

Paal Saatvedt  
Haakon Haldorsen

# Circular Business Models in the Outdoor Sporting Goods Industry

Perspectives from Norwegian Outdoor Brands

Master's thesis in Industrial Economics & Technology Management  
and NTNU School of Entrepreneurship

Supervisor: Lise Aaboen

June 2023



Norwegian University of  
Science and Technology



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Faculty of Economics and Management  
Dept. of Industrial Economics and Technology Management





# PREFACE

This master thesis was written by Haakon Haldorsen and Paal Saatvedt between January and June 2023, following a literature review done between August and December 2022. It is the final part of their master's degree in respectively Industrial Economics & Technology Management and The School of Entrepreneurship at The Norwegian University of Science and Technology.

We want to give our supervisor Lise Aaboen our most sincere thanks and gratitude for her support throughout the year and the project. Her valuable insights, encouraging feedback, and thought-provoking discussions have given us the means to write this thesis. We would also like to thank Elli Verhulst and Eli Fyhn Ullern for their valuable discussions on the topic. Further, we would like to thank all the informants from the Outdoor Sports Brands and collaboration partners for giving us their valuable time and the necessary insights to write this thesis.

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Trondheim, June 2023



Haakon Haldorsen



Paal Saatvedt

# ABSTRACT

Companies from the Outdoor Sporting Goods Industry are frequently brought forth as forerunners in the field of Circular Business Model research (Bocken et al., 2016; Fuchs & Hovemann, 2022a, 2022c, 2022d). The literature stresses that moving from a linear business model and the “take, make, and waste system” to circular business models is essential to ease the pressure on our environment and reduce overconsumption (Ellen-MacArthur-Foundation, 2015; Yang, 2022). Including circular practices is an important step, and some Outdoor Sporting Goods companies have come a long way in this field (Holtström et al., 2019; Rattalino, 2018). However, assessing the impact of these practices is essential to identify sustainable circular business opportunities on the company’s triple bottom line (Wiebe et al., 2023) and in what degree it reduces the overall consumption (Tunn et al., 2019). Nevertheless, limited studies have been conducted on including circular practices in the OSGI and their sustainability. To address this literature gap, the authors have answered the research question:

- ◇ **RQ:** How do Norwegian outdoor sports brands include circular practices in their business models, and how do the practices relate to sustainable circular business models?

A literature review and a qualitative multiple-case study of five Norwegian outdoor sports brands were conducted to answer our research question. Primary and secondary data were collected for the cases, with semi-structured interviews being conducted to collect primary data. The terminology of Resource Cycles (Bocken et al., 2016) and the theoretical frameworks of the Triple Bottom Line (Wiebe et al., 2023) and Sustainable Consumption (Tunn et al., 2019) were used to structure the findings.

The findings of this study showed that practices related to the slowing resource loops, such as rental, repair, and resale, are the most prominent within the outdoor brands and most influential on the Triple Bottom Line and Sustainable Consumption. Furthermore, the findings show that the practices related to closing resource flows are less prominent within the OSGI. Complex products and materials make recycling practices challenging, and balancing functionality and circularity makes using recycled materials complex. Further research could explore the perspectives of Multiple Stakeholders, the impact of Action Plans and Regulations, Consumer Behavior and Acceptance, Recycling Practices, and the Scalability of Circular Practices.

# SAMMENDRAG

Selskaper fra friluftsliv og sportsutstursindustrien blir ofte trukket frem som forløpere innen forskning på sirkulære forretningsmodeller (Bocken et al., 2016; Fuchs & Hovemann, 2022a, 2022c, 2022d). Litteraturen understreker at det å gå fra en lineær forretningsmodell og et “take, make, and waste system” til sirkulære forretningsmodeller er avgjørende for å lette presset på miljøet vårt og redusere overforbruk (Ellen-MacArthur-Foundation, 2015; Yang, 2022). Å inkludere sirkulære praksiser er et viktig skritt i riktig retning, og noen selskaper innen utendørs sportsutstyr har kommet langt på vei (Holtström et al., 2019; Rattalino, 2018). Det er imidlertid viktig å vurdere virkningen av disse praksisene for å identifisere bærekraftige sirkulære forretningsmuligheter på selskapets tredoble bunnlinje (Wiebe et al., 2023) og som i tillegg fører til et redusert forbruk (Tunn et al., 2019). Likevel er det utført begrensede studier på inkluderingen av sirkulære praksiser i friluftslivsbransjen og deres relasjon til bærekraft. For å adressere dette litteraturgapet har forfatterne svart på forskningsspørsmålet.

- ◇ **RQ:** Hvordan inkluderer norske utendørssportmerker sirkulær praksis i sine forretningsmodeller, og hvordan relaterer praksisene til bærekraftige sirkulære forretningsmodeller?

En litteraturstudie og en kvalitativ flersaksstudie av fem norske utendørssportmerker ble utført for å svare på dette forskningsspørsmålet. Primær og sekundærdata ble samlet inn for sakene, hvor semistrukturerte intervjuer ble utført for å samle inn primærdataen. Terminologien til ressursrykluser fra (Bocken et al., 2016) og de teoretiske rammeverkene «Triple Bottom Line» (Wiebe et al., 2023) og «Sustainable Consumption» (Tunn et al., 2019) ble brukt for å strukturere funnene.

Funnene fra denne studien viste at praksisene knyttet til å sakte ned ressursrykluser, som utleie, reparasjon og videresalg, er de mest fremtredende innen utendørsmerkene og mest innflytelsesrike på den tredobbelte bunnlinjen og bærekraftig forbruk. Videre viser funnene at praksis knyttet til å lukke ressursrykluser er mindre fremtredende. Komplekse produkter og materialer gjør resirkuleringspraksiser utfordrende, og balansering av funksjonalitet og sirkularitet gjør bruk av resirkulerte materialer komplisert. Ytterligere forskning kan utforske perspektivene til flere interessenter, virkningen av handlingsplaner og forskrifter, forbrukeratferd og aksept, resirkuleringspraksiser og skalerbarheten til sirkulære praksiser.

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# 1|INTRODUCTION

## 1.1 Background and actualization

Plastic waste fills our world's oceans (Gross, 2015), hazardous chemicals are found in remote alpine lakes (Rattalino, 2018), and the climate is changing at an unprecedented pace (IPCC, 2021). The outdoor sporting goods industry (OSGI), a part of the larger fashion industry, is one of the contributors to all of this pollution, mostly relying on a “take, make and waste system” (Ellen-MacArthur-Foundation, 2015). Combined, fashion contributes over two Giga tons of CO<sub>2</sub> pollution annually (Denuwara et al., 2019) and a total contribution of 10% of global greenhouse emissions (UN, 2019).

As a measure to address this massive pollution, the move from the “take, make and waste system” and the linear economy to a circular economy (CE) and circular business models (CBMs ) has been brought forth by many as an important step in the right direction (Ellen-MacArthur-Foundation, 2015; Yang, 2022). Despite being part of fashion and one of the biggest polluting industries, several OSGI players have been brought forth in previous research as forerunners in the field of circular business models (Bocken et al., 2016; Fuchs & Hovemann, 2022a, 2022b, 2022c; Holtström et al., 2019; Rattalino, 2018).

Still, there are limited industry-specific studies on circular business models in OSGI companies and what potentially separates OSGI companies from the rest of the fashion and textile industry. Previous research has shown that moving to circular business models for OSGI companies and including circular practices in their current business models impose a range of new challenges and opportunities (Fuchs & Hovemann, 2022a, 2022c). From these studies there appeared to be industry-specific characteristics that could explain to a certain degree the higher concentration of circular practices among OSGI companies. Yet limited industry-specific studies have been conducted on the inclusion of circular practices by OSGI companies and their adaptability. Additionally, there have been limited studies on the sustainability of these circular practices, and how they relate to sustainable business models. Previous research has shown that for a circular business model to be sustainable it should add value to the triple bottom line, where environmental, social, and economic impacts are considered (Wiebe et al., 2023) as well as contributing to sustainable consumption (Tunn et al., 2019).

## 1.2 Purpose and Research Question

Although OSGI companies often are mentioned as forerunners in the move to a circular economy and the stated importance of including circular practices to limit pollution and waste, the literature lacks industry-specific empirical research on how this is performed in practice and how these circular practices relate to sustainable circular business models. The goal of this master thesis has therefore been to provide empirical research on the topic of circular practices related to sustainable circular business models within the OSGI. Addressing the literature gap presented in the introduction of this paper, the purpose of this paper thereby breaks down to: *“Investigate the inclusion of circular practices in outdoor sporting goods companies’ business models.”*

By outdoor sporting goods companies, the authors are referring to the companies producing and selling apparel and gear made with the intention of being used for outdoor sports, e.g., skiing, hiking, and climbing. Outdoor sporting goods are often made with a particular use case in mind that leads to critical product specifications that must be met for the product to be both viable and safe for the user to rely on. These functionality needs can be everything from weatherproofing to weight, durability, safety, and so on.

This study will exclusively investigate Norwegian outdoor brands. The authors have chosen to focus on Norwegian brands due to the small geographical distance, strong outdoor culture, and Norway’s aim to pioneer the transition to a circular economy. The Norwegian term “friluftsliv” translated to “free air life”, referring to life outdoors, has long been an essential cornerstone of Norwegian culture. This has resulted in many Norwegian companies emerging with strong ties to this term, selling clothes, gear, and equipment for the life outdoors.

From the literature review, the authors observed that the literature was mainly in a more extensive European context, leaving a gap for specific research on Norwegian companies. Previous research has investigated the European Outdoor Association and single European and American cases. Still, no studies have been performed exclusively on Norwegian brands for the Norwegian market where “friluftsliv” is so coherent with the culture.

In an action plan made by the Norwegian government to become climate neutral by 2050, circular economy and circular business model development plays a major role (miljødepartementet, 2021). This plan places a major emphasis on the development of circular



economy practices and circular business models. This creates a favorable regulatory environment for circular business models and provides incentives for companies to adopt sustainable practices. With such a large spotlight on CE practices, Norwegian outdoor brands might have different starting points and a valuable advantage over other European outdoor brands. This makes the Norwegian context especially interesting. Norway is also a wealthy country with a high standard of living, which means that consumers could be willing to pay an extra premium for higher-quality, more sustainable products. This creates a market for circular business models that prioritize environmental sustainability and social impact. Overall, the Norwegian context provides a unique opportunity to study the development of circular business models in the outdoor sporting goods industry.

