Circular economy in the fashion industry - The case of Patagonia and its challenges

Tim Henning

Dissertation written under the supervision of professor Nuno Moreira da Cruz

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Abstract

Title: Circular economy in the fashion industry: The case of Patagonia and its challenges

Author: Tim Henning

Key Words: Circular Economy, Circular Fashion Economy, Circular Capabilities, Reverse Supply Chains, Fashion Industry, Fast Fashion, Patagonia

The fashion industry, a global powerhouse, is also one of the most polluting sectors. In recent years, numerous strategies have been proposed to steer the industry towards a more sustainable path. Central to these efforts is the concept of the circular economy, which offers a transformative alternative to the prevailing linear 'take-make-dispose' model. As one of the world's most sustainable and circular companies, the journey of American fashion company Patagonia is explored as a best practice example of circular fashion. Through sustainable manufacturing initiatives, sophisticated reverse supply chain capabilities and advocacy, Patagonia has redefined the life cycle of apparel, providing valuable insights into the feasibility of a circular textile economy. This case analyses Patagonia's efforts and reveals that the transition to a circular economy is a complex task, hampered by systemic barriers such as technological limitations, economic constraints and consumer behaviour patterns, and provides an outlook on the structural changes required for meaningful industry transformation. The theoretical framework discusses the concept of the circular economy as understood by the Ellen MacArthur Foundation and provides an overview of the dynamics and inherent challenges of the circular fashion industry. Students will gain an understanding of the intricacies of circularity, including the interplay between environmental responsibility and financial profitability. In addition, by examining the critical barriers to circularity, this case enables students to evaluate real-world strategies and solutions for achieving sustainable and scalable change in the fashion industry.

Sumário

Título da dissertação: Uma economia circular na indústria da moda: O caso da Patagonia e os seus desafios

Autor: Tim Henning

Palavras-chave: Economia Circular, Economia Circular da Moda, Capacidades Circulares, Cadeias de Abastecimento Reversas, Indústria da Moda, Fast Fashion, Patagonia

A indústria da moda, uma potência mundial, é também um dos sectores mais poluentes. Nos últimos anos, foram propostas numerosas estratégias para orientar a indústria para um caminho mais sustentável. No centro destes esforços está o conceito de economia circular, que oferece uma alternativa transformadora ao modelo linear prevalecente de "pegar-fazer-descartar". Sendo uma das empresas mais sustentáveis e circulares do mundo, o percurso da empresa de moda americana Patagonia é explorado como um exemplo de melhores práticas de moda circular. Através de iniciativas de fabrico sustentáveis, de capacidades sofisticadas de cadeia de abastecimento inversa e de sensibilização, a Patagonia redefiniu o ciclo de vida do vestuário, fornecendo informações valiosas sobre a viabilidade de uma economia têxtil circular. Este caso analisa os esforços da Patagonia e revela que a transição para uma economia circular é uma tarefa complexa, dificultada por barreiras sistémicas como as limitações tecnológicas, os constrangimentos económicos e os padrões de comportamento dos consumidores, e apresenta uma perspetiva das mudanças estruturais necessárias para uma transformação significativa da indústria. O quadro teórico discute o conceito de economia circular tal como entendido pela Fundação Ellen MacArthur e fornece uma visão geral da dinâmica e dos desafios inerentes à indústria da moda circular. Os alunos compreenderão os meandros da circularidade, incluindo a interação entre responsabilidade ambiental e rentabilidade financeira. Além disso, ao examinar as barreiras críticas à circularidade, este caso permite que os alunos avaliem estratégias e soluções do mundo real para alcançar uma mudança sustentável e escalável na indústria da moda.

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List of Abbreviations:

CE - Circular Economy
CEO - Chief Executive Officer
COO – Chief Operating Officer
DPP – Digital Product Passport
EMF – Ellen MacArthur Foundation

1. Introduction

> *"If we could build an economy that would use things rather than use them up, we could build a future."* [1]
>
> - Ellen MacArthur, Charity Founder of the Ellen MacArthur Foundation

As Ellen MacArthur highlights, we live in a world, dominated by human consumption, where the relentless extraction of resources and the disposal of products after only a short time of use define much of our economic activity. On the one hand, material consumption has contributed to higher living standards by increasing life expectancy, employment, and education worlwide, however the toll on the environment becomes increasingly emminent (Ellen MacArthur Foundation, 2017). Between 2018 and 2024 alone, humanity has consumed more than half a trillion tons of materials, an amount equal to materials consumed during the entire 20th century (Circularity Gap Report, 2024).

A major contributor to this negative trend is the fashion industry. The industry produces staggering waste and pollution, with over 1.2 billion tons of CO_2 emissions annually, more than international flights and maritime shipping combined (Ellen MacArthur Foundation, 2017). The rise of fast fashion has only exacerbated these issues, promoting overproduction and underutilization of garments (Niinimäki et al., 2020).

In this context, the concept of a circular economy (CE) has recently emerged as a holistic solution to eliminate waste and regenerate waste (Ellen MacArthur Foundation, 2013a). While discussions and debates revolving around the CE have become more and more mainstream (Circularity Gap Report, 2024), implementation across industries, including the fashion sector, is hindered by various systemic barriers (Bressanelli et al., 2019; Saccani et al., 2023).

Correspondingly, fashion companies are subject to a complex playing field and most of them are reluctant or unwilling to embark on their journey towards circularity and exceed the compliance stage (Pucker, 2022). Contrasting this status quo, the American apparel company Patagonia Inc., herafter Patagonia, has become a symbol of a sustainable and circular corporation through its responsible business approach. (Kearney, 2023; Patagonia, 2023a).

[1] Source: Ellen MacArthur Foundation, 2019

Known for its ecological advocacy, its innovative design principles and environmental programs (Patagonia, 2024a), Patagonia has challenged industry norms by embracing principles of circularity. Despite these efforts, the company admits that it has not achieved sustainability or circularity (Ram, 2021), raising the question of how Patagonia can overcome these barriers to circularity in the future and whether some obstacles are too large to overcome on their own.

Correspondingly, the concept of the CE and its application in the fashion industry forms the theoretical framework for this thesis. A sound knowledge is acquired by examining the Ellen MacArthur Foundation´s (EMF) understanding of the CE. Specifically, the EMF highlights that a CE is founded on design-driven principles, necessary for achieving a general system in which economic growth is decoupled from material consumption (Ellen MacArthur Foundation, 2013a). In the context of the fashion sector, EMF proposes a roadmap for achieving a circular industry in which clothes and its´components are maintained at their highest value throughout their use and subsequently reintegrated into the economy, thus avoiding waste entirely (Ellen MacArthur Foundation, 2017). Lastly, financial, societal and political barriers oppose a circular transition and require collaborative actions among industry stakeholders to build the necessary infrastructure necessary for commercializing circular apparel as an alternative to wasteful, linear clothing (Circularity Gap Report, 2024; Dissanayake & Weerasinghe, 2021; Kazancoglu et al., 2020).

Building up on this theoretical foundation, the teaching case offers insights of a real-life example of a best-practice company and its journey towards becoming a more circular fashion company in an industry, renowned for its negative environmental impact. In turn, the Patagonia case equips students with a throrough understanding of the CE´s intricate system and potential avenues for implementation in the fashion sector.

The first section of this thesis, the literature review discusses the CE as the main theoretical framework, explaininig its main criteria and accompanying challenges in establishing this system. The next section discusses the case study on Patagonia. It introduces the status quo in the fashion industry and gives a comprehensive overview of Patagonia´s journey as a responsible business, who is leveraging circular business practices. The case concludes with a realistic outlook on future possibilites of implementing the circular economy in the fashion industry. The teaching notes guide teachers through the meaningful application of the case,

incentivizing discussions. The discussion section will bridge the theoretical part of this thesis with the presented case study, provide suggestions for future research and highlight limitations of this thesis. Finally, the conclusion will conclude this thesis.

2. Literature Review

This chapter presents the theoretical foundation necessary for the teaching case. Specifically, the CE (2.1) is defined before the EMF´s CE framework (2.2) is introduced. Then, the CE in the context of the fashion industry (2.3) before the most crucial barriers impeding a circular fashion transition (2.4) are presented.

2.1 The Circular Economy

The CE is a model which aims to create a restorative and regenerative system by minimizing waste and maximizing resource use (Ellen MacArthur Foundation, 2013b). In contrast to traditional linear economies, which follow a "take, make, dispose" pattern, the CE focuses on a closed-loop system keeping products, materials, and resources in use for as long as possible (McKinsey, 2024; Geissdoerfer et al., 2017). Overall, this allows for the decoupling economic growth from the depletion of natural resources, thus providing environmental, social, and economic benefits (Ellen MacArthur Foundation, 2013b; Kazancoglu et al., 2020; Reike et al., 2022).

There are various iterations of CE frameworks, among them, the 10R framework (Refuse, Reduce, Rethink, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, Recover), the 5R framework (Reduce, Reuse, Repair, Refurbish, Recycle), and the Ellen MacArthur Foundation’s (EMF) framework, which defines three underlying principles enabling a CE: minimizing waste, circulating products and materials, and restoring nature, driven by design (Ellen MacArthur Foundation, 2013a; Dissanayake & Weerasinghe, 2021). For clarity reasons, this thesis will focus on the EMF framework, as the EMF is a thought leader in CE knowledge and has pushed the CE agenda in the most meaningful way (Geissdoerfer et al., 2017).

2.2 Ellen MacArthur Foundation´s Circular Economy Framework:

The EMF´s circular economy framework is based on three principles, namely minimizing waste, circulating products and materials, as well as restoring nature.

2.2.1 Minimizing Waste:

As mentioned, the world presently functions within a linear "take-make-waste" paradigm, wherein raw resources are collected from the Earth to manufacture items that are subsequently disposed of as garbage post-consumption (Ellen MacArthur Foundation, 2013a). A significant quantity of this waste is either deposited in landfills or incinerated, making it unrecoverable and non-reusable (Dissanayake & Weerasinghe, 2021). This system is unsustainable in the long term since Earth's resources are finite.
Waste is not an unavoidable consequence, instead it arises from design decisions (Ellen MacArthur Foundation, 2013a). Numerous products are engineered without regard for their end-of-life, rendering them frequently inappropriate for reuse, recycling, or composting, and thus destined for disposal (McKinsey, 2021; Reike et al., 2022). Hence, designing products with consideration for their end-of-life is essential for the CE, as it allows that materials can re-enter the economy after use (Geissdoerfer et al., 2017, Moreno et al., 2016).

2.2.2 Circulating Products and Materials:

The circulation of products and materials, whether as finished products, as components or raw materials, ensures prolonged usage and mitigates waste (Ellen MacArthur Foundation, 2013b). In this sense, no resources are lost and the products´and materials´intrinsic value is maintained within the closed-loop system (Farooque et al., 2019; Geissdoerfer et al., 2017). To accomplish this, items and materials may be maintained in circulation through two essential cycles: the technical cycle and the biological cycle (Farooque et al., 2019; Circular.Fashion, 2021).

