradox* to implement differentiation and personalization, to adopt new laser technologies and other techniques, for example to

Table 8. Environmental value creation

To society	To the industry	To the consumers
- Favouring the **optimization of natural resources** and thus limiting their gradual depletion. - Significantly reducing the energy consumption that is traditionally associated with far more energy-intensive processes such as manufacturing and recycling. - **Reducing waste** in the form of landfill disposal and incineration. - Promoting more **sustainable consumption patterns** amongst the new generations who are the consumers of the future by promoting a long-term investment for the overall sustainability of our planet. - **Reducing GHG emissions** by significantly reducing the carbon footprint of the industry. - **Reducing the indirect environmental impact** on ecosystems, which has indirect consequences for climate change.	- **Reinstating dignity** to a sector by selling products at the price they cost (unconventional fabrics and higher quality). - **Higher returns in brand equity** 'having a brand equity that allows you to sell the garments at the price that those garments actually have'. - **No overproduction**, which means no incinerations or sending scraps to developing countries. - Search for **suppliers on-site**, which means no global sourcing based on low quality and low price, no exploitation of child labour, no exploitation of workers in developing countries, and no social dumping. - **Design** would return to being one of the most valuable activities in the value chain. - Bringing back **craftmanship and traditional skills**. - **New entrepreneurial mindset** with a different ethos and different core values - **Shorter supply chains** that are more accountable, traceable and transparent. - Rethinking the whole production process—the materials used, but also 'the people and skills that work along the supply chain'. - Production as a non-standardized process—bringing back **creativity to the core**. - **Upskilling** of a mature sector, as remanufacturing and upcycling require higher skills. - No more outsourcing to developing countries but **more reshoring**, and thus better preservation of artisanal local skills and heritage. - Conveying the **right values** and the right messages through fashion. - **Reviving physical retail**—retail as an indispensable showcase for the product and its image and heritage. - **Small players leading the way** and novel forms of collaboration within the industry.	- **Reduced revenues** in B2C relationships could translate into more affordable circular fashion. - A **more democratic** sustainable and circular fashion. - **Deferred payment** strategies to increase accessibility. - **More informed and intelligent consumption patterns** based on choices capable of supporting greater product quality and durability. - **More educated consumers** regarding purchasing decisions and product care. - No greenwashing and no information dumping, leading to **more overall transparency**. - Product longevity and **nurturing the emotional attachment** of consumers. - **Evolution of e-commerce** will be a mixed form between digital and physical—consumers will gain the best from both worlds (i.e. affordable circular fashion online due to lower distribution costs; increased awareness of circular solutions in stores).

manage emissions and water filtering to enable its reuse. Subsequently, companies need to overcome a *belonging paradox* by revisiting their identity in terms of embracing a new business vision that no longer delivers just profit maximization but also environmental sustainability. They need to face an *organizational paradox*, by embracing and also proactively contributing to fostering a new normative dimension (Goworek et al., 2018), and a *performance paradox* by finding a real balance, as being circular can have a high environmental impact (e.g. in relation to econyl, recycling), by also delivering quality and aesthetics.

Overall, the findings highlight that end-of-life circular strategies such as upcycling and remanufacturing, if widely adopted by the industry at large, might hold significant potential to radically reshape the industry by establishing an alternative paradigm whose benefits might yield far-reaching implications for societal wellbeing at large. By reassessing our evidence regarding the environmental value creation (Battilana, 2018; Ferraro, Etzion and Gehman, 2015; Kuehnl et al., 2017) that can stem from implementing these practices, three sets of values can be envisaged: environmental value for society that directly stems from tackling climate change, environmental value for the industry, and environmental value for consumers. These are highlighted in Table 8.

Conclusion

The intended conceptual contribution that the paper seeks to envision (MacInnis, 2011) is twofold, namely to revise the use of paradox theory and to identify new insights by doing so.