Considering several factors, the authors also want to explore how the investigated circular practices relate to sustainable circular business models. To address the formulated purpose and the practices' sustainability, this master thesis has the following research question (RQ):

- ◇ **RQ:** How do Norwegian outdoor sports brands include circular practices in their business models and how do the practices relate to sustainable circular business models?

To answer the study's RQ a qualitative multiple-case study of five Norwegian outdoor brands was conducted. This study uses literature from the fields of circular economy, sustainable consumption, fashion, and outdoor sporting goods to address the research question. To structure the paper's findings, the resource cycle terminology from (Bocken et al., 2016) where practices are broken into "narrowing, slowing, and closing" resource loops is utilized. This terminology is then paired with the triple bottom line framework, which includes the three pillars of sustainable development: economic, societal, and environmental (Wiebe et al., 2023). In doing so, we aim to examine the influence of circular actions and practices on the development of sustainable circular business models. One crucial aspect of sustainable business models is reducing overall consumption. Research has demonstrated that if consumers adopt circular business models but maintain their prior consumption habits, the positive consequences might be a zero-sum action (Geissdoerfer et al., 2017). Therefore, we will use the "business models for sustainable consumption" framework to identify which business models have the potential to decrease overall consumption (Tunn et al., 2019).

### **1.3 Contribution**

By answering our research questions, we aim to contribute to filling the previously presented literature gap in the CE literature which was discovered by the literature review conducted by the authors between August 2022 and December 2022. By providing empirical research on how Norwegian brands include circular practices in their business models and how the practices relate to sustainable circular business models, we aim to contribute new knowledge about the sustainability and adaptability of circular practices. Identifying the way Norwegian brands balance strict functionality and durability needs with environmental, economic, and social impacts when including circular practices will hopefully provide valuable insights and practical implications for outdoor brands trying to become more circular. The literature on circular economy has also emphasized the need for further research on the development of CBM that reduces consumption (Becker-Leifhold, 2018). Ultimately the authors wish that this research can benefit the entire OSGI in moving towards circular business models. By focusing on Norwegian outdoor brands, this study is able to provide a more nuanced understanding of circular business models within this industry and generate findings that can be applied specifically to Norwegian outdoor brands. Giving this overview of current practices in the Norwegian OSGI and their relation to sustainable circular business models may help other managers in Norwegian outdoor brands identify new circular business opportunities for their brand.

### **1.4 Structure of the paper**

The authors have structured this master thesis into 6 parts. The thesis starts off by introducing the topic of circular business models in the OSGI and the research question in chapter 1. Following in chapter 2 the theory found in the literature review conducted during the 2022 fall semester will be presented together with theoretical frameworks. Chapter 3 describes the method used for research design, case selection, data collection, and data analysis. In chapter 4 the case analysis, consisting of a within-case analysis of five cases will be presented followed by a cross-case analysis of the cases. The findings of this analysis will then be discussed in chapter 5. Lastly, chapter 6 will summarize, conclude, and gives an answer to our research question. Additionally, the authors will come up with recommendations for future research.

## 2| LITERATURE REVIEW

The following section provides an overview of the relevant literature in our literature review conducted during the fall semester of 2022. This literature review forms this thesis's theoretical background on CE, CBMs, and OSGI. Firstly, we will present the literature on circular business models on a general level and then present OSGI-specific research on CBMs. Finally, the authors will present the terminology and theoretical frameworks used to structure the findings and analysis.

### 2.1 The Circular Economy and Circular Business Models

The traditional way of doing business has usually been a linear business model in a linear economy. In (Ellen-MacArthur-Foundation, 2015), the linear economy is described as a “take, make and waste” system. In this linear model, actors extract raw materials to produce goods sold on the market, which are discarded and eventually destroyed once it has fulfilled their purpose. Despite its flawed nature, the linear model remains a popular choice among business owners due to its intuitive and easy-to-understand sequential flow. Unfortunately, the limited focus on end-of-life management in the linear model has resulted in less than 1% of all textiles being recycled for new textiles, highlighting the urgent need for a more sustainable approach (Ellen-MacArthur-Foundation, 2015).

A business model provides a conceptual framework that outlines how a company generates, delivers, and captures value (Frishammar & Parida, 2018). Circular business models extend this with a focus on a closed-loop approach to minimize waste and maximize the use of resources (Bocken et al., 2016). Following this definition, the Circular Economy is described as a restorative and regenerative system aiming to maintain the highest value and utility of products, components, and materials over time, distinguishing between technical and biological cycles (Ellen MacArthur Foundation, 2015). This description emphasizes the dynamic nature of the CE. It highlights the need to maximize the use time of materials and products, keeping them in the loop for longer and minimizing the need to enter virgin resources into the loop.

Building on the theoretical foundation of CBM literature, the article “*Product design and business model strategies for a circular economy*” by Bocken et al., (2016) presents the terminology of **resource cycles**. A terminology which includes the three concepts of slowing,

closing, and narrowing resource loops (Bocken et al., 2016). This terminology will act as the basis for categorizing our findings, which will be further described later in this chapter.

## 2.2 Circular Business Models in The OSGI

Single players from the outdoor sporting goods industry are frequently included in the CBM literature (Bocken et al., 2016). Single case studies have been conducted by (Holtström et al., 2019) and (Rattalino, 2018) of the Swedish brand Houdini and the American brand Patagonia respectively, while the articles (Fuchs & Hovemann, 2022a, 2022c, 2022d;) take an institutional theory view of the European Outdoor Group.

The literature presents a set of challenges in the move to circular business models in the OSGI. Including circular practices can be particularly challenging due to the outdoor products' high technicality, functionality needs, and quality requirements. These products must meet various specific functionality needs, from casual use to extreme conditions, where quality and trustworthiness can be a matter of life or death. As Fuchs and Hovemann (2022c) highlight, implementing circular practices which compromises functionality can be hard for consumers to accept. In fact, as (Franco, 2017) illuminates, functionality can be a non-negotiable priority for some. Therefore, implementing circular economy principles in the OSGI requires special consideration beyond those of the traditional textile industry.

In the literature review, these considerations led to a set of tradeoff dilemmas that were particularly relevant to the OSGI. These tradeoffs are often rooted in the tension between the abovementioned functionality and circularity (Fuchs & Hovemann, 2022b; Vermunt et al., 2019). In other words, when designing and producing technical outdoor products, there may be a tradeoff between making them as functional as possible and the goal of implementing circular principles. Consequently, some tradeoff dilemmas have emerged, which are especially for the OSGI:

**Durability and Recyclability:** Businesses operating in the OSGI sector must carefully consider the dilemma between product durability and recyclability. To illustrate, opting for long-lasting materials such as Gore-Tex membranes can significantly extend a product's life. However, the challenge arises when such materials are difficult to recycle and break down at the end of their lifecycle. On the other hand, incorporating recyclable or recycled materials may

compromise the product's durability, leading to a shorter lifespan. This potential tradeoff poses a complex dilemma for outdoor brands to navigate (Fuchs & Hovemann, 2022b).

### **Functional Performance and Environmental Impact:**

Businesses operating in the OSGI may have to balance the performance of their products with their environmental impact. For example, using more sustainable materials may be better for the environment, but those materials may not perform as well as the previous material, impacting the product's total performance (Vermunt et al., 2019). The use of perfluorinated compounds (PFC) in waterproofing is an example frequently brought forth in the literature. Using PFC in waterproof membranes gave waterproof shell clothing superior performance but had detrimental environmental impacts on alpine lakes and natural climates (Rattalino, 2018). Therefore, OSGI companies must assess this tradeoff between superior performance and its environmental impacts.

### **Cost and Sustainability:**

When including circular practices, OSGI companies may have to balance the cost of producing sustainable products with their sustainability goals. For example, using more sustainable materials or manufacturing processes may be more expensive than traditional methods, which could impact the cost of the product and its accessibility to customers (Vermunt et al., 2019). There is also a set of challenges regarding the supply chain. Limited suppliers are yet to support circular economy practices, making it challenging and sometimes unpredictable for producers to depend solely on these few suppliers (Vermunt et al., 2019).

### **Customer Needs and Circularity:**

Businesses operating in the OSGI may have to balance meeting the needs of their customers with their sustainability goals. For example, customers may demand certain features or functions in their products that are incompatible with sustainable materials or manufacturing processes (Vehmas et al., 2018). Some consumers may also not accept reused clothing or clothing made from recycled materials due to concerns about quality, hygiene, and comfort (Vermunt et al., 2019). Increases in consumer effort are also challenging regarding the circular practice's acceptance. Lastly, consumers' preference for ownership and individual identity over the sharing or renting of clothes further makes accepting these practices challenging (Arrigo, 2021).

## **Circularity or Greenwashing?**

Additionally, a challenge is the communication of the impact of the circular practices. It is difficult for consumers to distinguish between genuine sustainability efforts and “greenwashed” marketing tactics (Vehmas et al., 2018). The information available to consumers about their choices’ social and environmental consequences is often under-communicated. Also, assessing the total impact of these practices can be challenging as there are potential rebound effects to consider. These rebound effects can make a promising circular practice have an overall negative environmental impact due to factors such as reverse logistics or transport (André & Björklund, 2022). This rebound effect on consumption and impact is argued by André and Björklund (2022) to be highly undervalued.

As mentioned in this section, the move circular business models for OSGI companies may pose unique challenges and tradeoffs. However, the literature also presents unique opportunities and advantages for OSGI companies in the move to circular business models (Fuchs & Hovemann, 2022c), with factors such as durability being relevant for outdoor products long before they were considered circular.

As we will explain in the analytical frameworks later in this chapter, adopting sustainable practices will require OSGI companies to consider their triple bottom line, with environmental, social, and economic impacts (Wiebe et al., 2023) and their total impact on sustainable consumption (Tunn et al., 2019)

## **2.3 Analytical Frameworks and Terminology**

In this section, we will introduce the theoretical frameworks that form the basis for the primary research and data analysis of this study. The Resource Cycle Terminology, together with the Triple Bottom Line and Sustainable Consumption Business Model frameworks, will serve as the foundation for the analysis and plays a crucial role in shaping what is studied and how the results are interpreted (Bocken et al., 2016; Wiebe et al., 2023).

### **2.3.1 The Resource Cycle Terminology**

To structure and analyze the different circular practices in this master thesis, we have organized the practices by Bocken et al. (2016) terminology of resource cycles, categorizing them into narrowing, slowing, or closing resource loops. This terminology will work as an effective lens for assessing the application of circular practices in the OSGI and wherein the “loop” of the practices occurs.