Technical Cycle

The primary objective of the technical cycle is to preserve the value of products through maintenance and reuse (Farooque et al., 2019). For instance, a phone possesses greater value as a functional gadget than when its components are deconstructed into raw materials. Consequently, the technical cycle prioritises the preservation of products for an extended

duration (Ellen MacArthur Foundation, 2014). This may entail methods such as sharing, facilitating usage by more people over time. It may also encompass reuse via resale or cycles of maintenance, repair, and refurbishment (Reike et al., 2022; Ellen MacArthur Foundation, 2017). When a product is no longer usable, its components can be remanufactured or disassembled into basic materials for recycling depending on the quality (Farooque et al., 2019; Ellen MacArthur Foundation 2014). Additionally, recycling, albeit a last resort due to the loss of embedded value, is essential for preventing materials from becoming garbage and facilitating their reintegration into the economy (Kazancoglu et al., 2020; Ellen MacArthur Foundation, 2017).

Biological Cycle

The biological cycle emphasises the movement of non-reusable biodegradable materials (Circular.Fashion, 2021). Materials, for instance food byproducts, can be reintegrated into the earth by processes such as composting (Navare et al., 2021; Ellen MacArthur Foundation, 2013b). These processes facilitate the regeneration of soil with critical nutrients which are vital for cultivating fresh crops or renewable resources such as cotton and wood (Ellen MacArthur Foundation, 2013b). Additonally, certain products, such as cotton apparel or hardwood furniture, can traverse both the technological and biological cycles (Circular.Fashion, 2021). Such products may be reused, repaired, or recycled, yet ultimately, they can re-enter the biological cycle, where their organic components decompose and contribute to soil replenishment for new growth (Ellen MacArthur Foundation, 2013b).

The Role of Design

In order to successfully circulate within either the biological or technical cycles, products must be designed with circulation as a fundamental consideration (Bocken et al., 2016). However, in today´s economy, many products are rendered unsuitable for circulation due to their design that prevents meaningful material seperation, making them non-recyclable or non-compostable (McKinsey, 2021; United Nations Environment Programme, 2023). For instance, textiles often consist of material blends, combining natural fibers with plastic which impedes seperation for recycling (Ellen MacArthur Foundation, 2017; McKinsey, 2021).

In this sense, product developers and designers play a key role in ensuring products are fit for these cycles (Dissanayake & Weerasinghe, 2021). Accordingly, products designed for the

technical cycle must facilitate ease of repair, maintenance, and disassembly, featuring modular components that are replaceable (Circular.Fashion, 2021). At the same time, they must be sufficiently sturdy to endure frequent usage and constructed from materials that are readily recyclable (Ellen MacArthur Foundation, 2013b).

2.2.3 Restoring nature.

Contemporary systems frequently exhaust nutrients and inadequately leverage biological waste (Circularity Gap Report, 2024). Transitioning the economy from linear to circular shifts the emphasis from extraction to regeneration. Thereby, natural capital can be cultivated through agricultural methods that rehabilitate soil health, augment biodiversity, and reintegrate biological materials into the ecosystem, rather than perpetually depleting nature (Ellen MacArthur Foundation, 2013b).

Furthermore, maintaining the use of products and resources reduces the land required for sourcing virgin raw materials (Ellen MacArthur Foundation, 2013a).

In a circular economy, material sourcing increasingly emphasises renewable resources obtained through regenerative practices. This transition is facilitated by a move towards renewable energy, utilising reusable and recyclable infrastructure (Circularity Gap Report, 2024; Ellen MacArthur Foundation, 2013b).

Additionally, the adoption of circular principles demonstrates that, as economic activity becomes aligned with regeneration, environmental and economic benefits compound, thus fostering a resilient and sustainable future (Ellen MacArthur Foundation, 2014)

2.3 The Circular Economy in the fashion industry

The transition to a circular textiles economy is increasingly viewed as an essential strategy to address the environmental, economic, and social challenges posed by the current linear model of production in the textile industry (United Nations Environment Programme, 2023). The Ellen MacArthur Foundation (2017) outlines a compelling vision for this transformation, driven by four key ambitions that focus on reducing environmental harm, enhancing resource efficiency, and fostering sustainable business practices.

The first ambition emphasizes the elimination of harmful substances and the reduction of microfibre release (Ellen MacArthur Foundation 2017). The textile industry has long been

associated with the use of toxic chemicals, such as dyes and finishing agents, which can harm both human health and the environment (Browne et al., 2011; Whitfield & Maile, 2024). Additionally, synthetic fabrics contribute to ocean pollution through the release of microfibres during washing. To support the shift to a circular economy, it is critical to phase out these substances and implement measures to minimize the release of microplastics (Gautam, 2023). This goal is crucial for ensuring that textiles can be safely reused and recycled without contributing to environmental degradation (McKinsey, 2021).

The second ambition is to transform the way clothes are designed, sold, and used (Ellen MacArthur Foundation 2017). The circular economy advocates for a move away from the fast fashion model, which prioritizes low-cost, short-lived garments. Instead, the focus shifts toward durability, repairability, and reuse. This includes designing products that are built to last and can be repaired, thus extending their useful life (Mishra et al., 2021; Whitty, 2021). Furthermore, alternative business models, such as clothing rental or resale, encourage sharing and reuse, which helps increase the utilization of garments and reduces the need for new production (Geissdoerfer et al., 2018; Niinimäki et al., 2020). This transformation requires a cultural shift, where clothing is viewed as a long-term investment rather than a disposable item (Dragomir & Dumitru, 2022).

The third objective emphasises significantly enhancing recycling efforts (Ellen MacArthur Foundation 2017). The present recycling rate for textiles is critically inadequate, with a significant portion of waste being disposed of or downcycled into inferior products (McKinsey, 2021). Such inefficiencies result in a yearly loss of around USD 500 billion (Ellen MacArthur Foundation, 2017). Hence, it becomes imperative to mind the products´end-of-life, the utilisation of materials that facilitate recycling, and the removal of detrimental substances that obstruct the process during the clothing design stage (Circularity Gap Report, 2024; Saccani et al., 2023). Additionally, technological advancements such as chemical recycling can extract valuable elements from used clothes, diminishing the reliance on virgin resources and decreasing the environmental impact of the sector (Whitfield & Maile, 2024; Sandvik & Stubbs, 2019).

The fourth objective is to transition to renewable resources and optimise resource utilisation (Ellen MacArthur Foundation, 2017). The textile industry predominantly depends on non-renewable resources, including petroleum-derived fibres and chemical-intensive methods

(Niinimäki et al., 2020). Transitioning to renewable resources, such as bio-based fibres derived from regenerative agricultural methods, can alleviate environmental effects (Whitfield & Maile, 2024). Integrating renewable energy into production processes diminishes the industry's carbon footprint, thereby substantially impacting global CO2 emissions (McKinsey, 2021). Thus, by utilising renewable materials and clean energy, the textile industry may diminish reliance on finite resources and embrace a sustainable production paradigm.

2.4 Barriers impeding a circular transition in the textiles industry

Economic and Financial Viability

Economic challenges are deeply embedded in the transition CE within the textile industry. The initial costs of developing circular models are substantial, as they require investments in advanced recycling technologies, product redesign, and the establishment of reverse logistics systems (Circularity Gap Report, 2024).

For SMEs, which dominate the industry, limited financial resources pose a significant constraint. These companies frequently lack access to finance or financial assistance, hindering their ability to invest in expensive infrastructure or cover initial costs for circular projects (Kazancoglu et al., 2020; Sandvik & Stubbs, 2019). Moreover, the diminished market value of recycled materials relative to virgin fibres intensifies financial risk (Whitfield & Maile, 2024). For example, variations in raw material costs may render the production of textiles using virgin inputs more cost-effective than utilising recycled materials, hence diminishing the motivation to use circular practices (Saccani et al., 2023).

Another factor is the difficulty of achieving economies of scale in recycling or reuse activities, especially in regions where textile waste volumes are insufficient to sustain large-scale operations (Ellen MacArthur Foundation, 2017; McKinsey, 2021). This lack of scale leads to higher unit costs for circular products, making them less competitive in a price-sensitive market (Huang et al., 2021). Additionally, the financial risks are compounded by uncertainties around returns from long-term circular investments, as the industry faces a lack of established benchmarks and reliable projections of economic outcomes from CE practices (Abdelmeguid et al., 2022). The lack of well structured government incentives or subsidies to

mitigate these expenses further hinders advancement (Dissanayake & Weerasinghe, 2021), especially in areas where policy frameworks for circularity remain underdeveloped (European Commission, 2020).

Market and Competition

The textile industry's shift towards circularity encounters considerable market and competitive challenges (Saccani et al., 2023). Consumer resistance constitutes a key obstacle. Despite growing awareness of sustainability, consumers frequently prioritise affordability and convenience above environmental considerations. Sustainable and circular products typically carry higher price tags due to added costs in sourcing, production, and logistics (Whitfield & Maile, 2024). This pricing disparity limits their appeal to mainstream consumers, particularly in price-sensitive markets (Huang et al., 2021).

Furthermore, the fast-fashion model reinforces linear practices by encouraging rapid turnover of inexpensive apparel (Sandvik & Stubbs, 2019). While, circular business models emphasize durability, leasing, or repair services offer viable solutions, they decelerate consumption cycles, which may contradict with existing demand patterns (Franco, 2017).

Additionally, the notion of recycled materials as poor in quality undermines their competitiveness. Consumers may associate "recycled" with inferior quality, especially in high-end fashion marketplaces, hence hindering the expansion of circular products (Dissanayake & Weerasinghe, 2021).

Moreover, market rivalry is influenced by greenwashing methods, wherein corporations misleadingly promote themselves as sustainable without implementing substantial operational improvements (Saccani et al., 2023). Such techniques undermine consumer trust and establish inequitable competitive environments for companies really committed to circularity (Koszewska, 2018). Moreover, the concerns of cannibalisation discourage corporations from promoting circular products. For instance, providing durable or reusable apparel may diminish recurring purchases, hence jeopardising long-term revenue sources (Saccani et al., 2023).

Product Characteristics

The inherent properties of textile products provide significant obstacles to circularity. A major technological challenge is the prevalence of blended fibres, which are challenging to segregate during recycling (Boden, 2024). Additionally, the blend of materials like polyester

and cotton complicates recovery and sorting methods, rendering them labour-intensive, expensive, and inefficient (Franco, 2017; McKinsey, 2021). Moreover, contemporary product designs frequently lack compatibility with circularity (Circular.Fashion, 2021). Accordingly, garments are often designed for aesthetic appeal or cost efficiency rather than durability, repairability, or recyclability, reducing their potential for reuse or end-of-life processing (Dissanayake & Weerasinghe, 2021).