First, by revising the use of paradox theory, our study highlights the broader applicability of paradox theory to address scholarly and societal issues. Second, the paper shows the suitability of paradox theory to bridge different streams of work that otherwise would have been sparse. Paradox research has mostly focused on organizational paradoxes by providing a taxonomy of the various forms that such paradoxes can take (Smith and Lewis, 2011) or providing an explanation of how organizations address them (Hahn et al., 2018). However, less is known about how organizations respond to paradoxes that arise at the societal level.

Another key contribution of the paper is to extend the recent paradox research set in the COVID-19 context (Branicki, Kalfa and Brammer, 2022) by stretching the concept of societal paradox to include climate change. Our findings strengthen the argument that paradox theory can indeed be a very effective lens through which to address paradoxes that arise at the societal level of analysis, and to a greater extent to study grand challenges. As can be evinced by the results, and in line with Shaw et al. (2018) and George et al. (2016), tackling climate change by delivering societal gain requires a sustained effort from a vast array of stakeholders. There are the fashion companies that need to implement end-of-life circular practices and market circular products; there are the consumers who need to be educated to make informed choices; and there are the policymakers who need to support this paradigm shift by supporting it with suitable policy initiatives. The solutions that the evidence has identified involve changes in individual behaviours (i.e. for both entrepreneurs and consumers), changes in how actions are organized and implemented (i.e. from design down to distribution and consumption), progress in technology (e.g. production processes, recycling technology), and the capacity to strike a balance between competing objectives amongst the different stakeholders.

Within this context, this paper makes a significant contribution to the literature on CE by providing a compelling bridge between paradox theory and the recent work on CE. Paradox theory has been applied to sustainability (Daddi et al., 2019; De Angelis, 2021). By capitalizing on this work, we take a step further by stretching the latter to consider the notion of CE by specifically focussing on end-of-life circular practices. While Daddi et al. (2019) highlight the existence of *performing* and *organizing* paradoxes in delivering increased environmental sustainability, our evidence shows that tackling climate change by means of upcycling and remanufacturing entails successfully addressing all four paradoxes—*belonging, learning, organizing* and *performance*. Some of these paradoxes tend to play a more dominant role across the implementation phases of the various practices; however the evidence clearly indicates that both the actual implementation of end-of-life circular practices and tackling climate change require addressing all four paradoxes.

In this sense, paradox theory is instrumental in helping management scholars to fulfil their role, as recently advocated by Gümüsay and Reinecke, whereby '*moments of crisis may serve as critical junctures for imagining alternatives*' (2022, p. 237). As the future has become increasingly volatile and precarious in these unsettled times, there is a great need and opportunity to develop a theory that can guide society towards its future potentialities. The authors strongly encourage management scholars to assume a more engaged societal role by breaking away from a paradigm-driven '*theory fetish*' (ibid. p. 236) and contribute to solving grand challenges and societal problems.

Regarding the second conceptual contribution, by revising the use of paradox theory we also identify the distinctive dynamics that lead to the provision of environmental value. More specifically, this paper enables scholars to better understand the paradoxical nature of the fashion industry in relation to climate change. In particular, in relation to the first research question (i.e.

Could the inherently paradoxical nature of the fashion industry yield feasible solutions to address a grand challenge such as climate change?), our work demonstrates the environmental value of two practices (i.e. upcycling and remanufacturing) that at first glance seem contradictory to the very ethos of the fashion industry (i.e. its constant quest for novelty and newness) but that at the same time stem from its distinctive characteristic of delivering highly creative solutions. The findings not only provide implications for the fashion industry at large on how a novel paradigm shift could be implemented, but also provide compelling evidence on how companies can be pivotal in addressing the grand challenge of climate change. This provides insights into how the industry can be a force for good by delivering environmental value (Battilana, 2018; Ferraro, Etzion and Gehman, 2015) whose broader implications are relevant to society, the industry and consumers.