The initial step of a circular practice is to minimize the resources required in producing the final product, ultimately decreasing the total resources entering the cycle. This process of narrowing resource flows primarily focuses on optimizing resource efficiency and utilizing minimal resources per product (Bocken et al., 2016). According to Bocken al. (2016), this focus is just as relevant for linear business models and is therefore not fully considered a circular strategy. However, practices related to slowing resource loops are considered more significant as it also considers the element of time (Bocken et al., 2016).

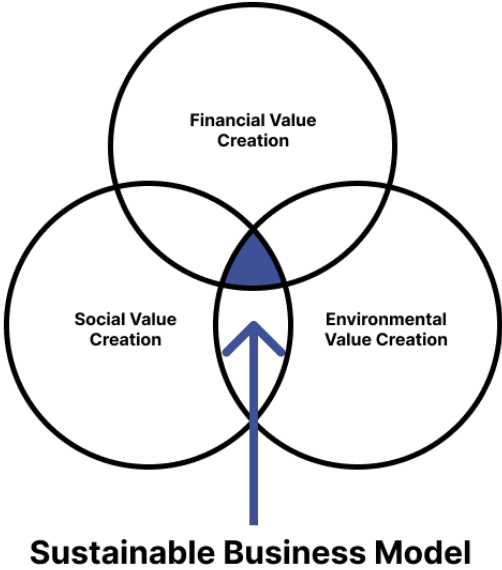
The slowing of resource flows refers to actions that reduce the speed at which resources flow through the economy and promote the reuse of goods. This can be accomplished through various practices, such as creating durable products that last longer and integrating product services like repair, remanufacturing, resale, or rentals into the business model (Bocken et al., 2016).

The resources must be closed at some point for the resources to fulfill a cycle. Therefore, practices that close the resource loop by recycling or reusing materials are necessary to complete the cycle. This closing results in the closed loop from post-use to production, thus completing the circle (Bocken et al., 2016).

### **2.3.2 Triple Bottom Line Framework**

The triple bottom line (TBL) framework provides a useful lens for evaluating the impact of circular business models on the company’s sustainability. This section will introduce the triple bottom line framework and how it relates to circular business models in the outdoor sporting goods industry.

As shown in *Figure 1*, the triple-bottom-line framework considers economic, social, and environmental sustainability (Frishammar & Parida, 2018). It aims to balance the pulls of these three sustainability dimensions to achieve sustainable development. Economic sustainability refers to the economic impact and economic value added to the business model. On the other hand, the social dimension refers to the impact on society and community. Finally, the environmental dimension refers to the impact on the climate and nature.



*Figure 1 - Triple Bottom Line*

The social aspect of the TBL framework considers the impact of business decisions on society. These impacts include creating jobs, promoting diversity and inclusion, supporting local communities, and ensuring ethical business practices. In the context of the OSGI, companies can create social value by adopting circular business models that promote community engagement, support local supply chains, and take social responsibility (Wiebe et al., 2023).

The environmental aspect of the TBL framework considers the impact of business decisions on the natural environment. In the context of the OSGI, companies can create environmental value by adopting circular business models that reduce waste, promote recycling and reuse, and minimize energy usage and harmful materials (Frishammar & Parida, 2018; Wiebe et al., 2023).

The economic aspect of the TBL framework considers the financial impact of business decisions on the company and its stakeholders. In the context of the OSGI, brands can create



economic value by adopting circular business models that promote resource efficiency, reduce waste, and create new revenue streams. For instance, a company that offers a repair for its outdoor gear may create economic value by extending the profitable period of the product by creating new revenue streams through the product's lifespan (Wiebe et al., 2023).

Balancing the environmental impact, social value creation, and economic gain is challenging for companies due to the tensions in their triple bottom line. Achieving sustainable value creation while meeting stakeholders' expectations requires managing tensions between these three dimensions. Thus, OSGI companies must navigate tradeoffs between financial, environmental, and social objectives to create sustainable value in their business model. These tradeoffs and tensions will be illustrated in the findings and discussion.

### **2.3.3 Sustainable Consumption Business Model Framework**

A part of a sustainable circular business model transformation is ensuring that overall consumption decreases. Consumption patterns in developed countries are currently dominated by ever-shorter product use and a throwaway culture (Geissdoerfer et al., 2017). Therefore, decreasing consumption is essential as it can significantly impact environmental sustainability. Companies can reduce their environmental impact by implementing circular business practices that lead to sustainable consumption (SC).

The Sustainable Consumption Business Model Framework is a helpful lens to assess the different circular business practices' impact on consumption (Tunn et al., 2019). The framework provides an overview of opportunities that can lead to more sustainable consumption in the transition to CBMs. Using this framework, we are able to assess how OSGI companies' practices relate to SC.

The Sustainable Consumption Business Model Framework is illustrated in Figure 2 and shows an overview of each factor in the business model. The framework allows for the effective mapping of circular practices by these factors, which can aid in developing effective strategies for SC.

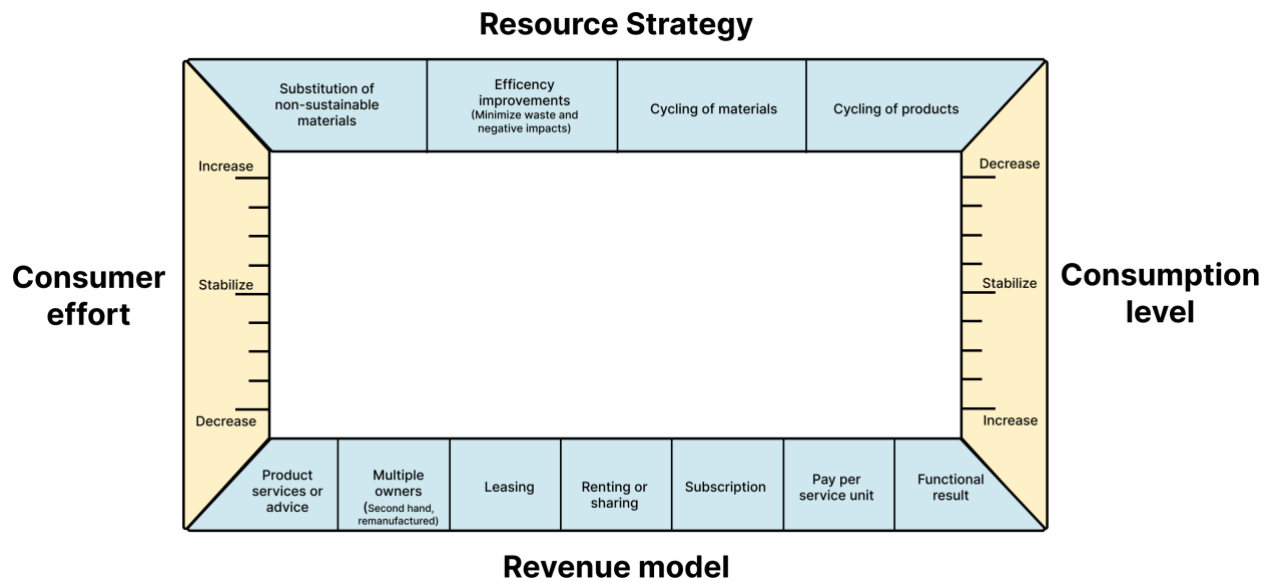


Figure 2 Sustainable Consumption Business Model Framework (Tunn et al., 2019)

The framework consists of four factors: Resource strategy, Revenue model, Consumer effort, and Consumption level. The two business model elements, *Resource strategy*, and *Revenue model* focus on the company, while the two elements, *Consumer effort*, and *consumption level*, focus on the consumer side.

The resource strategy represents the strategy used to prevent the wastage of resources and limit the extraction of virgin materials (Tunn et al., 2019). The four resource strategies are:

1. *Substituting non-sustainable materials with sustainable ones*
2. *Improving efficiency to minimize waste and negative impacts*
3. *The cycling of materials* involves reducing the need for virgin raw materials by collecting products at their end-of-life and reusing their materials for new products
4. *The cycling of products and materials, which* aims to preserve value by reusing products and their materials. This cycling is achieved through the resale, remanufacturing, refurbishing, and take-back of products

The revenue model represents how the business model generates revenue from the circular practice, how consumers can access the service and how it is delivered (Tunn et al., 2019)

*Consumer effort* represents the required consumer effort needed to use the new, sustainable offering compared to the effort required to consume the current standard offerings. This added or subtracted consumer effort determines the practice's convenience level. As a significant

hurdle in decreasing consumption is achieving consumer acceptance of sustainable offerings, decreasing consumer effort is crucial for its potential acceptance and adoption (Tunn et al., 2019). *Consumption level* represents the practice's potential increase or decrease in consumption. It can be influenced through business models that involve shared, long-lasting or upgradable products, increasing their lifetimes or use intensity, thereby decreasing overall consumption levels (Tunn et al., 2019). The middle line (Stabilize) indicates that consumer effort or consumption level remains constant compared to the current standard consumption. The extremes of these elements (high/low and decrease/increase) signify a notable shift (Tunn et al., 2019).

To summarize, if a sustainable product or service is designed to lower the effort for consumers, it is more likely to be widely adopted. This adoption can be further enhanced by combining convenience with a revenue model that aligns intending to reduce consumption levels and a resource strategy that supports this objective.