A further concern is the deterioration of quality during the recycling process. Recycled fibres generally have inferior strength, texture, and aesthetic attributes relative to virgin fabrics, constraining their use in high-quality or luxury apparel (Fernandes et al., 2023). This limitation perpetuates downcycling, when textiles are transformed into lower-value items, such as insulation or cleaning rags, instead of being reintegrated into high-value apparel (McKinsey, 2021). Furthermore, the utilisation of harmful dyes and finishes exacerbates recycling efforts by contaminating reclaimed materials, hence presenting further processing difficulties (Ellen MacArthur Foundation, 2017; Dissanayake & Weerasinghe, 2021).

Standards and Regulations

Regulatory frameworks play a pivotal role in shaping the adoption of CE practices, but current policies often hinder rather than support circularity in the textile sector. A lack of harmonized global and even regional standards for recycling processes and material certification creates inconsistencies, increasing operational complexity for multinational companies (Circularity Gap Report, 2024; Amed et al. 2023). For instance, differing definitions of textile waste or recycled content across jurisdictions lead to confusion and compliance burdens (Abdelmeguid et al., 2022).

Furthermore, restrictive trade policies, such as bans on cross-border movement of textile waste, prevent the consolidation of materials needed for economically viable recycling operations (Kazancoglu et al., 2020). In many countries, policy incentives for circular initiatives remain inadequate or misaligned. For example, subsidies for virgin materials or insufficient tax breaks for recycling undermine the competitiveness of circular solutions (Saccani et al., 2023).

Additionally, the absence of extended producer responsibility (EPR) schemes on aglobal scale limits corporate accountability for textile waste management (Smart Waste Portugal, 2024; Whitfield & Maile, 2024) . Hence, without mandatory take-back programs or penalties for linear practices, firms have little incentive to close material loops. Lastly, policy

fragmentation also hampers collaboration between stakeholders, from designers to waste processors, further stalling the development of integrated circular systems (Kazancoglu et al., 2020).

Supply Chain Management

The complexity and fragmentation of textile supply chains pose major obstacles to CE implementation. Successful circularity necessitates cohesive collaboration among several stakeholders, including material suppliers and recyclers, along the supply chain (Ellen MacArthur Foundation, 2017).However, the majority of supply chains lack the transparency and coordination essential for this objective (Saccani et al., 2023). Additionally, traceability of materials presents significant challenges due to the minimal implementation of digital technologies and standardised processes for monitoring items over their lifecycle (Balchandani et al., 2024; Fahrni et al., 2024).

Reverse logistics, a fundamental aspect of circularity, is frequently undeveloped (Farooque, 2019), as the collection, sorting, and processing of post-consumer textiles require a strong infrastructure, which is often lacking or too costly in numerous areas (Koszewska, 2018). Moreover, the unpredictable volume, quality, and timing of returns affect logistics planning, hindering the alignment of reverse flows with production schedules (Boden, 2024; Franco, 2017).

Technology

The technological landscape for circularity in textiles is still nascent. Current recycling systems frequently lack the capacity to treat complex or mixed fibers on a large scale, thus unable to achieve price competitiveness (McKinsey, 2024). Additionally, mechanical recycling procedures diminish fiber quality, but chemical processes are both costly and energy-intensive, resulting in trade-offs for both options (Dissanayake & Weerasinghe, 2021; Fernandes et al., 2023). Innovation gaps also exist in areas such as automated sorting and separation, which are crucial for reducing labor costs and improving material recovery rates (Kazancoglu et al., 2020). Moreover, the lack of integration between technological solutions and existing supply chain practices creates additional hurdles, as firms must overhaul legacy systems to adopt circular methods (Ellen MacArthur Foundation, 2017; Franco, 2017).

Consumer Behavior

User behavior remains a critical barrier to circularity. The prevalence of fast-fashion culture, characterized by frequent consumption and disposals, directly opposes the principles of CE (Park & Lin, 2018; Perry & Chung, 2015). Consumers often undervalue repair or reuse options, perceiving them as inconvenient or less desirable than purchasing new items (Hartley et al., 2022).

Awareness gaps further compound the issue. While sustainability is a growing concern, many consumers lack knowledge about the environmental impacts of their purchasing decisions or the benefits of circular products (Perry & Chung, 2015). Even among environmentally conscious consumers, the "attitude-behavior gap" persists, where intentions to support sustainable practices fail to translate into actions, such as participating in recycling programs or opting for second-hand clothing (Abdelmeguid et al., 2022; Camacho-Otero et al., 2020).

3. Case Study

"Building the best product while causing the least harm is at the heart of what we do"
- Yvon Chouinard, 2023[2]

Patagonia stands as the emblem of responsible fashion, embodying a vision of sustainability and ethics rarely achieved in the global fashion industry. Founded by Yvon Chouinard, a self-proclaimed "reluctant businessman"(Chouinard, 2006), Patagonia's journey has consistently challenged the conventional "take-make-dispose" model that dominates the global fashion industry (Boden, 2024). Through the leadership of Chouinard, Rose Marcario, and now Ryan Gellert (Figure 1), the firm has pushed the boundaries of what a business can achieve in promoting sustainability, circular economy practices, and environmental stewardship for years (Wingard, 2019). This ultimately resulted in Chouinard declaring "earth as Patagonia´s only shareholder" in 2022, when he transferred company ownership to the Patagonia Purpose Trust and to the non-profit Holdfast Collective to channel future firm profits into environmental initatives (Patagonia, 2022a).

Figure 1: Patagonia´s CEOs since its foundation (from left to right)
Yvon Chouinard (1973-2020), Rose Marcario (2013-2020) and Ryan Gellert (2020-)[3]

While the company keeps pushing the boundaries of what it means to be a circular business, constantly ranking among the "most circular fashion companies" (Exhibit 1) and employing circular business models, such as `Worn Wear`(Patagonia, 2024b), internally at Patagonia, they know they have not achieved any meaningful levels of circularity. Ciara Cates, the firm´s lead material developer admits:

[2] Source: McKinsey, 2023
[3] Source: Outside Online, 2022; PR Newswire, 2014; Fashion Network, 2020

“We´re ahead of the pack, but brands in general are so far behind, so that´s not saying much” (Ram, 2021).

Patagonia remains an outlier in an industry largely dominated by fast fashion giants. These corporations incentivize excessive consumerism, thus perpetuating wasteful practices that account for 1.2 billion tons of CO2 annually by prioritizing short-term profits over long-term sustainability (Ellen MacArthur Foundation, 2017). At the same time, recent political developments in the EU and the US, two of the biggest markets for fashion consumption,might signal a potential turning point (Exhibit 2). While these policies aim to tackle fast fashion and foster systemic change, they are often hindered by fragmented implementation, slowing down green financing and green consumer adoption (Boden, 2024).

But what does it say for the future of an industry, when one of the most innovative and sustainable companies admits to being constrained in becoming more circular? And which factors have the biggest impact on driving a meaningful circular industry transformation?

As Ryan Gellert took the helm at Patagonia in 2020, he inherited a legacy of innovation and responsibility from previous CEOs Yvon Chouinard and Rose Marcario. But pressing questions remain: How can Patagonia build on its success to inspire broader industry adoption of circular practices? And most critically, will the industry overcome its funding and infrastructure challenges to embrace a new, regenerative model, or will the status quo persist?

3.1 Status Quo in the fashion industry

The global fashion industry is a significant economic sector, valued at over USD 2.5 trillion annually, and provides employment to more than 300 million people worldwide (Ellen MacArthur Foundation, 2017; Kazancoglu et al., 2020). Correspondingly, the industry´s value chain is characterized by a complex and tiered design with upstream and downstream processes before a garment reaches customers (see Figure 2.). Ultimately, clothing is mostly discarded into landfills, as reuse and recycling options are vastly underdeveloped (McKinsey, 2021).

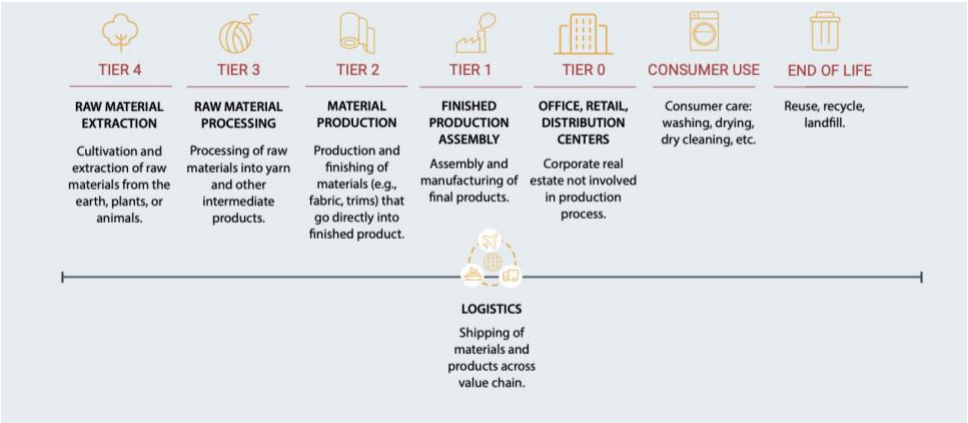

Figure 2: The different tiers in the textile value chain[4]

3.2 Fast Fashion:

The rise of fast fashion has exacerbated these challenges, by increasing the rate of clothing production through ultra-fast collection cycles which follow contemporary fashion trends, thus incentivizing consumption. Figure 3 highlights how clothing production has more than doubled between 2000 and 2015, while clothing utilisation has decreased by 36% in the same time (Ellen MacArthur Foundation, 2017). At the same time, such garments are offered for marginal prices and accordingly lack in product quality (Ellen MacArthur Foundation, 2017). For instance, clothing prices have decreased by over 30% between 1996 and 2018 (EU Commission, 2022).

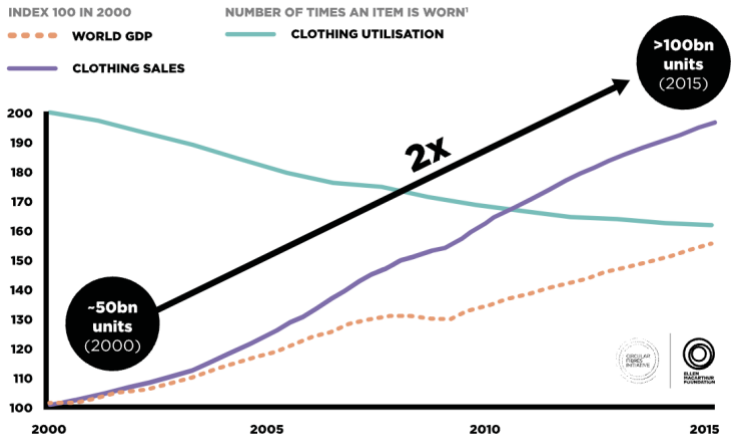

Figure 3: Development of clothing sales and decline in clothing utilization since 2000[5]

[4] Source: McKinsey (2021)
[5] Source: Ellen MacArthur Foundation (2017).