In relation to the second research question (i.e. Could the entangling of a paradox lead to a better appreciation of the nature of the problems faced by companies in implementing solutions to climate change?), the paper highlights how such an appreciation is indeed instrumental in fostering a more pragmatic and systematic managerial approach, whereby addressing a set of paradoxes has the potential to provide effective, albeit unconventional and counterintuitive, solutions to grand challenges. In delivering possible solutions, the companies have elucidated the challenges, the leverages, and the actions to be implemented in their quest to deliver environmental value. In particular, in building our process model, the circular practices were grouped into two categories: (1) upcycling and remanufacturing, and (2) other end-of-life circular practices. Although Dissanayake and Weerasinghe (2022) consider upcycling and remanufacturing as one possible variation (including reuse and recycling) of the broader 'end-of-life circular practices' category, our model highlights how, despite some semantic confusion, upcycling and remanufacturing are considered distinctive practices by practitioners. Not surprisingly, the literature regards so-called remanufactured fashion (Sinha, Senthilkannan Muthu and Dissanayake, 2016) as an absolutely embryonic practice whereby the absence of a certification system or a standard for remanufactured fashion products challenges their legitimacy (Pal et al., 2018) and may inhibit their widespread adoption.

While MacInnis (2011) sees identifying and revision as a dichotomy, within the specific context of paradox theory our evidence suggests that these two specific conceptual goals could be placed on a continuum where the revision of paradox theory becomes instrumental and necessary to the identification of the distinctive dynamics that lead to the provision of environmental value.

A peculiarity of this study is its focus on remanufacturing in a very labour-intensive context, which is still purely artisanal and requires a specific set of high skills. By contrast, the practice of remanufacturing is commonly investigated in studies with a high technical connotation as a topic strictly inherent to the field of engineering (e.g. Casper and Sundin, 2018). Indeed, the interviewees tended to underplay the technical aspects of upcycling and remanufacturing; rather, they emphasized the more artistic and creative skills that these practices require, as currently the production scale is limited. Today these practices are understood as being craftmanship or suitable for a pilot scale, sometimes associated with 'redesign' (Han et al., 2017). From the findings, it emerges that the scalability of these practices, driven by a gradually rising demand and by growing consumer sensitivity, will be a critical issue that mass production will inevitably have to face. This result is aligned with current research on the importance of exploring scalability challenges and solutions in fashion upcycling and remanufacturing (Pal, Samie and Chizaryfard, 2021; Singh et al., 2019).

A further distinctive factor of our study is its focus on the Italian fashion industry, which is a context that is still largely unexplored in relation to CE practices. CE is an innovative practice that requires considerable creative efforts in terms of both product and production process. The evolution of the Italian fashion industry is characterized by a tradition that has led to the establishment of industrial clusters in which the fashion 'Made in Italy' is manufactured. As these clusters have led to the establishment of internationally recognized fashion houses, they can provide incentives for developing new circular skills by relying on traditional craftsmanship and highly skilled labour, and ultimately reconciling heritage with modernity.

From the evidence, it emerges that one of the most effective incentives for the circular development of the industry is the establishment of B2B collaborations between born-circular firms and incumbent companies. The latter, despite having substantial financial and reputational resources, are not adequately equipped with the necessary know-how to effectively implement a radical shift to embrace circularity. By contrast, born-circular firms often suffer from a reduced availability of the resources needed to capitalize on these initiatives successfully. As such, a potential collaboration could lead to a win-win scenario for the two parties. Another important managerial insight that emerges from the findings is that technology is crucial for introducing 'circular design' or 'zero-waste design' practices. Therefore, there is an urgency to invest in advanced technologies that are capable of enhancing the technical feasibility of mechanical recycling, thereby reducing the need to rely on the most harmful chemical recycling. Technology can also enable the implementation of new systems for rationalizing the more labour-intensive phases, such as sorting and disassembling, by supporting more efficient reverse logistics

flows. Surely, developing a proper technology, especially in terms of the production process, will be a crucial aspect to transform what has been classified as 'designers' experiments' for a niche set of consumers into a scalable project for a larger market. Soon, companies may need to develop a production quota with circular practices, as the outcome of either social or institutional pressure. Finally, the deployment of blockchain technology could also enhance transparency by improving the traceability of fashion products.