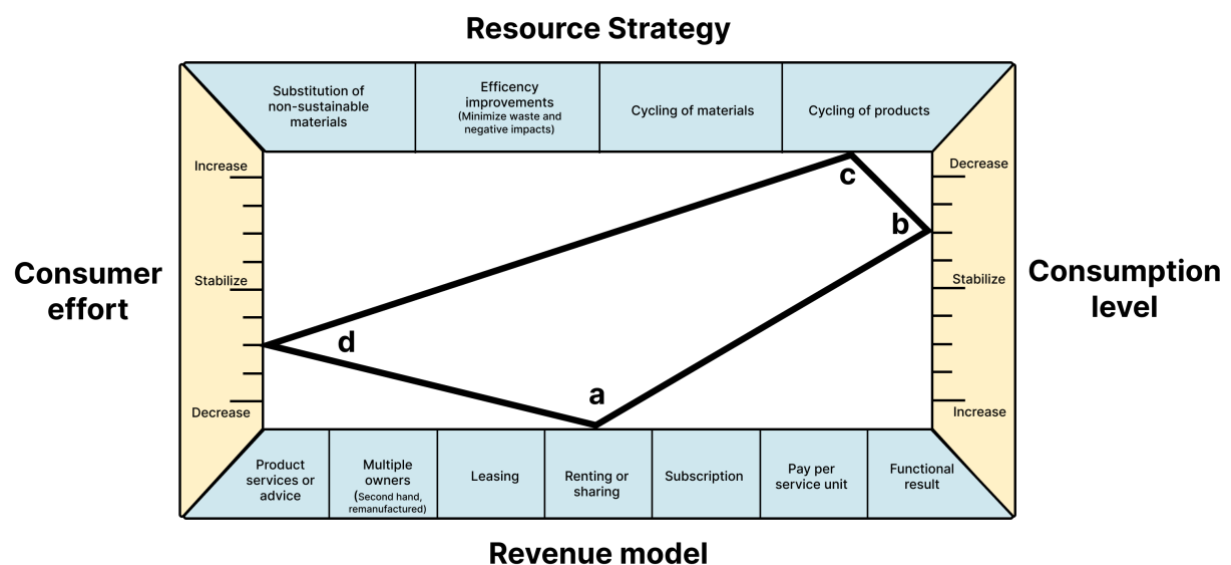


Figure 3– Example of usage: Sustainable Consumption Business Model Framework (Tunn et al., 2019)

For example, a consumer might rent skis from an outdoor sports company(a). Paying for the one-time use will ensure that the skis are sent back once it is no longer needed or desired. This leads to reduced consumption as consumers can use the ski when needed and send it back for someone else to use when it is not, thereby *decreasing consumption* (b). The company provides skis that are easy to repair and recyclable so that they can be *cycled from one consumer to the*

*next* for as long as possible. In this way, the *product and materials are cycled* (c). The skis are cleaned, waxed, and repaired after each consumer and are posted to an address or pick-up location convenient for the consumer and hence require *less effort* than traditional ski shopping and owning (d).

## 3 | METHODOLOGY

In the following chapter, the methodology of the master thesis is described and reflected on. Starting in the first subchapter, the authors present the research design and argue for the choice of a qualitative multiple case study as the research method. The second subchapter will thereafter explain the selection of cases and the selection criteria. Further, the third subchapter will describe the primary and secondary data collection processes. In the fourth subchapter, a description of the within-case analysis and the cross-case analysis will shed light on the author's process for analyzing the data. Finally, the authors will reflect on the methodology and discuss the credibility, transferability, dependability, confirmability, and limitations of the methodology.

### 3.1 Research Design

For this master thesis, a qualitative research method was chosen to study the research question “*How can Norwegian outdoor sports brands transition into sustainable circular business models?*”. In (Pratt, 2009) it is argued that qualitative research would be a good fit for studying this research question as “Qualitative research is great for addressing “how” questions—rather than “how many” (Pratt, 2009). The chosen research question asks “how” as well as trying to understand the world from the informant’s perspective making the authors confident in the choice of a qualitative research study (Pratt, 2009). Further (Yin, 2009) argues for the use of case studies to address “how” questions about the present circumstances. Case studies are designed in such a way that the researcher can develop an understanding of the dynamics present in single settings (Eisenhardt, 1989). They are also argued by (Dubois & Gadde, 2002) to be able to provide a unique means for theory building through “utilizing in-depth insights of empirical phenomena and their contexts”. The case studies are performed as single cases or multiple cases, typically with the use of interviews, questionnaires, and observations (Eisenhardt, 1989). As the authors want to understand the dynamics of the cases together as well as the single cases in the context of OSGI, a multiple case study was chosen for this thesis.

According to (Eisenhardt, 1989, 2021), a multiple case study is well suited when there is a lack of theory and empirical evidence around the topic which the research question is addressing. As the literature review concluded, there is a gap in the literature around circular business models in the OSGI, and especially around the “how” of including circular practices and their

sustainability. To address the RQ, the authors will also need to get a deeper understanding of the dynamics within the outdoor brands and the surrounding outdoor industry.

The authors had a nonlinear research process, which went back and forth between theoretical frameworks and the empirical world with the study of literature and had a continuous narrowing of the research question. This process is close to the process of systematic combining described in (Dubois & Gadde, 2002). (Dubois & Gadde, 2002) argues for the use of systematic combining as a useful tool in developing new theories when doing case studies. In systematic combining the theoretical frameworks and case analysis evolve simultaneously in a two-part process of matching and redirection (Dubois & Gadde, 2002). Matching deals with the process of matching the theory to reality by continuously moving between the frameworks, data sources, and analysis while redirection deals with a continuous directing and redirecting of the study (Dubois & Gadde, 2002). The systematic combining process is shown in the figure below.

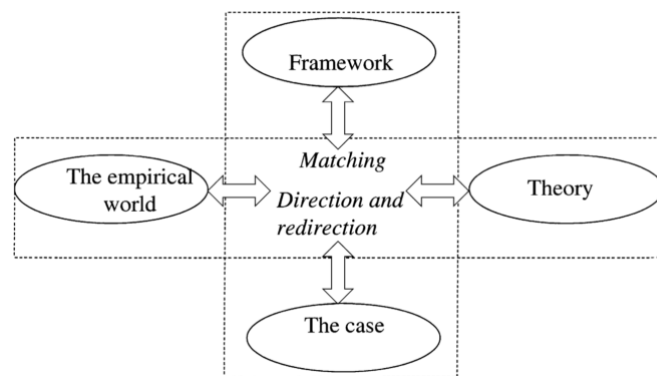


Figure 4 - Systematic Combining (Dubois & Gadde, 2002)

The logic behind systematic combining is the fact that all research processes are not completely linear (Dubois & Gadde, 2002). As we gained new insights continuously through the process systematic combining was useful to redirect the frameworks and literature accordingly. New insights in the empirical world made for new relevant theoretical frameworks and new theoretical frameworks made for new relevant data sources and literature, making our research process nonlinear.

We started by looking into circular business model literature which brought us to the terminology of resource cycles and framework for circular business model strategies in (Bocken et al., 2016), which shaped our research question in one direction. While studying the research question, we touched upon the theoretical framework of the triple bottom line (Wiebe et al.,

2023), which brought us back into the literature and further narrowed our research question. By looking into the triple bottom line, we found the theoretical framework of sustainable consumption for product-service systems (Tunn et al., 2019), which fitted well with the purpose of the study. We, therefore, went back into the literature and narrowed the research question even further.

### 3.2 Case selection

#### 3.2.1 Selection of outdoor brands

The authors needed to find relevant outdoor brands as cases to study the inclusion of circular practices in the OSGI. The literature found minimal research specific to the Norwegian Outdoor Industry, making one of the first selection criteria that the brand was a registered Norwegian company with a Norwegian-based headquarter. Secondly, the company had to be a part of the OSGI and both develop and sell outdoor products, taking full responsibility for their products. Next, the brands would need to have a circular strategy and be on a path to transitioning or partly transitioning to a circular business model, including at least one circular practice in their business model. This resulted in an inclusion criterion for the selection process, as shown in the table below, where all the following criteria had to be met to be relevant for the study.

Inclusion Criteria	
<b>Norwegian</b>	Norwegian registered company with its headquarter in Norway
<b>Part of OSGI</b>	A member of the Norwegian Sports Industry Association or a recognized player in the Norwegian Outdoor Sporting Goods Industry
<b>Sports Products</b>	Directly engaged in developing and selling outdoor sports products to consumers or businesses (B2C and B2B)
<b>Circular Practices</b>	In a transition from linear to circular - having included at least one circular practice in their business model

<b>Available Informants</b>	Have informants available in the time of the study which have satisfactory involvement with the company’s sustainability and circularity initiatives
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Table 1 – Inclusion Criteria

The Authors started identifying relevant cases by searching through the list of members of the Norwegian Sports Industry Association. Using the first three inclusion criteria of being Norwegian companies, a part of the OSGI, and responsible for producing and selling sports products, a total of 25 brands fit this criterion. The authors then started to identify the different circular practices of the brands. This was done by looking into documentation such as sustainability pages on the brand’s websites, news articles, and sustainability reports. This led to a total of 15 brands being labeled relevant due to the satisfactory inclusion of circular practices. Out of these 15, 8 companies were selected based on their product line and degree of specialization. The authors wanted to cover the OSGI in its entirety and compare brands that specialize in making only one type of product, e.g., skis or tents, to companies that specialize in a wider variety of outdoor products. This was also intended to make possible for a comparison between highly technical equipment with strict functionality needs to less technical outdoor clothing.

Further, the authors started to look outside the Norwegian Sports Industry Association, as it does not represent the totality of Norwegian Outdoor Sports Brands. By using Google with the search strings “Norwegian Sports Brands,” “Norwegian ski brands,” and “Outdoor Gear Norway,” as well as using the registers of trade partners such as *Etisk Handel Norge* and *NF&TA*, a total of 4 more relevant brands were found to fit the four first inclusion criterion. It was, however, more challenging than the authors had imagined applying the 5th inclusion criterion of having available informants with sufficient information regarding the company’s circular practices. Of these 12 companies identified as ideal cases, seven answered by email that they did not have the resources to talk with us during the study. This left five sports brands that had informants available for the study.

While identifying the cases, the authors also wanted to identify important collaboration partners who could possess valuable insights into the case’s circular business transition. Including informants from these collaboration partners was therefore set as a goal, and a second inclusion



criterion was made. This is shown in the table below and was used while identifying the selected cases and collecting the data.

<b>Inclusion Criterion for Informants outside the Company</b>	
<b>Collaboration Partners</b>	Collaboration partner having at least one of the selected cases as partner, having available informants relevant to the case’s circularity initiatives

*Table 2– Inclusion Criteria Collaboration Partners*

**3.2.2 Presentation of the selected cases**

A total of five brands were selected for the study, where the brands’ business models will be studied as the cases. One of these brands specializes in skis, while another specializes in highly technical bags and sleeping gear. Furthermore, two of the five brands specialize in a wider variety of outdoor products, including clothing for skiing and the outdoors, differentiating by one of the brands, including tents and sleeping gear, and the other, including golf clothing and accessories. Finally, the fifth brand specializes in technical clothing for a B2B market. Three of the five brands handle their own circular practices, while two rely on a collaboration partner to manage them. For these two brands, an informant from the collaboration partner was included. This was done to gain valuable insights that the collaboration partner could possess about the case. Another informant from a collaboration partner was also included for a third case, as this case participates in collaboration projects for circularity with this partner.

This composition of brands gives the study a wide diversity of brands with cross similarities on both product type and degree of specialization in their product line. By covering both specialized brands and brands having a wider product line, the study could reveal if there is a potential difference in applying circular practices for companies who specialize in only one product. Further, as the OSGI include many products of high technicality and functionality needs, assessing companies with different levels of technicality in their products could also be valuable for the study. Comparing brands with a strong B2B market approach versus brands with a stronger B2C market approach could also reveal valuable insights into the adaptability of the circular practice in the market. Further, including two brands with an external partner for

their circular practice could give a good comparison to the three brands that handle their circular practices in-house.