Further quantifying this trend and relating it to the mentioned linear material flow reveals that around 73% of materials used for clothing production end up burnt or in landfills (see figure 4). Additionally, the lack of effective recycling systems compounds to the wastefulness, with less than 1% of discarded textiles being recycled into new clothing, leading to substantial resource loss and environmental degradation (Ellen MacArthur Foundation, 2017).

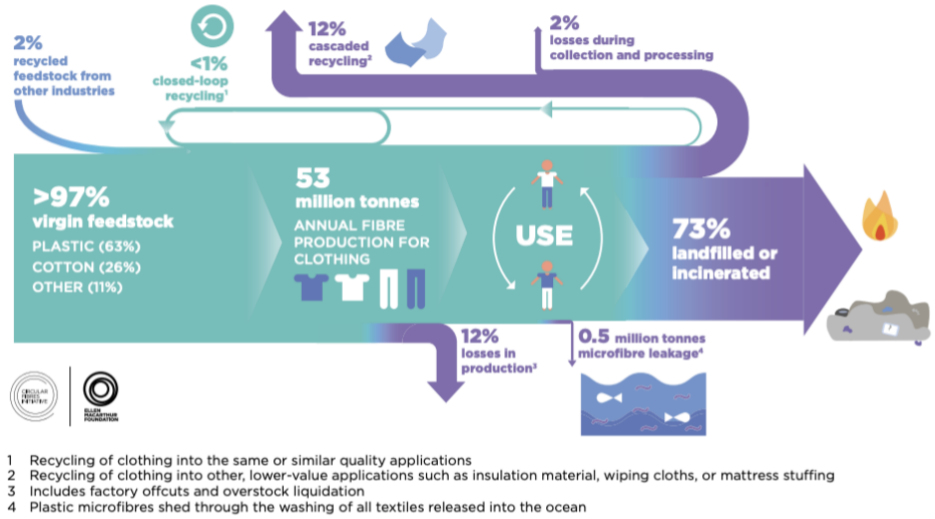

Figure 4: Global Material flows for clothing in 2015[6]

3.3 Environmental and Social Impact

Not suprisingly, the global fashion sector is the third most polluting industry after the oil and agriculture industry (ClimateTrade, 2023). Figure 5 further highlights the negative environmental effects caused by the linear clothing industry.

At the same time, the social implications of the fashion industry are equally severe. Workers, particularly in developing countries, often face poor wages, unsafe working conditions, and excessive working hours (Bick et al., 2018). As mentioned, the fast fashion model exacerbates these issues by placing immense pressure on supply chains (Boden, 2024; Saccani et al., 2023).

[6] Source: Ellen MacArthur Foundation, 2017

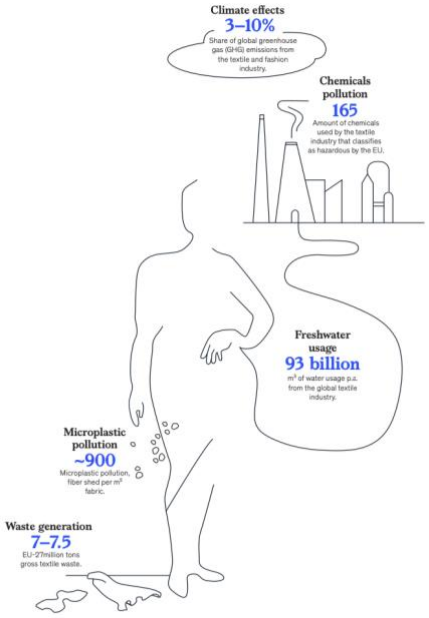

Figure 5: Negative environmental effects caused by the clothing and textile industry[7]

3.4 A circular fashion economy – A solution ?

In recent years, the circular economy has emerged as a transformative alternative to the linear take-make-waste material flow prevalent in global industries. It is designed to be restorative and regenerative by design . Rather than relying on finite resources and generating waste, the circular economy aims to (Ellen MacArthur Foundation, 2013a):

1. Eradicate waste and pollution through thoughtful design and production processes.
2. Maximize the circulation period of products and materials at their highest value
3. Regenerate natural systems to restore ecosystems and build resilience.

On a macro-level, a circular textiles economy relies on four main criteria, namely eliminating harmful substances and reducing microfibre release, transforming the way clothes are designed, sold and used, enhancing recycling efforts and transitioning to renewable resources and optimising resource utilisation (see figure 6).

[7] Source: McKinsey, 2021

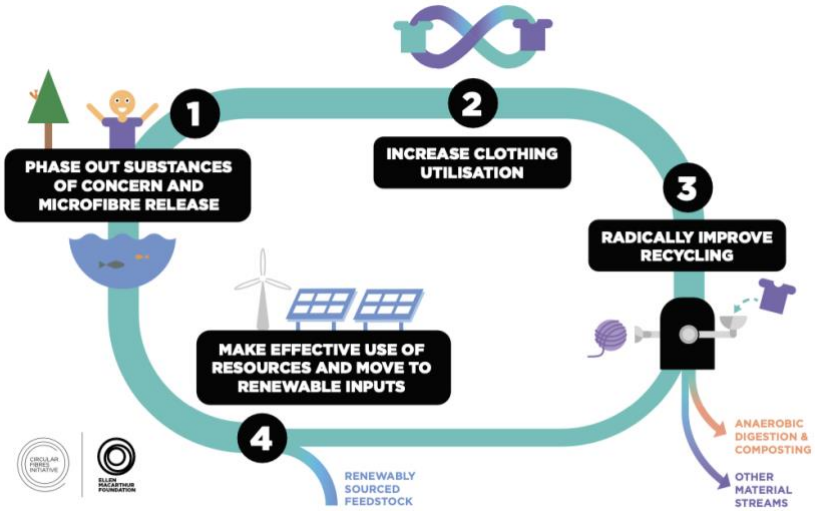

Figure 6: Four Ambitions required for a circular textiles economy[8]

Accordingly, a circular circular fashion value chain is depicted in figure 7:

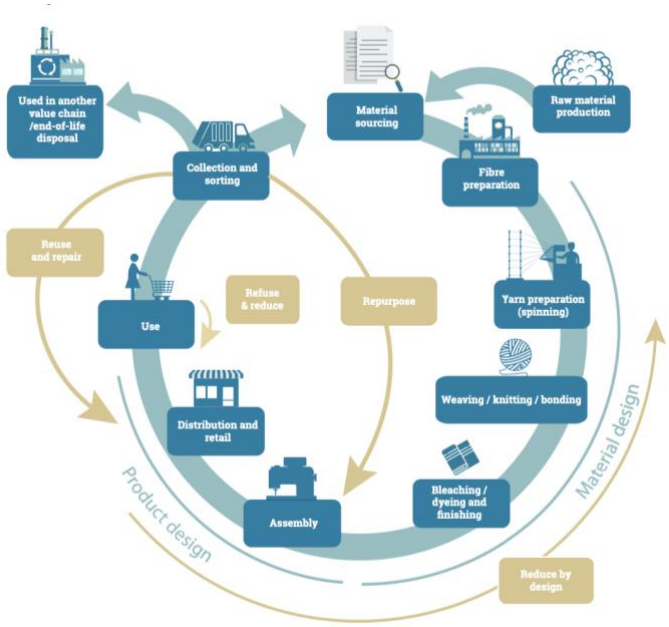

Figure 7: Actvities in a circular fashion supply chain[9]

[8] Source: Ellen MacArthur Foundation (2017).

[9] Source: United Nations Environment Programme (2023)

Upsides of the circular economy appear obvious, however, a key challenge persists: Incorporating these principles into broader business strategies and supply chains, while also shifting people's attitudes toward consumerism and ownership (Saccani et al., 2022).

For businesses, this involves rethinking the entire value chainfrom the business model and sustainable inputs to product design, manufacturing processes, and strategies for recovering products at the end of their life. Additionally, internal tools, like advanced technologies, and external support, such as certifications, assessments and regulations, are essential to facilitate the transition toward circular, regenerative systems.

For consumers, adopting circular economy principles requires reconsidering the purpose and usage of products. This means asking practical questions like: What is the product's intended function? Do I really need to own it, or could I rent or borrow it instead? Is the product designed to be durable, repairable, and ultimately recyclable?

3.5 Patagonia´s journey as a responsible company

Long before the concept of the circular economy gained traction, Patagonia had already embraced a vision of responsible business. Since its inception, the company has charted a unique course that intertwines environmental and social responsibility with financial success, ultimately evolving into a pioneer of circular economy principles (McKinsey, 2023). Patagonia´s founder, Yvon Chouinard, a passionate mountaineer, environmentalist and philantriopist and self-proclaimed "reluctant businessman" embedded his personal belief that businesses should be accountable for their environmental and social impacts (Chouinard, 2006). Notably, Patagonia remained a private company throughout its existence, thus not being pressured to achieve certain financial thresholds to please shareholders and having the freedom to choose company resources as they see fit (Hoang, 2017). In turn, Patagonia is able to leverage its outstanding reputation as a responsible business, which has caused the accumulation of a motivated workforce and loyal customer base who is willing to purchase their premium price segment products (Zumaeta, 2024; Debevoise, (2020); Freundt et al., 2024).

Accordingly, Patagonia´s mission statement, “We´re in business to save the planet” reflects his personal values of quality, integrity, evironmentalism, justice and unconventional business conduct, which he embedded into Patagonia (Patagonia, 2024d; McKinsey, 2023). Doubling down on his conviction, in 2022, Chouinard made the decision to restructure Patagonia, pushing the boundaries of corporate purpose and ownership, by prioritizing environmental impact over profit (Patagonia, 2022a; Kent, 2022; Sundheim, 2023). Namely, the Chouinard family transferred ownership of the company to two newly established entities: the Patagonia Purpose Trust and the Holdfast Collective. The Patagonia Purpose Trust received all voting shares, representing 2% of the company, and was tasked with safeguarding the company’s values and long-term mission (Patagonia, 2022a). Meanwhile, the Holdfast Collective, a nonprofit organization holding the remaining 98% of non-voting shares, was established to channel Patagonia’s profits, estimated at $100 million annually, toward environmental initiatives (McKinsey, 2023). Overall, this move was designed to further secure the company's mission of environmental stewardship and ensure that its profits would be used exclusively to combat the climate crisis and protect natural ecosystems (McKinsey, 2023).