Limitations and directions for future research

Our study shows that overcoming an intrinsic paradox can lead to the implementation of practices by companies to tackle climate change within the fashion industry. Future research could assess whether the same understanding of a paradoxical nature of a different context might lead to the implementation of feasible solutions on how to address other grand challenges, by reconciling the dichotomy between business and society. Such paradoxical strategic contexts could be, for instance, 'Formula E'—the first fully electric motorsport series—in car racing (Næss and Tjønndal, 2021) and reusable rockets in the aerospace industry (Brennan and Vecchi, 2020).

Further, given the scant application of paradox theory to grand challenges, future research could address a broader range of phenomena beyond COVID-19 and climate change. Societal paradoxical tensions between wealth and equality, transparency and privacy, and regulation and innovation equally play an important role in informing paradoxes at other levels of analysis. Given the importance of these tensions for our societal wellbeing, it is becoming crucial to gain a fuller understanding of how organizations respond to paradoxes that arise at the societal level. As such, we hope that this paper may stimulate future research. A greater understanding and development of CE in the fashion industry and in other polluting industries will undoubtedly be of great importance for society, companies and scholars.

Our research suffers from a few limitations, including the size of our sample, the focus on a national industry, and the collection of the empirical material in a limited period of time regarding a phenomenon that is rapidly changing. Further research could focus on cases in specific segments, for example luxury fashion versus mass fashion, in order to investigate whether companies operating in different segments of the fashion industry address the issue of tackling climate change differently.

We purposefully selected 'born-circular' companies for the composition of our sample. This, however, introduces a bias in terms of resource endowment, brand equity, reputation among retailers, and the level of control of the supply chain. These aspects may have contributed to providing an idiosyncratic explanation of how such companies seek to tackle climate change. Some of the barriers that such companies typically face are not the same as those faced by incumbent firms because, for instance, the marketing strategies or the investments they are able to implement tend to be radically different. The extent to which our findings can be transferred to non-born-circular companies mostly depends on the production and supply chain constraints for the implementation of end-of-life circular practices and on the technical difficulties associated with upcycling and remanufacturing. More precisely, given that current products are not designed with a view to remanufacturing and upcycling, the production process required is incompatible with the low prices that are conventionally associated with fast-fashion, with the time constraints and organizational flexibility needed to readjust production, and with the inability of the current state-of-the-art technology to recover and effectively recycle garments or materials. In addition, remanufacturing and upcycling entails a radical change in the design vision. This vision involves working with the existing inputs and reinventing the aesthetic of the product, as well as the necessity of enhancing transparency through the adoption of Life Cycle Assessment methodology and the deployment of the relevant certifications to quantify some aspects related to sustainability. Future research could therefore assess how both born-circular firms and incumbent companies seek to address climate change.

The fashion industry has been paying increased attention to dematerialization and higher revalue addition. Similarly, there is growing consensus about establishing a net-positive environmental impact through remanufacturing at a larger scale. This calls for attention from both practitioners and academia on how to develop new knowledge on this matter.

To conclude, in this study we claim our role as academics to research and articulate desirable futures, instead of predicting scenarios (Gümüsay and Reinecke, 2022). In particular, we show how such futures can become reality through the evidence provided by born-circular companies that are shifting from circular utopia and circular paralysis towards '*real utopias*' (Gümüsay and Reinecke, 2022, p. 237; Bocken et al., 2023). We outline how companies that are transformative from their outset try, with their passion, love and commitment (*amore*), to implement impactful practices to address climate change. These instances are real utopias and thus they exist on the periphery of the mainstream fashion industry, yet they demonstrate, albeit on a small scale, how a grand challenge can possibly be addressed. We therefore hope that the experiences of these companies will spark additional attention on this topic.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section at the end of the article.