Therefore, we believe that including this composition of Norwegian sports brands is a good representation of the Norwegian outdoor industry and will form a good case group for the study with key differences and cross-similarities. An introduction of each case will follow below, and a complete overview of the selected cases is presented in *Table 3*. All names of the sports brands and collaboration partners were altered to ensure anonymity

### **Case 1 – Forever skis**

Forever Skis is a Norwegian ski maker specializing in developing and producing wooden core skis. The company is small and boasts below five employees in their factory in Norway. They have an annual turnover in the range of two to five million NOKs. The skis are made to order and can be customized for the specific customer's wants and needs. The case was chosen for the study as they claim to have made the world's first circular ski, and the skis are designed with the philosophy that the skis could last forever with the proper care. Including a business model in the study based on such high-functionality items as skis could also be a useful comparison to less technical products.

### **Case 2 – ECO Outdoor**

ECO Outdoor is a Norwegian outdoor brand specializing in the Norwegian term "friluftsliv" with a wide variety of products. They produce products for skiing, hiking, and sleeping outdoors. This includes ski apparel, hiking apparel, wool inner layers, tents, sleeping bags, and backpacks. It is a big company with over 50 employees in Norway and an annual turnover in the range of 300 to 600 million NOKs. Eco Outdoor was included in the study as it is arguably the most famous Norwegian sports brand regarding circular practices. They have received much praise and are renowned worldwide as a forerunner in the OSGI on sustainability and circularity. Having such a wide variation of products also makes them particularly valuable for cross-similarities with other cases.

A second informant was included for ECO Outdoor from a collaboration partner named The Norwegian Circularity Project (NCP). NCP is an industry partner of the Norwegian fashion industry, promoting and facilitating collaboration projects in the Norwegian outdoor, fashion, and textile industries.

### **Case 3 – Limitless Gear**

Limitless Gear is a Norwegian maker of extreme outdoor gear made to withstand the harshest environments, from remote expeditions to special military ops. They have a high focus on durability, waterproofness, and functionality. In addition, they have a highly specialized production focusing on bags and sleeping bags. They are a small company with under five employees and a turnover of two to five million NOKs. Limitless Gear has a collaboration project with the company Resalable for its circularity initiatives. Resalable is a company that has created a “re-commence” platform that acts as an e-commerce platform for resale online. This platform handles the collection of used products, repairs, and resale. They use a network of repair shops and seamstresses for repairing and refurbishing the products and resell the used refurbished products as a part of Limitless Gear’s brand on their online platform. Resalable is currently offering its service to Limitless Gear, as well as five other players from the outdoor industry. This collaboration and their specialized production line and strict functionality need were why Limitless Gear was included in the study.

### **Case 4 - High Alpine**

High Alpine is a Norwegian producer of outdoor sports apparel and accessories focusing on skiing and golfing. They have a wide variety of products, including highly functional clothing for skiing, golfing, and lifestyle, ski gear like gloves and beanies, and accessories for golfing and skiing. They are a small company with less than five employees operating out of Norway and the US, with an annual turnover between 10 to 20 million NOKs. High Alpine has, in the same way as Limitless Gear, a collaboration with Resalable for handling returns, repair, and resale. They are one of the five other players from the outdoor industry who have partnered with Resalable for the circularity side of their business. High Alpine has a much wider product line than Limitless Gear, so it is interesting to see how the collaboration with Resalable fits with their business model. High Alpine was included in the study because of its partnership with Resalable and its wider product line compared to Limitless Gear. The wide product line is more similar to the wide product line of ECO Outdoor, but, in contrast, it handles the circularity part of its business model in-house.

### **Case 5 – Nordic Endurance**

Nordic Endurance is a Norwegian company specializing in making technical sports apparel for

running, biking, Nordic skiing, and triathlon. They primarily sell customizable team-wear for businesses and organizations, where customers can put their own logos on the clothing. Nordic Endurance is considered a medium company with between 15 and 30 employees and an annual turnover in the range of 30 to 40 million NOKs. Nordic Endurance was included because its business model focuses almost strictly on the B2B market and a product line of primarily technical polyester sports clothing.

Sports Brand	Products	Market	#Employees	Product Variety	Circularity Relevance
Case 1 Forever Skis	Skis	B2C & B2B	<5	Specialized	Known to have made “the world’s first circular ski”
Case 2 ECO Outdoor	Outdoor apparel, sleeping gear, tents, and backpacks	B2C & B2B	>50	Wide	Well renowned for their circular initiatives of rentals, resale, and repair
Case 3 Limitless Gear	Extreme outdoor gear	B2C & B2B	<5	Specialized	“Re-commerce” and repair trough Resalable
Case 4 High Alpine	Outdoor apparel and gear for skiing and golfing	B2C & B2B	<5	Wide	“Re-commerce” and repair trough Resalable
Case 5 Nordic Endurance	Technical sports apparel	B2B	15-30	Somewhat Specialized	High focus on using recycled materials: Currently 44% recycled fabrics in their collection.

*Table 3 - Overview of the selected cases*

\*The names of the sports brands have been altered to ensure anonymity

### **3.3 Data Collection**

To gather the necessary data for the research a combination of secondary and primary data was chosen by the authors to achieve methodological triangulation (Carter et al., 2014). For the primary data, we conducted semi-structured interviews over the course of one month with carefully selected employees from the cases, as described in Subchapter 3.2.3. A total of five employees were interviewed from five different outdoor brands as well as two informants from two collaboration partners. Furthermore, the secondary data was collected both beforehand from the companies' public websites and reports, as well as after the interview through private documents shared by the interviewee.

#### **3.3.1 Semi-Structured Interviews and Interview Guide**

The chosen interview form for the collection of primary data was semi-structured interviews. Semi-structured interviews are a cross between fully unstructured interviews and rigidly structured interviews (Ghauri et al., 2020). In semi-structured interviews, the interviewee has a set of questions and topics on a general interviewee schedule but can vary the sequence of the questions and topics (Ghauri et al., 2020). By being able to change the sequence of the questions the interviewee can also dig deeper where it seems fit by asking relevant follow-up questions. This applies to areas where the interviewee has little to add on the topic as well, letting the interviewer choose to skip further questions on a slow topic. Prior to starting with the interviews, the authors made an interview guide.

The general interview guide was designed with inspiration from the theoretical framework used in the literature review. Furthermore, the interview guide was customized with small tweaks for each case, depending on their products, partnerships, and relation to the case. As suggested in (Pratt, 2009) the interview guide is included in the appendix. (Pratt, 2009) argues for the criticality of including the interview guide in the appendix so that the reader can determine the correlation between the findings and the interview questions. The interviews lasted between 37 and 75 minutes and were all conducted digitally. *Table 4* below shows the total number of interviews, the informant's role in the company and the interviews' total durations.

<b>Sports Brand</b>	<b>Informant's role in the company</b>	<b>Duration of interview</b>
Case 1 – Forever Skis	CEO and Founder	75 min
Case 2 – ECO Outdoor	Sustainability Responsible	65 min
	Collaboration Partner - CEO of the Norwegian Circularity Project	45 min
Case 3 – Limitless Gear	Co-Founder	52 min
	Collaboration Partner - CPO of Resalable	50 min**
Case 4 - High Alpine	Head of Sales and Marketing	37 min
	Collaboration Partner - CPO of Resalable	50 min**
Case 5– Nordic Endurance	Development and Design Manager	40 min
<b>Total duration of interviews</b>		<b>6 hours and 4 minutes</b>

*Table 4 - Overview of the selected informants and the duration of each interview*

\*The names of the sports brands and partners have been altered to ensure anonymity

\*\*One interview with the informant from Resalable were used to cover both Limitless Gear and High Alpine

### **3.3.2 Conducting the Interviews**

#### **Pre-Interview**

The first step in preparing for conducting the interviews was to report the master thesis to the Norwegian Centre for Research Data (Sikt). Reporting the project to the Norwegian Centre for Research Data is necessary to grant permission for the authors to handle personal data. After receiving approval from the Norwegian Centre for Research Data, the next step was to get the selected informants to agree to an interview. We reached out to the informants by email and over the phone. Here we tried to write compelling email invitations with a description of the

project, research question, and why exactly their company could help us with our research. This was done with the goal of creating a situation where the informants are motivated to give up some of their time to answer our questions. This is considered important to lower the chance of getting refusals, since “many business executives work with the belief that time is money” as stated in (Ghauri et al., 2020).

After initiating contact with a potential informant, the informant could propose a date and time for conducting the interview or agree to a proposed time given by the authors. When the date and time were settled, the Authors could send out a digital invitation to the meeting, giving the interviewee an easy way to add it to their calendar. As recommended by (Ghauri et al., 2020) the authors sent the interviewee a thank you email a couple of days before the interview, thanking them for agreeing to do the interview, while providing an reminder of the date and time of the interview. As the interviews were all done digitally through Microsoft Teams, this was also a perfect time to resend the invitation link.

### **During the Interview**

When an informant had agreed to an interview the time came down to conducting the actual interview. At this stage it showed how crucial it was to have followed the informants up thoroughly with reminders and invitation links, as we experienced multiple times that informants from potential cases did not show up for the planned digital meeting, leaving the authors waiting for the duration of the interview and losing the potential case. The informants from the selected cases were all thoroughly followed up and in return showed up in the digital meeting room at the scheduled time.

The first contact with the informant is considered highly important as it sets the impression of professionalism and friendliness that corresponds to the informant’s motivation and willingness to answer the given questions (Ghauri et al., 2020). The first minutes of the interview were therefore used to get familiar with the informant, describing the master thesis’s scope, purpose, and the authors' academic background.

Next, the topic of circularity was briefly discussed to ensure that all the participants of the interview had a shared understanding of the concept as recommended in (Ghauri et al., 2020). After the more informal greeting, the authors informed the informants about the anonymization of the data, and that the handling of personal data is in line with and approved by the Norwegian

Centre for Research Data and will be deleted after the thesis is written. As many of the informants expressed that they were going to speak unfiltered, confirming anonymity was an important part of making the informant comfortable in sharing their insights. When the topic of personal data was covered, the authors asked for permission to record and transcribe the interviews.

When all the parts of the introduction were covered, the authors started recording the interview and went on to ask the questions. The authors split the responsibilities of the interview into two roles. One had the interview lead and was in charge of asking the questions on the interview guide, while the second author acted as the interview assistant, keeping track of time and topics and asking follow-up questions were suited. This led to good time schedule management and ensured that all relevant topics were covered and the necessary data were collected, which is an essential part of the interviewer's job (Ghauri et al., 2020).