But let´start at the beginning:
The company’s origins date back to 1957 when founder Yvon Chouinard began crafting reusable climbing pitons to minimize environmental damage, replacing the standard practice of abandoning pitons in rocks (Patgaonia, 2024c). These became the first product of his Chouinard Equipment Company, founded in 1959 (Patgaonia, 2024c).
In 1973, Chouinard ventured into outdoor apparel after discovering the functionality of rugby shirts for climbing during a trip to Scotland, leading to the creation of Patagonia, Inc. (Patagonia, 2024c). From the start, Patagonia catered to outdoor enthusiasts through high-quality gear while promoting environmental conservation, resulting in a successful growth period during the 70s and 80s (Patagonia, 2024c). Building up on their early success, the company intiatied its “1% for the Planet” program in 1985, pledging 1% of sales to environmental organizations, thereby institutionalizing its dedication to conservation efforts (Patagonia, 2024e).
However, the firm soon faced a reality check when the USA entered a recession in the early 90s leading to significant financial challenges that tested the resilience of Patagonia´s business model (Patagonia, 2024c). Chouinard remembers his decision on Patagonia´s business conduct for the future:

> *"We had to be cautious about growing too big. A company doesn´t last 100 years by chasing endless growth. There is an ideal size for every business and, when companies outgrow that, they die. We knew we had to be intentional in our growth to be around for another 50 years, so we´re focused on longevity, not expansion" (McKinsey, 2023).*

This crisis confirmed to Chouinard why he was in business: He wanted to build a firm that others could take as their inspiration in search of their own quest for environmental responsibility (McKinsey, 2023). In this sense, Chouinard regards politicans to be "the pawns of big corporations", believing that no meaningful change will come, unless you do it yourself (The Guardian, 2019).

As a response, the company undertook some self-reflection of its operations, which led to a restructuring focused on aligning its core values with financial sustainability (Patagonia, 2024c). Accordingly, they re-evaluated the firms product lines, focusing on creating durable, high-quality goods that aligned with its environmental ethos (Patagonia, 2024c). Additionally, Patagonia began to educate its customer base on clothing´s environmental impact and instructing them on product care, a clear policy line which they are still using today (Hoang, 2017). A prime example is Patagonia´s "Don´t buy this Jacket" campaign launched on Black Friday in 2011 (Patagonia, 2011).

By 1996, the company transitioned to organic cotton after recognizing the environmental harm of conventional farming and pioneered fleece from recycled plastic bottles, reducing reliance on virgin petroleum (Ram, 2021; Patagonia, 2024c).
In the 2000s, Patagonia prioritized labor rights, joining the Fair Labor Association in 1999 and implementing strict supply chain monitoring (Patagonia, 2024f). Subsequently, in 2007, the firm launched its Footprint Chronicles, a tool to transparently showcase product impacts (Patgaonia, 2024c). By 2022, over 90% of its products were made in Fair Trade Certified™ factories, supporting more than 75,000 workers (Patagonia, 2022b).

In 2008, finance executive Rose Marcario joined as CFO, having an immediate impact (O´Connor, 2014; Bradley, 2015). Marcario began reviewing Patagonia's supply chains, streamlining operations to enhance distribution efficiency while cutting financial and environmental costs (Bradley, 2015). She also narrowed the product range to focus on

outdoor apparel and upgraded the company's e-commerce platform, overall driving substantial sales growth (Bradley, 2015). Recognized for her impact, Marcario advanced to COO and became CEO in 2013, holding the role until 2020.

Marcario was also responsible for further driving Patagonia´s circular economy efforts as she recognizes that "we are living in a world where there are going to be fewer resources, and there won't always be a wealth of virgin materials. So you have to start working now to figure out how you are going to address those issues as a brand." (Hoang, 2017). In this sense, Patagonia strongly boosts CE practice adoption by constantly sharing its knowledge and collaborates with other companies (Patagonia, 2022b). Additionally, during her time Patagonia launched´Worn Wear´in 2013, Patagonia´s initative to promote repair, reuse and recycling actvities. Over time, the initiative expanded further with the launch of an online resale platform in 2017 and the opening of dedicated brick-and-mortar stores, specializing in selling used gear and providing clothing repair services (Patagonia, 2024c).

Ultimately, Marcario stepped down as CEO in 2020, making room for Ryan Gellert, who previously led Patagonia´s European operations since 2014 (Kent, 2024). Under Gellert´s supervision, Patagonia has continued to innovate in circular practices, while maintaining its dedication to sustainability and ethical operations. During his tenure, Patagonia has reached a value of 1.5 billion USD and engages in various new partnerships with other companies to push Patagonia´s sustainability and circularity efforts further (Kent, 2024).

3.6 Patagonia´s quest for circularity

A first attempt at circularity

In 2005, Patagonia launched its Common Threads Garment Recycling Program, aiming to provide a response to the evolving fast fashion landscape shaped by the 1st generation of fast fashion retailers such as H&M, Primark and Zara (Patagonia. (2021a.; Amed et al., 2023). The goal was to create a closed-loop system where no product would ever end up in a landfill andeverything would be returned, recycled, and reused.

Specifically, Patagonia aimed to collect old polyester in the form of its Capilene baselayer fabrics from its customers to recycle the garments into new filament yarns (Ram, 2021).

The recycling process was managed by Teijin, a Japanese technology company with an advanced chemical recycling system and at Patagonia, they regarded this partnership as a "win-win" situation, as they could reduce their dependency on petroleum, while recycling old garments (Ram, 2021).
However, the plan faced significant challenges. First, the supply of used garments fell short, as Patagonia's durable products didn't wear out quickly enough to provide the volume needed and it was not possible to meet the industry-scale demands (Ram, 2021). Finally, Teijin relocated its operations to China in 2014, where stricter waste regulations made it unfeasible to align the necessary infrastructure, thus canceling the partnership (Ram, 2021).

Worn Wear

However, Patagonia used this setback as a valuable learning. In 2011, the company launched its Common Threads Initative, partnering with eBay to create a platform for customers to buy and sell used Patagonia products (Leonard, 2012). This intiative evolved into ´Worn Wear in 2013 (Patagonia, 2024b). Initally, Worn Wear was meant to be a blog open for customers to share stories about their most beloved Patagonia Products (Ram, 2021). This initial focus on storytelling soon evolved into clothing swaps and global pop-up repair events. Here, Patagonia´s close connection with its customer base in combination with appropriate education enables product use (Cochrane, 2024), as Marcario remembered in 2017.

"For us, we engage with our customers because it's a relationship. They need to understand that, as a brand, we are invested in this responsibility for the product from end to end and we are going to help them in each stage of the process"
(Hoang, 2017).

Core Features of the Worn Wear Program:

One of the most prominent features of the Worn Wear program is its repair services which aligns with its Ironclad Guarantee**.** Patagonia offers free repairs on worn gear through its dedicated Worn Wear repair centers and mobile repair tours (Patagonia, 2024b). Additionally, customers can access repair guides through platforms such as *ifixit.com* to enable self-repairs (Clapp, 2020). Currently, Patagonia manages more than 72 global repair centers, and with its Reno, Nevada facility, Patagonia's has established the largest repair

center in North America, employing over 90 technicians and processing thousands of repairs annually (Patagonia, 2022b). In 2022, Patagonia expanded their repair center infrastructure to cater to consumers in the EMEA region by opening the 'United RepairCentre´in Amsterdam (den Toom, 2022). As the name indicates, the company designed this repair centre to encourage other firms to launch their own repair services and use the infrastructure set up by Patagonia.

In addition to repairs, the Worn Wear program includes a resale platform, enabling customers to trade in used Patagonia products in exchange for store credits (Hoang, 2017). Items that are beyond repair are repurposed into new garments under the ReCrafted Collection, a creative upcycling initiative in the worn wear sales channel that further reduces landfill contributions by deconstructing and reconstructing old materials into functional clothing (Patagonia, 2019b).

Furthermore, Patagonia's frequently conducts Worn Wear Mobile Repair Tours to further engage with its customers face-to-face while delivering free repairs (Patgaonia, 2024g). In this sense , more than 35,000 people attended Patagonia's repair events in 2016 alone, reflecting a growing interest in sustainable consumption behaviors (Patagonia, 2022b).

Worn Wear´s Environmental and Strategic Impacts:

Patagonia's Worn Wear program directly contributes to environmental conservation by keeping gear in use longer, reducing overall waste, and diverting products from landfills. Patagonia´s efforts accumulated into 85,670 repaired products across Patagonia's global repair network in 2021 alone (Patagonia, 2022b).

However, Worn Wear still only accounts for $5 million of our business, less than 1 percent of the company´s total sales (Kent, 2024). Still, unlike repair, which Ryan Gellert described as a "complete cost centre" with only "karmic value," the resale business is profitable and growing, and "at scale, he would like to make it a central part of business" (Kent, 2024). Still, the current CEO has to acknowledge it's just a "tiny" slice of Patagonia's overall business for now.

Design

One of Patagonia´s core values refers to making the best possible products. Accordingly, in his autobiography “Let my people go surfing: The Education of a Reluctant Business Man”, Chouinard highlights Patagonia´s design principles for their products as follows(Chouinard, 2016):

- “Is it functional?”
- “Is it multifunctional?”
- “Is it durable?”
- “Is it repairable?”
- “Does it fit our customer?”
- “Is it as simple as possible?”
- “Is the product line simple?”
- “Is it an innovation, or an invention?”
- “Is it a global design?”
- “Is it easy to care for and clean?”
- “Does it have added value?”
- “Is it authentic?”
- “Is it beautiful?”
- “Are we just chasing fashion?”
- “Are we designing for our core customers?”
- “Has the design process minimised the impact on the environment as far as possible?”

Naturally, such design ambitions are only realisable through close collaboration with Patagonia´s extensive upstream suppliers, which they have broadened in recent decades and often result in short-term disputes during R&D stages (Patagonia, 2017). Likewise, Marcario stressed the importance of educating its employees on circularity principles, stating that circularity is only possible when everyone assumes "end-to-end responsibility for the product" (Hoang, 2017).

To make sure that products adhere to the mentioned requirements, Patagonia conducted an internal re-structuring in 2014. This entailed moving the management of product performance KPIs from the company´s sustainability department to the product teams, thereby empowering designers in their design process (Dilley, 2014). Prior to this change, the

sustainability department would hand internal social and environmental goals to the product teams directly (Dilley, 2014).

Sourcing Inputs:

Patagonia's approach to sourcing inputs is a cornerstone of its commitment to circular design. In 2025, Patagonia plans to transition entirely to preferred materials, including organic cotton, regenerative organic cotton, recycled cotton, recycled polyester, and recycled nylon, materials that already dominate the firm´s fabric portfolio (Patagonia, 2024a). Thereby, Patagonia minimizes its reliance on virgin resources and significantly reduces carbon emissions by leveraging both synthetic and natural fibers derived from pre-consumer and post-consumer waste (Whitfield & Maile, 2024).

Challenging global recycling reluctancy

For Patagonia, one thing is clear, recycling is not the key to achieving circularity, and they are intentionally not beginning with recycling when thinking about possible solutions but rather with product longevity, according to Ryan Gellert (Kent, 2024). A main reason for this, is recycling processes' inherent toll on the environment considering that mature facilities still use energy and logistics necessitate moving textile masses from A to B (Ram, 2021). Essentially, "recycling is not necessarily making a product greener, it just makes it less brown" (Patagonia, 2019a).

Despite this reasoning, Patagonia still takes part in pushing the global reverse supply chain infrastructure, including collection, sorting and recycling. In a global context, current textile recycling technologies revolve around mechanical and chemical recycling processes (McKinsey, 2021).

Mechanical recycling at Patagonia:

Mechanical recycling uses physical processes like cutting and grinding to transform textiles into reusable fibers (Patagonia, 2024h). In this sense, the textile waste´s fiber composition will always match the recycled output. Overall, this method is commercially proven, low-energy, and cost-efficient (Boden, 2024).

However, mechanically recycled fibers will always face quality degradation, with a fiber-length reduction of 30-40%, thus limiting closed-loop applications (Fernandes, 2023). As a solution to this issue, mixing recycled fibers with virgin fibers can improve quality (Boden, 2024).

Mechanical recycling is an effective solution when the source material is pure enough to produce a recycled product that meets performance standards (Boden, 2024). For instance, Patagonia uses mechanically recycled PET bottles to create synthetic fibers because the clean source of postconsumer bottles ensures a high-quality finished product (Patagonia, 2024h).

Patagonia incorporates mechanically recycled materials wherever feasible. While fiber degradation in natural materials like wool and cotton limits their recyclability, synthetic materials often remain unaffected (Patagonia, 2024h). A prime example is the brand´s Responsibili-Tee T-shirt, which combines 50% postindustrial cotton scraps from Patagonia´s production facilities with 50% postconsumer recycled polyester to enhance strength and durability (Patagonia, 2024h).

Chemical recycling at Patagonia:

Chemical recycling encompasses various technologies using chemical processes to break down fibres to the polymer or monomer level, their fundamental components (Patagonia, 2024i). There are existing technologies which are able to recycle cotton, man-made cellulosic fibres, but most notably synthetic fibres (Boden, 2024).

Chemical recycling has a high ability to return inputs to virgin quality, however, it requires high energy outputs (McKinsey, 2021). While chemical recycling is more energy intensive than a mechanical process, there are still environmental impact savings (Boden, 2024). Chemically recycled polyester using a glycolysis process, for example, reduces CO_2 emissions by 18% compared to virgin polyester (Patagonia, 2024i).

Partnership with JEPLAN:

In 2022, Patagonia began a partnership with JEPLAN, a Japanese recycling company specializing in chemically recycling pre- and postconsumer polyester textiles into new clothing (Patagonia, 2024j). Using pre-consumer textile waste, such as fabrics scraps and

yarn waste from the manufacturing process, and postconsumer textile waste collected through their own take-back program, JEPLAN chemically recycles polyester, into new clothing (JEPLAN, 2024).

In this circular process, JEPLAN's BRING Technology chemically recycles polyester clothing into pellets, which Patagonia's mill partner uses to produce yarn and fabric of virgin-like quality (Patagonia, 2024j). By removing impurities and dyes, chemical recycling provides greater flexibility in the color, quality, and performance of the recycled material, necesseties for Patagonia´s apparel (Patagonia, 2024j).

At the start, Patagonia sent over 2,200 pounds of postconsumer garments from its Reno, Nevada, warehouse to JEPLAN (Patagonia, 2024j). Building on the initial collaboration, Patagonia incorporated JEPLAN's chemically recycled material into the main body fabric of its Fall 2024 Better Sweater® products, a best seller product line which accounts for more than 15% of Patagonia's polyester usage in an average season (Patagonia, 2024j). Additionally, the company purchased a significant amount of JEPLAN pellets for its Taiwan-based supplier, Kingwhale Industries Corp., transforming over 48,000 pounds of pre-consumer JEPLAN material into Better Sweater® products(Patagonia, 2024j).

While this collaboration seemingly sounds like a huge lever towards circularity, it is important to realize that JEPLAN is a trailblazer in the industry and one of the few companies who are operating collection and sorting operations and a recycling mill that is able to use chemical textile recycling at scale (Patagonia, 2024j).
Currently, the recycling of postconsumer textiles faces significant challenges, including the lack of a widespread collection infrastructure, such as limited availability of garment recycling bins (McKinsey, 2021). In other words, one of circular fashion´s biggest obstacle remains lack of funds, which are necesarry for developing the global reverse supply chain infrastructure to transform recycled fabrics into competitive alternatives to virgin materials (Ellen MacArthur Foundation, 2017).

Leveraging traceability technologies

Footprint chronicles

In an evolution of the research it conducted on cotton sourcing, Patagonia launched 'The Footprint Chronicles' at the end of 2007. This online feature establishes traceability of used materials, as it maps out the entire supply chain and how Patagonia´s products affect the environment (Patagonia, 2024k; Polley, 2012). A visitor to the site can click on any product, and track its environmental and social impact along its path to the store. Although The Footprint Chronicles have demonstrated that some Patagonia products have negative environmental impacts that are nearly impossible to avoid, the company's presentation of actual fact has helped establish it as an honest, trustworthy company (Polley, 2012) . Accordingly in 2013, Chouinard explained:

"You don't have to be worried about telling everybody about the bad things that you're doing. As long as you say that we're working on these things. But if you try to be dishonest, try to hide it, it is going to come back and bite you in the [expletive]." (Bloomberg, 2013).

Accountability through accredited certifications

To ensure Patagonia´s efforts are legitimate, the company complies with various 3rd party sustainability and circularity certifications which monitor Patagonia´s own processes and every stakeholder along the firm´s supply chain (Patagonia, 2024m).

For instance, since 2000, Patagonia has partnered with bluesign technologies to evaluate and minimize resource consumption throughout its materials supply chain, with a particular focus on managing chemicals, dyes, and finishes used in production. (Patagonia, 2024k). Thereby, the bluesign system ensures that products are safe for the environment, workers, and consumers. Moreover, it rigorously evaluates raw materials, dyes, and chemical auxiliaries used by suppliers, ensuring that all components adhere to strict safety and environmental standards (Patagonia, 2024k).

Experimenting with Digital Product Passports

Furthermore, Patagonia has started to integrate QR codes, into its packaging strategy aimed at reducing paper waste and enhancing customer engagement through the adoption of QR codes on product hang tags (Silberstein, 2022). This initiative, introduced with the Spring 2023

product line, replaces traditional multi-card hang tags with a simplified design featuring serialized QR codes that link directly to a digital profile for each product, highlighting various product features and regulatory information (Silberstein, 2024). While the digitized hang tags will prevent approximately 174,000 pounds of paper waste from reaching landfills annually, most notably, the technology could be further leveraged into digital product passports (DPPs) (Silberstein, 2024; European Commission, 2022).
In theory, the QR codes can provide customers with access to detailed information about the product, including material sourcing, sustainability practices, and care instructions, fostering greater transparency and supporting the company's environmental commitments (Silberstein, 2022). This in turn would represent a DPPs, a concept which is currently discussed in various legislation debates, for instance in the EU. DPPs will likely become a mandatory requirement for clothing firms in the future to enhance extended producer responsibility.

3. 7 Where do we go from here ?

> *"I used to think that if we could show that being a responsible business is good business, then others would follow. And some do, but they´re tiny little companies. But the public companies, they´re all green-washing. I have no hope that they´re going to change"* - Yvon Chouinard (The Guardian, 2019)

The Political and Structural Landscape

The structural challenges Patagonia navigates are emblematic of broader systemic issues. Mostly, political inertia and insufficient funding remain critical barriers to the development of infrastructure necessary to support circular business models and to compete against fast fashion (Boden, 2024). Governments lag in creating policies and incentives that adequately address these gaps. While the European Union has taken steps to combat fast fashion through initiatives like the Circular Economy Action Plan or the Strategy for Sustainable and Circular Textiles (European Commission 2020, 2024), these efforts often fall short of their transformative potential due to inconsistent and lengthy enforcement and fragmented strategies (Ellen MacArthur Foundation, 2013). In the case of the EU´s efforts, the next years will be crucial to see whether the legislative pieces will be accurately enforced (Boden, 2024).

The Fast Fashion Roadblock

As Chouinard notes, "you've got to change the consumers first and then the corporations will follow, and then government will follow the corporations" (The Guardian, 2019). But how is that possible in a world where fast fashion continues to dominate the global textiles economy, characterized by its reliance on unsustainable practices like overproduction, rapid consumption cycles, and cheap, resource-intensive materials? At this point in time, the existence of fast fashion undermines the potential for circular practices by flooding markets with low-quality garments and product margins, which are unachievable for responsible fashion companies (Ellen MacArthur Foundation, 2017).

Looking ahead at Patagonia

Patagonia has showcased their ambitions to strive for a sustainable and circular textiles industry. Over decades, the company has pioneered circular initiatives, from Worn Wear repair programs to their commitment to regenerative agriculture and using recycled materials, that redefine industry standards.
Yet, as Chouinard himself admits, Patagonia remains an outlier. And even more, at Patagonia, they recognize that they are "ahead of the pack", but neither would they call themselves sustainable, let alone circular (Ram, 2021), which is mainly due to systemic barriers which hinder widespread adoption of circularity principles (Ellen MacArthur Foundation, 2013).

Efforts like Patagonia's demonstrate that consumer engagement and education are critical to disrupting this cycle. By promoting repair, reuse, and recycling, the company has fostered a loyal customer base invested in sustainability. However, as Patagonia itself acknowledges, even at their company, the bulk of sales comes from new, not circular clothing. (Kent, 2024; Marquis, 2023; Banker, 2024).

The question remains, what is the way forward for Gellert and his crew? How can Patagonia advance it´s efforts in motivating other business leaders to genuinely adopt circular economy practices? How can we continue to inspire and involve his peers —and even competitors — in the urgent mission to protect the planet or is action out of his reach?