### **Post-Interview**

The recordings of the interviews were saved and stored after the interviews, and the authors made sure to transcribe the interview on the same day as conducting the interview. The authors also sent thank you emails to the informants for participating in the interviews and a follow-up on the requested secondary data, as described in 3.4.3.

### **3.3.3 Secondary data**

When wrapping up the interviews, the informants were asked if they had any documents, presentations, or reports that they could be willing to disclose and share for further insights. The secondary data will accompany the primary data in the within case analysis. Combining the secondary data with the primary data, and thus adding multiple methods of data collection achieves what is referred to as methodological triangulation (Carter et al., 2014). Methodological triangulation tests and increases the validity of the study (Carter et al., 2014).

The secondary data received from the informants acted as part of the foundation of secondary data collected about the cases. Secondary data was also collected before the interviews as a part of the process of identifying the relevant cases as described in 3.3.1. This data was publicly available and helped with finding relevant cases for the study as well as getting familiar with



the case. Getting to know the case beforehand made it easier to align the questions to the specific case.

The secondary data that was collected included the company documents that were shared by the informants, company statements from the companies’ websites and social media, sustainability reports, media statements, and financial data. A complete overview of the foundation of secondary data for each of the five selected cases is presented in *Table 5, Table 6, Table 7, Table 8, and Table 9* below. The secondary data is structured by document type, relevance, number of documents, and privacy. As the tables will show, the amount of secondary data differed significantly between the selected cases. This is reflected in 3.5.5 as a potential limitation of the method.

<b>FOREVER SKIS</b>			
<b>Type of Secondary Data</b>	<b>Relevance</b>	<b># of Documents</b>	<b>Privacy</b>
<b>Company Documents</b> Documents shared by the companies during or after the interview, including presentations and reports	Further understanding of the company’s business model, circular practices, and products.	58-page company presentation	Private
<b>Company Statements</b> The company’s own websites, sustainability pages, and social media	Insights about the company’s products, circular practices and how the company presents their products and circular practices	2 informational videos with a total duration of 9 minutes, 1 recorded company presentation with a duration of 32 minutes, 2 website pages about the company	Publicly available
<b>Company Sustainability Reports</b> Sustainability reports available online	Insights about the company’s sustainability initiatives and goals	No public sustainability report	Publicly available
<b>Media Statements.</b> News articles and videos available online	Insights about the company from a third party	6 articles	Publicly available

<b>Finances</b> Financial data attained from the database Proff.no together with BRREG	Insights on the companies' financials, turnover, growth, and size.	1 sheet of accounting data, and 1 search in BRREG database	Publicly available
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Table 5 - Overview of the secondary data foundation for Forever Skis

\*The name of the selected sports brand has been altered to ensure anonymity

<b>ECO OUTDOOR</b>			
<b>Type of Secondary Data</b>	<b>Relevance</b>	<b># of Documents</b>	<b>Privacy</b>
<b>Company Documents</b> Documents shared by the companies during or after the interview, including presentations and reports	Further understanding of the company's business model, circular practices, and products.	No shared documents	Private
<b>Company Statements</b> The company's own websites, sustainability pages, and social media	Insights about the company's products, circular practices and how the company presents their product and circular practices	5 website pages about the sustainability initiatives of the company.	Publicly available
<b>Company Sustainability Reports</b> Sustainability reports available online	Insights about the company's sustainability initiatives, circular practices and sustainability goals	Sustainability report: "Bærekraftig forretningspraksis 2021"	Publicly available
<b>Media Statements.</b> News articles and videos available online	Insights about the company from a third party	4 articles	Publicly available

<b>Finances</b> Financial data attained from the database Proff.no together with BRREG	Insights on the companies' financials, turnover, growth, and size.	1 sheet of accounting data, and 1 search in BRREG database	Publicly available
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Table 6 - Overview of the secondary data foundation for Eco Outdoor

\*The name of the selected sports brand has been altered to ensure anonymity

<b>LIMITLESS GEAR</b>			
<b>Type of Secondary Data</b>	<b>Relevance</b>	<b># of Documents</b>	<b>Privacy</b>
<b>Company Documents</b> Documents shared by the companies during or after the interview, including presentations and reports	Further understanding of the company's business model, circular practices, and products.	No shared documents	Private
<b>Company Statements</b> The company's own websites, sustainability pages, and social media	Insights about the company's products, circular practices and how the company presents their product and circular practices	1 website page about sustainability	Publicly available
<b>Company Sustainability Reports</b> Sustainability reports available online	Insights about the company's sustainability initiatives, circular practices and sustainability goals	No public reports	Publicly available
<b>Media Statements.</b> News articles and videos available online	Insights about the company from a third party	1 media article	Publicly available
<b>Finances</b> Financial data attained from the database	Insights on the companies' financials, turnover, growth, and size.	1 sheet of accounting data, and 1 search in BRREG database	Publicly available

Proff.no together with BRREG			
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Table 7 - Overview of the secondary data foundation for Limitless Gear

\*The name of the selected sports brand has been altered to ensure anonymity

<b>HIGH ALPINE</b>			
<b>Type of Secondary Data</b>	<b>Relevance</b>	<b># of Documents</b>	<b>Privacy</b>
<b>Company Documents</b> Documents shared by the companies during or after the interview, including presentations and reports	Further understanding of the company's business model, circular practices, and products.	No shared documents	Private
<b>Company Statements</b> The company's own websites, sustainability pages, and social media	Insights about the company's products, circular practices and how the company presents their product and circular practices	2 website page about sustainability	Publicly available
<b>Company Sustainability Reports</b> Sustainability reports available online	Insights about the company's sustainability initiatives, circular practices and sustainability goals	No public reports	Publicly available
<b>Media Statements.</b> News articles and videos available online	Insights about the company from a third party	No media statement	Publicly available
<b>Finances</b> Financial data attained from the	Insights on the companies' financials,	1 sheet of accounting data,	Publicly available

database Proff.no together with BRREG	turnover, growth, and size.	and 1 search in BRREG database	
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Table 8 - Overview of the secondary data foundation for High Alpine

\*The name of the selected sports brand has been altered to ensure anonymity

<b>NORDIC ENDURANCE</b>			
<b>Type of Secondary Data</b>	<b>Relevance</b>	<b># of Documents</b>	<b>Privacy</b>
<b>Company Documents</b> Documents shared by the companies during or after the interview, including presentations and reports	Further understanding of the company's business model, circular practices, and products.	39-page sustainability report for 2022	Private, yet to be released
<b>Company Statements</b> The company's own websites, sustainability pages, and social media	Insights about the company's products, circular practices and how the company presents their product and circular practices	1 website page about sustainability and production	Publicly available
<b>Company Sustainability Reports</b> Sustainability reports available online	Insights about the company's sustainability initiatives, circular practices and sustainability goals	38-page sustainability report for 2021	Publicly available
<b>Media Statements.</b> News articles and videos available online	Insights about the company from a third party	4 articles	Publicly available
<b>Finances</b> Financial data attained from the database Proff.no together with BRREG	Insights on the companies' financials, turnover, growth, and size.	1 sheet of accounting data, and 1 search in BRREG database	Publicly available

\*The name of the selected sports brand has been altered to ensure anonymity

### **3.4 Data Analysis**

After the authors had finished with the collection of data, the authors were left with a large, almost daunting volume of data. When coping with a daunting volume of data about an open-ended research problem, (Eisenhardt, 1989) recommends performing within-case analysis to cope with the large volume of data. By doing a within-case analysis the authors will get the chance to get familiar with each sports brand which will potentially lead to unique patterns revealing themselves (Eisenhardt, 1989).

After having done the within-case analysis, the next step, according to (Eisenhardt, 1989) is to generalize the patterns across the cases. This process is referred to as a cross-case analysis. The cross-case analysis will look for similarities and intergroup differences between the sports brands in selected categories based on the theoretical frameworks as suggested by (Eisenhardt, 1989). Finally, the authors categorized the data after transcribing all the interviews, which made the process of analyzing the data more accessible. Chapter 4 of this thesis will present the within-case and cross-case analyses.

### **3.5 Reflections on the Methodology**

In this chapter, the authors will reflect on the methodology used during this study to assess its trustworthiness. The authors have applied the four pillars of trustworthiness and qualitative rigor in qualitative research from (Lincoln & Guba, 1985). These are **credibility**, **transferability**, **dependability**, and **confirmability** (Lincoln & Guba, 1985). Finally, the authors reflect on the **limitations of the methodology**.

#### **3.5.1 Credibility**

By credibility, (Lincoln & Guba, 1985) refers to the internal validity of the findings and how credible it is that the findings are true, and it is related to the credibility of the authors and their

method. To ensure a higher likelihood of credible findings, the authors can use a number of techniques suggested by (Lincoln & Guba, 1985). Out of these, the authors used methodological, data source, and investigator triangulation to increase the credibility of the findings. Methodological triangulation was done by using multiple methods of collecting the data, with the collection of both primary and secondary data as described in 3.3.3 (Carter et al., 2014). Investigator triangulations were executed by always having both researchers collect and analyze the findings. This reduced the risk of bias from a single researcher.

For the data source triangulation, we included two informants for three of the cases (Carter et al., 2014). However, since the authors only managed to get one informant from two of the cases for the interviews, data source triangulation was not achieved for all cases (Carter et al., 2014). This left out the possibility for multiple views from within the selected case, inducing the risk of the findings being influenced by the single informant's opinions and views. This was tried to compensate for by focusing stronger on methodological triangulation with secondary data collection.

### **3.5.2 Transferability**

Transferability is a measure of how transferable the study's findings are to other areas (Lincoln & Guba, 1985). To achieve a higher level of transferability (Lincoln & Guba, 1985) suggests using a "thick description", meaning to describe the phenomena in such an explicit or "thick" way that the reader can get the sense of being there, thus enabling the reader to evaluate how the results are applicable in other areas. To fulfill this, the authors have tried to describe the circular business models for the selected outdoor brands as explicitly as possible so that the results may be applicable to other settings and industries in transitioning into circular business models.

### **3.5.3 Dependability**

Dependability deals with how repeatable the study is and if the study could be repeated by other researchers and end up with consistent findings (Lincoln & Guba, 1985). To increase the dependability of the study, the authors have tried to extensively describe the process of data collection and the theoretical frameworks used for the data analysis, as well as including the interview questions in the appendix, as argued by (Pratt, 2009). However, as there was only one informant from each selected case, the informant's interpretation of the interview questions

could have affected the results, thus limiting the study's dependability. When conducting a semi-structured interview, the informants were also asked some follow-up questions that did not make it into the interview guide.