4. Exhibits

Exhibit 1: Kearney´s Circular Fashion Index ranking 2022[10]

Rank 2022	Rank 2020	Brand name
1	1	Patagonia
2	3	Levi's
3	2	The North Face
4	8	Esprit
5	17	OVS
6	15	Gucci
7	16	Gant
8	–	Coach
9	–	Lululemon Athletica
10	4	Lindex

[10] Source: Kearney (2022)

Exhibit 2:Overview of upcoming sustainability regulations impacting the fashion and textiles industry in Europe and the US[11]

Jurisdiction	Status	Regulations and directives
EU (Under the EU Strategy for Sustainable Textiles)[1]	Adopted[2]	Waste Framework Directive: Mandates Extended Producer Responsibility (EPR), requiring brands to pay for end-of-life waste treatment
		Corporate Sustainability Reporting Directive: Requires companies to report on environmental and social activities using a standardised methodology
		Corporate Sustainability Due Diligence Directive: Requires environmental and human rights-diligence and improvements across the value chain
	Proposed	Eco-design for Sustainable Product Regulation (ESPR): Mandates ecological design and circularity requirements to be practised at the product level, supported by digital product passports
		Waste Shipment Regulation: Facilitates the transportation of waste for recycling and reuse in the EU and bans illegal waste shipments to the Global South
		Ban on Destruction of Goods: Limits destruction of unsold or retained textile products, encouraging the repair or reuse of goods
		Green Claims Directive: Addresses "greenwashing" and introduces requirements on various aspects of consumer-facing product claims
	Draft	Microplastic Legislation: Aims to reduce the release of microplastics into the environment across manufacturing stages
		Revision of the Textile Labelling Regulation: Streamlines physical and digital product label requirements on composition and origin of textile products
US	Adopted	California SB 253: Requires businesses with more than $41 billion of annual revenue operating in the state to report scope one through scope three emissions
	Proposed	New York Fashion Sustainability and Social Accountability Act: Requires supply-chain transparency, ESG disclosures and due diligence for apparel companies conducting business in New York with annual global revenue of $100 million
		Fabric Act: Protects US garment workers by improving worker conditions, reforming pay scales and investing in domestic production

[11] Source: Amed, I., Balchandani, A., Barrelet, D., Berg, A., D'Auria, G., Rölkens, F., & Starzynska, E. (2023).

Exhibit 3: Patagonia´s core values as of 2022[12]

Quality

Build the best product, provide the best service and constantly improve everything we do. The best product is useful, versatile, long-lasting, repairable and recyclable. Our ideal is to make products that give back to the Earth as much as they take.

Integrity

Examine our practices openly and honestly, learn from our mistakes and meet our commitments. We value integrity in both senses: that our actions match our words (we walk the talk), and that all of our work contributes to a functional whole (our sum is greater than our parts).

Environmentalism

Protect our home planet. We're all part of nature, and every decision we make is in the context of the environmental crisis challenging humanity. We work to reduce our impact, share solutions and embrace regenerative practices. We partner with grassroots organizations and frontline communities to restore lands, air and waters to a state of health; to arrest our addiction to fossil fuels; and to address the deep connections between environmental destruction and social justice.

Justice

Be just, equitable and antiracist as a company and in our community. We embrace the work necessary to create equity for historically marginalized people and reorder the priorities of an economic system that values short-term expansion over human well-being and thriving communities. We acknowledge painful histories, confront biases, change our policies and hold each other accountable. We aspire to be a company where people from all backgrounds, identities and experiences have the power to contribute and lead.

Not bound by convention

Do it our way. Our success—and much of the fun—lies in developing new ways to do things.

[12] Source: Patagonia, 2024d

Exhibit 4: The "Don´t Buy This Jacket" campaign[13]

[13] Source: Channel Signal (n.d)

5. Teaching Note

This chapter will assist educators in integrating the presented teaching case into the curriculum and fostering productive discussions in the classroom. The case is initially summarised (5.1), followed by the learning objectives (5.2), a pedagogical overview (5.3), and, crucially, the proposed assignment questions, which include analytical components. A proper teaching method is developed prior to the presentation of the board plan.

5.1 Case Synopsis

This case study investigates and assesses Patagonia's journey as a responsible business to becoming a more circular organisation within the larger context of the fashion industry. This journey takes place in the environmentally destructive, fast-paced and consumerism-intensive fashion industry, showcasing a best-practice example for competitors and practitioners in other sectors. It highlights the systemic barriers to achieving a circular economy, including funding gaps for infrastructure and technologies, consumer behavior, and regulatory shortcomings.

The introduction sets the stage by presenting Patagonia as the case´s protagonist and the inherent challenges of Patagonia´s past and present CEOs, Yvon Chouinard, Rose Marcario and Ryan Gellert, on their path to becoming a leader in sustainability and circularity in the apparel sector. The first main section sets the stage by illustrating the fashion industry´s status quo, with an emphasis on the fast fashion sector, followed by an overview of the industry´s environmental and social impact. Moreover, the concept of a circular fashion economy is introduced as a potential solution to the industry´s problems. Secondly, the focus shifts towards Patagonia´s history and subsequently its strategy for implementing circular capabilities into its business. Lastly, a realistic future outlook on the viability of implementing circular strategies and business models in the overall industry is presented, highlighting major roadblocks which are beyond Patagonia´s control.

5.2 Learning Objectives and Contribution

This case can be taught to undergraduate and graduate students in courses such as Responsibility, Corporate Responsibility or Fashion Management. It gives a better understanding about the intricacies of the circular economy and its principles and gives a

realistic outlook on the concept´s future implementation. The main goal of this case study is to showcase students how difficult it is to become a sustainable, let alone circular, company. While the general relevancy becomes apparent very quickly, many barriers are impeding a circular transition even for best-practice examples like Patagonia.

Pedagogic Goals:

- Develop students' ability to analyze and evaluate strategic decisions within the context of a company navigating systemic and industry-wide barriers.
- Equip students with a comprehensive understanding of circular economy principles and their application in transforming traditional business models in the fashion industry.
- Explore the role of leadership in driving corporate sustainability, highlighting the impact of different leadership styles on strategic outcomes.
- Investigate the economic, regulatory, and behavioral challenges to circularity and identify strategies businesses and policymakers can adopt to overcome these obstacles.
- Assess how consumer behavior and market structures influence the adoption of sustainable practices and how businesses like Patagonia can shape these dynamics.

Further contributions:

- Highlight a best-practice example in Patagonia, who are championing what it means to be a responsible business that does its best in terms of enviornment, society and the company´s financials, thereby inspiring professionals and consumers
- Showcasing the limits of circularity in a business context and highlighting the need for a change in politics, which need to incentivize funding for the circular fashion infrastructure

5.3 Pedagogical Overview and Teaching Strategy

Prior to the class discussion, students should be given the case, read it and analyze it. In preparation for this, students should get familiar with the concept of the circular economy, its application in the fashion industry and reverse supply chains.

The academic journal article “The Circular Economy – A new sustainability paradigm?” written by Geissdoerfer et al. (2017) provides a good foundation for the concept of CE and its fallacies from an academic perspective.
Additionally, the Ellen MacArthur Foundation provides a solid overview of the CE in general and its application in the fashion sector on its website. Specifically, EMF has proposed its own framework for the CE and the main building blocks for achieving a CE in the fashion industry (Ellen MacArthur Foundation, 2013a). The EMF further augments its insights with visual and engaging learning resources through its YouTube channel.
Moreover, McKinsey & Company are continously publishing expert reports and articles on the CE from an applied business perspective. Their report “What is circularity” (2024) briefly explains the concepts intricacies, while their papers “A new holistic view on circular value chains” (2024) and “Talk is cheap: How much will consumers really pay for green products” (2024) highlight the processes of reverse value chains and incentivizing green consumer behavior respectively.

Additionally, students and teachers should become acquainted with Patagonia´s website, which deep dives in Patagonia´s mission and values, augmented through white papers, and its environmental programs, for instance sourcing strategies, ´Worn Wear´, its emphasis on circular product design and recycling and traceability initatives.
Moreover, Yvon Chouinard´s letter to his community “Earth is our only shareholder” puts emphasis on Patagonia´s unique business conduct, shaped by Chouinard´s vision on environmentalism and doing good for the planet. Likewise, Chouinard´s interview with McKinsey called “Patagonia shows how turning a profit doesn´t have to cost the Earth” gives a good understanding of Patagonia´s success as a responsible business and Chouinard´s personal outlook on meaningful change in the industry.Additionally, Patagonia´s youtube channel offers a plethora of resources and explanations with a visual appeal on topics such as circular design, recycling techniques and sourcing strategies.

5.4 Assignement Questions and Analysis

The following assignment questions cover the main theoretical concepts explored and apply them to the case context. Notably, the indicated answers are exemplarary.

Question 1: How do Patagonia´s business practices align with the Ellen MacArthur Foundation´s key ambitions necessary for a circular fashion transition?

1. Ambition: Elimination of harmful substances and the reduction of microfibre releases	- Partnership with Bluesign Technologies, ensuring that chemicals, dyes, and finishes used in its products adhere to stringent environmental and safety standards. - Focus on eliminating virgin petroleum materials from product range and using preferred materials. Preferred materials refer to organic, regenerative and recycled cotton, recycled nylon, polyester, wool, cashmere, down
2. Ambition: Transforming the way clothes are designed, sold and used	- Patagonia follows a thorough design guideline, which dictating parameters which longevity, durability and functionality - Worn Wear offers customer a platform for repair services and resale options. Additionally, it is possible to trade in old garments for store credits. - The Ironclad guarantee promises customers the highest quality products and assures any repairs on flawed Patagonia products - Marketing schemes such as the "Don´t Buy This Jacket" campaign advocates for responsible consumer behavior and challenge customers to rethink their consumption patterns - Repair tutorials and guides to enable customers to extend garments´ lifecycle
3. Ambition: Enhancing recycling efforts	- Patagonia pioneered recycled polyester materials in their fleeces in 1993. Based on their early capability development, 97% of their polyester products contain recycled materials, 94% of their nylon is recycled. - Their ReCrafted Collection focuses on upcycling damaged garments into new products - Their sourcing inputs and design guidelines ease recycling efforts in their reverse supply chain, as they are using only a few material blends making recycling easier - Mechanical and chemical recycling practices in place - Collaboration with JEPLAN, a recycling manufacturer who is chemically recycling polyester-based materials at scale
4. Ambition Transitioning to renewable resources and optimise resource utiliation	- Since 1996, Patagonia has exclusively used organic cotton, eliminating the use of synthetic pesticides and fertilizers. It is now scaling regenerative organic farming practices to improve soil health and reduce carbon.

	- Recycled nylon and polyester dominate its material portfolio, significantly reducing reliance on virgin resources - Patagonia integrates water-saving technologies in production and promotes energy-efficient manufacturing processes, aligning with its broader sustainability goals - Highly committed to regenerative agriculture, which not only supports the production of renewable materials but also helps restore ecosystems and promote biodiversity. - The Footprint chronicles provide a transparent overview of all their resource inputs, ensuring optimal resource utilisation

Question 2: What are the biggest challenges in becoming a circular company?