### **3.5.4 Confirmability**

Confirmability addresses the thesis's level of neutrality and how the study has been affected by the researchers' bias (Lincoln & Guba, 1985). To achieve a higher level of confirmability (Lincoln & Guba, 1985) argues for the importance of leaving an audit trail which makes it easier to determine that the findings are grounded in the data. To leave an audit trail that is easy to follow, the authors tried to describe each step in the research process as thoroughly as possible. This was done by arguing for the choice of research method, explaining the research design, and the steps taken in the data collection towards the data analysis. The findings presented the data in its raw form with multiple direct quotes from the interviews. The authors also tried to have an unbiased view when assessing the data. However, the authors both have a deep previous understanding of the sports industry and the cases from previous experiences. This has more than likely induced some preconceptions in the authors, which might have shaped the angle of the study and the findings, affecting the overall objectivity of the study.

### **3.5.5 Limitations of the Methodology**

The method for this master thesis undoubtedly has some limitations that need to be reflected. These reflections on the limitations of the study's methodology will be presented in this subchapter.

- **Only one informant representing the company.** None of the selected cases could spare more than one of their employees to conduct the interviews leaving only one informant to represent the case. This induced the risk of biased answers based on the informants' opinions rather than the completely unbiased truth. To compensate, we included informants from collaboration partners with sufficient information about the cases' business model and circularity initiatives. This was done for the cases where a collaboration partner was relevant, resulting in only three of the five cases, including an extra informant.



- **Limited amounts of available secondary data.** The authors had limited secondary data available to support the primary data. The secondary data amount was also significantly differentiated between the different sports brands, with only some of the brands choosing to share company documents and a considerable variation in available public statements.
- **Informants wanting to please.** The authors ensured all the informants that the paper would be anonymized, and the authors tried to ask open-ended questions. However, there is still a risk of informants sugarcoating their answers or answering what they believe to be the best answer instead of the unbiased truth.
- **Norwegian to English translation.** All the interviews were conducted in Norwegian and then later translated into English for the analysis. This could have led to some biasedness in the translation process and some nuances being wrongly interpreted.
- **Digital Interviews.** All the interviews were conducted digitally through teams with video and audio, except for one interview over the phone. This could have affected the results of the interviews, even though the video interviews were reasonably close to a physical meeting. The informants could have been more comfortable sharing insights during a physical interview, and it would have been easier to ask follow-up questions without talking over each other.

## 4| FINDINGS AND ANALYSIS

In this chapter, the findings of this study will be presented. Based on the selected theoretical frameworks, the findings will present a within-case analysis of the five outdoor sports brands. The within-case analysis will include four subchapters: **Case Information**, **Practice Descriptions**, **Relation to Sustainable Circular Business Models**, and a **Case Summary**. In the **Case Information**, a brief description of the case is given.

For the **Practice Descriptions**, the circular practices included in the case's business model will be presented and categorized based on the Resource Cycle Terminology from (Bocken et al., 2016) as described in 2.3.1. The cases' practices that relate to the narrowing of resource flows will only be briefly described as these practices are argued by (Bocken et al., 2016) not to be regarded as circular practices. The practices related to slowing or closing the resource loop will be explained in detail for each selected case.

The subchapter **Relation to Sustainable Circular Business Models** will analyze how the practices relate to sustainable circular business models. The analysis will first use the triple bottom line framework described in 2.3.2. to determine the economic, social, and environmental impact of each practice. The environmental sustainability of the practices will be further analyzed together with the sustainable consumption framework described in 2.3.3. This will illustrate the effect of the practices on the consumption level and consumer effort, determining the overall impact on consumption and the adaptability of the practice. Finally, the **Case Summary** will summarize the findings of the within-case analysis for each case. The authors will end the analysis by looking for cross patterns, similarities, and differences in the case group, presented in the cross-case analysis in section 4.6.

### 4.1 Case 1 – Forever Skis

#### 4.1.1 Case Information:

Forever Skis is a Norwegian ski maker designing, producing, and selling alpine skis made at its factory in Norway. They are one of only a couple of Norwegian ski makers and the only one producing their skis themselves in Norway. As described in 3.3.2, they are a small company

with less than five employees and a turnover between two and five million NOKs. They have a highly specialized product line, specializing in high-performance alpine skis for freeride and backcountry use. The informant interviewed was the CEO and founder of Forever Skis.

Forever Skis has a design philosophy leading back to the samurai age in ancient Japan and the samurai's famous sword, the Katana. The founder says the following about the founding of forever skis in the 2000s and the movie culture at that time:

*“They kind of built a myth around this Japanese sword, didn't they? Where a swordsmith spent 2 months making this mythical product. And it's a bit like that as a result of Japan being a country with limited resources. in a way, you also see this in the whole culture and with the Toyota production system which we call lean today. In a way, the result is exactly the same, which is that when that lump of iron that they have to import costs a month's salary for a man, it is worth it to put an incredible amount of work into it.”* – CEO and Founder, Forever Skis.

The founder of forever skis took great inspiration from this and wanted to do something with the current practice of making products that are not meant to last, and he decided to change how we produce skis today. This started by producing unique skis for each customer with a wooden core in the center. This wooden core takes advantage of wood's naturally durable qualities and is at the center stage in Forever Skis' design philosophy. All skis are made to order, and all skis are designed around the wooden core with the potential of lasting forever. Focusing on this wooden core, and designing for reuse, Forever Skis claims to have made the world's first circular ski.

*“Our Katana? That is, in a way, the wooden core.”* – CEO and Founder, Forever Skis.

## **4.1.2 Practice Descriptions**

### **4.1.2.1 Practices Related to Narrowing Resource Flows**

**Reduce:** No prominent practices related to the reduction of resources came forth from the interview with the informant. The informant talked, however, in detail about the inspiration from Toyota's lean production and minimizing of waste. All skis are made to order, minimizing excess inventory and unsold skis. The founder also stressed the importance of reducing the environmental impact of transporting skis.

*“It has always been important to us to be close to our market. And the reason for that is, of course, transport back and forth. It costs a bit then, but we try to be as strong as possible as close as possible. So, we don't do any marketing abroad either.”* – CEO and Founder, Forever Skis.

#### **4.1.2.2 Practices Related to Slowing Resource Flows**

##### **Practice 1 — Repressing Skis**

The bearing practice of Forever Skis’ circular business model transition is the practice of repressing its skis, which includes remanufacturing, recycling, and reselling. This initiative involves the collection of old and worn out or broken Forever Skis ski pairs from its customers, stripping away the worn out and broken parts down to the wooden core. The wooden core is then repressed with new materials around it into a new pair of skis. This repressing gives the skis new life, and you end up with a ski pair that is stated to be as good as new or even better. The customer can get the good-as-new skis back again for a discounted price or sell them to Forever Skis for either a small “scrap deposit” or a discount on their pair next pair of skis. The skis that Forever Skis buys from the customers are resold on their website under a specific collection name.

*“We pay what we call the scrap deposit for a worn-out ski, and the skis can be a bit of anything, like a ski that has been fitted with 15 times as many holes than they can fit or something like that, then we can we repress it, and make a new ski out of it. But we can also switch it to us for new purchases, so then you get a little more for the old ski, usually around 3,000 NOKs off a new ski.”* – CEO and Founder, Forever Skis.

This scrap deposit or discount incentivizes customers to return their skis to Forever Skis for reuse. Repressing the skis also opens a new possibility for the owner of the old skis. In the repressing process, Forever Skis can change the skis’ characteristics and shape, giving yet another incentive for delivering old skis back to Forever Skis for the ones wishing to keep the skis afterward.

*“Say that people want to change some characteristics of their ski. Because it happens that you want a little more energy out of the ski when you have developed your skiing skills, or that you*

*were somehow not completely satisfied with the way the ski was initially, than we have the technical possibility to do that, and we've done it on quite a few skis. If we put on a new sole and new steel edge, we might as well give them a new turning radius and a new flex curve.”*— CEO and Founder, Forever Skis.

Forever Skis manages to precisely do this with their skis because it is planned and designed from the start to gain these abilities, states the founder during the interview.

*“The reason why we basically manage to do it is that we make it much easier from the start with the ski having as simple a shape as possible, so that we can have all the shape history on all the skis. Then I realized with those swords, that you have to kind of design the product for it. They're built that way from the start to be maintainable, right? There was no point in spending two months making a blade like that if you are not going to be able to work with it later.”*— CEO and Founder, Forever Skis.

The authors labeled this practice as a measure to slow the resource loop, as it keeps the skis in circulation. However, this practice could have fallen under the closing of resource loops as a crucial component in the ski is recycled to make new skis. This practice of reusing the wooden core of the ski is the measure Forever Skis uses for recycling their used skis, so in a way, this practice falls under both the slowing and closing of resource loops.

## **Practice 2 – Repair Service**

The second circular practice of Forever Skis that falls under the slowing of resource flows is the practice of making durable and repairable skis and offering repair services to their customers. As stated above, all skis made by Forever Skis are designed with workability in mind. This applies just as much to the ski's ability to be easily repaired for minor damages and worn-out parts as it is to the ability to remanufacture the ski. So, in the same way as a ski pair can be collected back to be repressed, the ski pair could also be collected by Forever Skis to repair more minor damages.

*“So, it really goes under the same philosophy that we should do as little as possible, right? We would prefer not to replace parts of the ski, and we have had several small damages where the ski has, for example, been damaged by rocks. Then we repair it and we have developed our own methods for that.”*— CEO and Founder, Forever Skis.

The founder of Forever Skis says that repairing modern skis can be challenging. However, keeping the ski design simple and using wood simplifies repair and reuse. When talking about repairing modern skis with plastic constructions, the founder of Forever Skis said the following:

*“So, say you hit a stone, which is perhaps the most common damage to a ski, and you break open the side wall, then you actually have to take out the wall and both polish and surface treat it, and that is far too much work. It becomes far too complex to be able to make it realistic. Whereas wood is incredibly much more grateful to repair.”*– CEO and Founder, Forever Skis.

When making highly functional products like skis that are put under harsh use conditions, the durability of the ski can be critical. Therefore, using high-quality products like wood and composites has always been important for Forever Skis. Emotional durability is also essential for Forever Skis, with the argumentation that customers who knit close ties to their products are more likely to take better care of them. This is ensured by making timeless skis with excellent functionality and simple shapes instead of following trends.

*“Functionality is everything, so that's sort of always been our philosophy, and we shouldn't try to give the ski tips some fancy shape, because we think it looks pretty, because pretty doesn't exist, because pretty is a result of function 100%.”*– CEO and Founder, Forever Skis.