Challenges	
Economic and Financial Viability	- Developing circular business models requires substantial investments in advanced recycling technologies, reverse logistics systems, and product redesign. - Recycled materials often have lower market value than virgin materials, making circular practices economically challenging.
Market and Competition	- Fast fashion's affordability and trend-focused design dominate the market. On the other hand, circular business models have very small margins, making it difficult to compete. For instance, the processes necssary for recycling materials require many steps, thus increasing prices - Circular products are often perceived as more expensive or less desirable, particularly repaired or second-hand items. In the absence, of industry-wide adoption, it is difficult to scale circular practices and make them profitbale
Product characteristics	- Garments are often designed for aesthetics or cost efficiency rather than durability or recyclability. - Blended textiles (e.g., polyester-cotton) are difficult to separate for recycling, limiting material recovery.
Standards and Regulations	- Global inconsistencies in design and recycling regulations and certifications create challenges for scaled reverse supply chain infrastructures - Greenwashing is still an acute problem not tackled efficiently by regulations, giving unfair advantages to linear fashion business models - Limited policies incentivize circular practices, such as subsidies for recycling or penalties for wasteful practices.
Supply Chain Management	- Traceability and transparency are critical for circularity but remain underdeveloped across the industry.

	- Reverse logistics for collecting, sorting, and processing post-consumer textiles are costly and logistically complex.
Technological barriers	- Current recycling technologies, both mechanical and chemical, are inadequate for large-scale processing of diverse materials. - Mechanical recycling degrades fiber quality, and chemical recycling remains expensive and energy-intensive.
Consumer Behavior and Awareness	- Many consumers are unaware of the environmental benefits of circular practices or lack motivation to engage in repair and recycling programs. - Fast fashion culture reinforces the disposability of garments.

Question 3: How can Patagonia tackle these challenges and which ones are out of reach for them?

Challenges	In reach	Out of reach
Economic and Financial Viability	- Patagonia's business model integrates profitability with sustainability, and its loyal customer base supports higher price points for eco-friendly products. This positions it well to absorb costs associated with sustainable practices.	- Patagonia is benefitting from its unique market position, however this is an excpetion and cannot be applied to the wider industry. - In turn, its premium prices are accepted by its customer base - Usually, the price disparity between virgin and sustainable/circular materials poses a significant threat to other industry players and change can only occur economies of scale achieved by sophisticated infrastructure
Market and Competition	- Differentiating itself as a leader in sustainability and attracting eco-conscious consumers through its brand image. - Encouraging industry collaboration by sharing best practices with competitors and advocating for a shift towards circular business models.	- Reshaping the overall fashion market's preference for fast production and low-cost items, which dominate consumer behavior. - Overcoming systemic challenges posed by market saturation with low-cost unsustainable alternatives.
Product characteristics	- Patagonia is well-equipped to address issues in product durability,	

	recyclability, and repairability. The company is already an industry leader in terms of designing products for extended use and has introduced repair programs to extend product life	
Standards and Regulations	- Advocating for stricter environmental regulations and industry standards, leveraging its reputation as a sustainability leader. - Collaborating with industry coalitions to develop voluntary standards for circularity.	- Directly influencing or implementing policy changes at the national or international level, which requires government action. - Harmonizing global regulatory frameworks to support circular practices.
Supply Chain Management	- Patagonia is in control of its supply chain, having set up a transparent network and ensuring that all stakeholders within the supply chain adhere to quality standards - Patagonia´s reverse supply chain is highly advanced through its own capabilities and through partnerships which ease collection, sorting and recycling practices	- Addressing inefficiencies in global supply chains, such as fragmented logistics and infrastructure for circular systems. - Ensuring all suppliers across different regions adopt uniform sustainable practices.
Technological barriers	- Patagonia is collaborating with various companies to enhance circular technologies. For instance, the partnerhsip with JEPLAN allows Patagonia to use high-quality recycled materials at scale,	- Driving large-scale technological advancements, such as breakthroughs in chemical recycling or circular fiber innovation, which require significant R&D investment and global collaboration. - Closing technological gaps across the fashion industry to mainstream circular solutions.

	giving them cost advantages	
Consumer Behavior and Awareness	- Patagonia has a strong influence over its target audience and can continue to drive behavioral change through campaigns, education, and programs like Worn Wear. - Incentivizing sustainable practices such as repairs and secondhand purchasing through customer rewards and services.	- Changing consumer culture at scale, particularly the demand for fast fashion and the high turnover of garments, which is deeply rooted in global consumption patterns. - Addressing economic barriers for broader consumer adoption of sustainable goods, such as higher costs for eco-friendly products.

5.5 Board Plan

The provided Patagonia case study is designed to be discussed in a 90 minute lecture or tutorial with one professor or teaching instructor:

Teaching lesson agenda	Working Mode	Duration
Recap theoretical frameworks & case	Guided by teacher	15 minutes
Questions 1-3	Group Discussion (a 4 students)	45 minutes
Student group presentations	One per group	15 minutes
Discussion & Conclusion		15 minutes

6. Discussion

The case study under consideration here illustrates the journey of the American apparel manufacturer Patagonia towards becoming a more circular business, highlighting both accomplishments and inherent challenges. Patagonia's example offers a lens through which to explore the practical application of circular economy principles within an industry dominated by a linear 'take-make-dispose' model.

As demonstrated, Patagonia's approach to circularity is closely aligned with the EMF's circular economy framework. The company excels in the first two principles by employing durable design, material innovation, and repairability through its Worn Wear programme (Ram, 2021). Furthermore, the company contributes to the regeneration of natural systems through its investments in regenerative organic agriculture (Patagonia, 2024a). Patagonia's efforts reveal a pathway for embedding circular principles into business practices by considering every process in its value chain from an end-to-end perspective (Hoang, 2017).

In the context of the four ambitions for a circular textiles industry, Patagonia has demonstrated substantial progress, as evidenced by its commitment to durability, which is evident in its design ethos and lifetime repair services (Patagonia, 2019a; Patagonia, 2024j). Additionally, Patagonia's closed-loop recycling efforts are advanced through initiatives such as its use of recycled materials and partnerships with innovators like Jeplan (Patagonia, 2024j). The adoption of sustainable materials, including organic cotton and recycled polyester, further solidifies the company's alignment with circular ambitions (Kent, 2024).Patagonia's transparent supply chain practices enable the leveraging of reverse logistics capabilities, such as sorting and collecting (Patagonia, 2024k). The company's Worn Wear programme embodies a circular business model which is increasingly scaled and offers future economic potential with its resale platform (Kent, 2024).

Despite the efforts made, Patagonia is confronted with numerous challenges in its pursuit of a circular business model. As a private company, it is able to prioritise long-term sustainability investments without the constraints of short-term profit maximisation. This autonomy has enabled the company to overcome certain barriers related to economic viability, consumer education, and innovative supply chain practices (Hoang 2017; Kent, 2024; Ellen MacArthur Foundation, 2017). Another critical factor in advancing circular practices is consumer

engagement. Patagonia's engagement with its community demonstrates the potential for companies to influence consumer behaviour and have a meaningful impact. These strategies have effectively fostered loyalty and awareness among a niche customer base. Nevertheless, even Patagonia, with its substantial resources and dedication to innovation, has encountered challenges in establishing scalable recycling systems, as evidenced by its collaboration with JEPLAN (Patagonia, 2024j). Additionally, the fragmented global textile value chain and the lack of funding for commercialising green fibres continue to impede competitiveness (Kent, 2024; Whitfield & Maile, 2024). In the absence of more stringent regulations and financial incentives which support green investments in circular fashion processes, companies such as Patagonia will be unable to fully leverage the advantages of circular business practices.

Thus, the underlying case study equips students with a thorough understanding of a real-life example of a fashion company embracing circular economy principles. As a case company, Patagonia shows how its life-long commitment to environmental responsibility has equipped itself with strategic capabilities which ease the application of circular business practices in comparison to competitors. Still, the case offers a realistic overview of the feasability of circular business implementation and exposes systemic barriers which can only be overcome through collective efforts.

However, some limitations remain. As a privately held business, Patagonia´s circular strategies may not be replicable for publicly traded or resource-constrained companies. Likewise, Patagonia is not obligated to publish financial records, which would give interesting insights into its investments in terms of sustainability and circularity. Furthermore, Patagonia´s employees are highly skilled and capable of implementing circular strategies, a feat which is usually rare in the industry (Circularity Gap Report, 2024). Moreover, Patagonia regards itself as an outdoor clothing manufacturer, thus it would be interesting to examine a similar case from another firm´s point of view.

This discussion highlights several areas that merit further investigation. As previously mentioned, conducting research on a publicly-traded company in terms of their circular economy practices offers another valuable perspective. In addition, Patagonia's self-identity as an outdoor clothing manufacturer suggests a valuable avenue for research, particularly in relation to investigating a brand that considers itself an everyday fashion company.

Furthermore, the economic feasibility of circular business models for small and medium-sized enterprises (SMEs) is a salient yet under-researched area, particularly in regions with limited access to funding and infrastructure. Finally, the impact of regulatory initiatives on accelerating industry-wide adoption, which are currently discussed in Europe and the USA, remains an open question.

7. Conclusion

Patagonia is annually recognised by several organisations as one of the most circular fashion companies, making it an ideal best practice example in a case study (Kearney, 2022; Byars, 2017). Therefore, this thesis laid the theoretical groundwork by introducing Ellen MacArthur's circular economy framework, delving deep into the circular fashion industry and highlighting the inherent barriers to a successful circular fashion transformation. In doing so, Patagonia's journey towards circularity can be observed and its success can be examined to answer the initial research question. The teaching case was structured to set the stage by providing context on the status quo of the fashion industry, the fast fashion paradigm and what a circular textile industry entails. It then explores Patagonia's history, circular economy practices and limitations. The case also provides guidelines, preparation materials and sample questions and answers for the assignment.

Overall, the case shows that even a private and responsible company like Patagonia struggles to achieve full circularity. As a private company, Patagonia benefits from not being constrained by shareholder demands, allowing it to prioritise long-term sustainability over short-term profitability. This advantage has been leveraged under the leadership of three visionary CEOs - Yvon Chouinard, Rose Marcario and Ryan Gellert - who have each played a pivotal role in embedding environmental responsibility into the company's ethos and operations. Throughout its history, Patagonia has set industry standards for sustainability. However, systemic barriers such as economic constraints, technological gaps and market competition continue to hinder the widespread adoption of circular principles.

Despite these challenges, Patagonia's initiatives, including its Worn Wear programme, end-to-end product design, transparent supply chain management and consumer education, demonstrate the potential for progress when companies commit to environmental responsibility.

While Patagonia has been able to overcome some of the barriers to circularity, broader systemic changes are needed. Regulations need to channel investment into circular fashion infrastructure, making it commercially viable to produce and scale circular products (Boden, 2024). While Patagonia's journey illustrates the potential for transformation, it also highlights that achieving a fully circular economy in the fashion industry will require collective effort, significant policy intervention and continuous innovation (Ellen MacArthur Foundation, 2017).

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