Emotional durability is also sustained by burning an emblem on every ski that has been repaired or repressed. The ski will get a burn mark on the wooden core every time it has been worked on, preserving the history and heritage of the ski that could be passed down for generations to come. The founder took great inspiration from a precious samurai blade he was honored to see for himself.

*“I was very graciously allowed to hold and feel some swords that cost like half a million or so per sword, collector's items, and there you could see the stamp of all the blacksmiths when you took the hilt off. The stamps of the blacksmiths over the centuries who had worked with the sword, and in a way the history that was documented on the sword itself.”*– CEO and Founder, Forever Skis.

#### **4.1.2.3 Practices Related to Closing Resource Flows**

##### **Practice 3 – Using Recycled Carbon Fiber**

As a measure to close resource flows, Forever Skis has primarily implemented the practice of repressing its skis as a recycling initiative, as discussed in 4.1.2.2 above. Secondly, Forever Skis uses recycled materials in parts of its production.

*“We also have a collaboration with someone who grinds up and makes new fibers from worn out or broken windmill blades.”*– CEO and Founder, Forever Skis.

Forever Skis is looking for waste materials where they can, and using them from other industries is an integral part of its philosophy. One of these waste materials is carbon fiber from worn-out windmill blades.

### **4.1.3 Relation to Sustainable Circular Business Models**

#### **4.1.3.1 Practice 1 - Repressing Skis**

##### ***ECONOMICAL SUSTAINABILITY***

To offer the practice of collecting and repressing skis, Forever Skis depends on having its factory in Norway, where it can handle the collection of old skis and the production of new skis. Having an in-house small-scale factory with Norwegian wages can be financially challenging. However, the founder believes that repressing skis can help make the operations more profitable.

*“Our skis have always been more expensive, and we have always invested a lot. We've had a marginal plus on them, but now we're getting them back, so it's in a way my katana.”*– CEO and Founder, Forever Skis.

When selling reused products, customer anxiety can be challenging (Arrigo, 2021). Many of the skis that Forever Skis collect have significant damage when they are taken in, which could lead to customers fearing that the skis will be subpar compared to new ones. However, the Forever Skis founder ensures that the skis are properly repaired and that this has not been the case for its reused ski series.

*“We have actually sold broken skis for 100,000 NOK. I thought at first that people would be a little reluctant to buy them. But they haven't actually been, and it has worked very much as I thought it would and I think now is the right time to launch this properly. People understand it*

*more now than 10 or 15 years ago, because then it was kind of a hackneyed thing, but now, like with the sword and the stamp, people understand the concept straight away.”*– CEO and Founder, Forever Skis.

The stamp that the skis are marked with after being repaired or repressed is stated to be an important part of the strategy in making the practice of selling repressed skis more profitable.

*“You're documenting the history of the product, and that's what I found really fascinating about these Japanese swords. That that was kind of what gave these swords the extra value, that you saw that there was a story there, while the quality was kind of just flawless anyway right? It actually adds value and what we have sold the most on is that people come with their old skis that have worn out and may well have been retired for a couple of years, and they have bought other skis, and then they have had them standing in the shed, and then they come and want to have them pressed up again for their children who have inherited them and things like that.”*  
– CEO and Founder, Forever Skis.

The reused ski series has been a profitable launch for Forever Skis. However, as the sale of reused skis could cannibalize the sales of new skis, the profitability of the addition to the complete business model is hard to determine, as stated by the founder below:

*“We've actually made money from it this year, but it's hard to measure. It could have happened that we would have sold more new skis if we hadn't sold repressed skis, so we don't know that. But I don't think so. We believe that it adds value with additional sales then.”* – CEO and Founder, Forever Skis.

Even though the exact value the practice of repressing and reselling old skis is giving Forever Skis' business model, it is currently a profitable addition to their business model. Therefore, it is notable that this business model delivers some economic value and is likely economically sustainable.

## ***SOCIAL SUSTAINABILITY***

When it comes to the social sustainability of the practice in focus, it is notable that it is highly connected to the local Norwegian factory and the knowledge of its workers. The reuse initiative will therefore give Forever Skis a more substantial reason for keeping their factory in Norway. A ski factory in rural Norway creates local job opportunities while collecting used skis from its



customers to engage with the community. Engaging in collecting and remanufacturing these skis will likely add an extra workload to the factory that could result in further job opportunities. With all processing of the skis being done in Norway with Norwegian work regulations, it also ensures ethical working conditions for the employees. The circular practice of reusing old skis is, therefore, likely to deliver some social value.

**ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION**

Repressing skis involves recycling materials, thus reducing the need for virgin materials in making new skis. As the ski is designed to be easily taken apart, recycling the ski does not impose significantly higher energy usage or resources. Therefore, the total resource consumption needed in making a new pair of skis is significantly reduced for the practice of repressing skis. Since the ski is returned to the previous owner of the ski or resold online, the ski can have multiple owning periods at the same owner or multiple owners over the lifecycle of the ski, as shown in point (a) in the sustainable consumption figure below. Previous owners who choose to keep the ski pair after Forever Skis has repressed it receive their ski pair back again in a good as new condition, thus eliminating the owner's need to buy a new pair of skis. The ski will also have more history, documented by its stamp, likely giving the ski higher sentimental value and emotional durability. The skis that are resold online will give consumers a choice to buy a reused ski instead of a new pair of skis. Buying the reused ski pair will likely fulfill the same need for the buyer as a new ski pair would, thus reducing the need to buy new skis. These effects combined are likely to result in an overall decreased consumption of new skis, as shown in point (b).

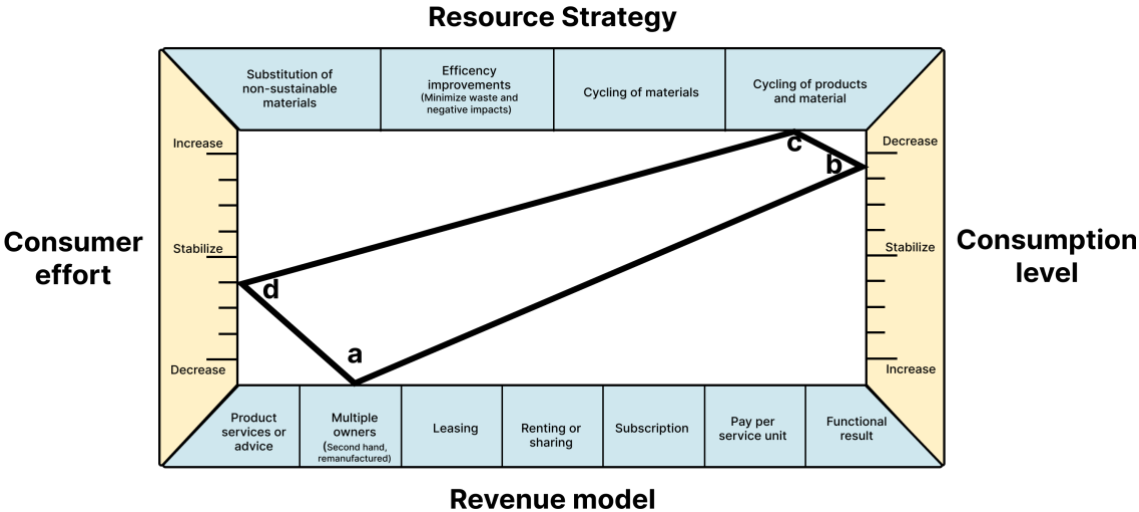


Figure 5 - Repressing Skis, Forever Skis - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

The practice imposes a resource strategy of cycling products and materials (c) as it incorporates the reuse of the ski and recycling of the ski's materials to preserve the value of the ski pair (Tunn et al., 2019). The consumer effort can also be argued to decrease slightly, as shown in point (d). The argumentation is that the consumers buying and returning the skis for repressing every time the ski is worn out share some similarities with a leasing model. The consumer gets the ski pair with the wooden core inside when the ski is bought, and if the wooden core is returned to Forever Skis, the consumer gets a highly discounted price on their next ski pair. So, in a way, the consumer is leasing the ski's wooden core, and as the ski is built around the wooden core and its characteristics can be customized each time the ski is returned, the consumer can always have a ski pair that fits its specific needs and wants. This reduces the search cost for the consumer as there is no need to search for a new ski pair that fits the specific characteristics or budget. Consumers wishing not to keep the pair can sell them to Forever Skis, which is arguably easier than selling them themselves, decreasing the consumer effort. From the analysis of environmental sustainability and the social consumption framework, it seems likely that the practice will create environmental value for the business model.

#### **4.1.3.2 Practice 2 – Repair Service**

##### ***ECONOMICAL SUSTAINABILITY***

By offering a repair service on their skis, Forever Skis can engage with their customers and open up for revenues on their skis after the initial sale. Offering excellent service to their customers is also more likely to bring them back to Forever Skis the next time they need to buy skis. However, it is known to be quite costly to offer repair services. When asked about the profitability of repair services, the response was:

*“It is important that it is made into a profitable thing, and that an expectation is created in the market where people understand that it must be profitable. Repairs should not be free, and I think people understand that. So, then it's up to the sort of well-intentioned giant companies to understand that too, that it's not only done because it's worth it for marketing purposes, because it's definitely worth it for big companies like Patagonia to set up a repair truck like that and drive around repairing for free for people, but only they can do that right?”* – CEO and Founder, Forever Skis.

Forever Skis makes it clear that it is hard for smaller companies to compete with bigger companies that offer their customers free repair services. Smaller companies usually can't afford to offer free repair services, and setting an expectation in the market of free repairs can thereby be devastating for these companies repair practices.

The challenge of European wages on the repair service compared to the lower wages abroad where the products are produced is one of, the more discussed challenges in the literature review. For some companies, giving out a new product can even be cheaper than repairing it, as highlighted by the CEO and Founder of Forever Skis when talking about the repair services in the industry. *“You can just get a new jacket then, right? And if you don't want it, then you get it repaired if you absolutely want it.”*

However, what separates Forever Skis from most outdoor companies is that they are already paying Norwegian wages to produce their skis at their Norwegian factory. There is, thereby, no distinction between repair wages and manufacturing wages. When asked if the founder experienced any challenges in offering repair services, the answer was simply:

*“No, I've really only seen opportunities, and we've received some skis with absolutely incredible cases. The other day we had someone come in who had driven into her garage door with the skis on the roof, so the tip was just broken straight off. And before I would probably have said that it would be difficult to do something about it, because I have in a way heard it myself, but then we have gradually developed methods that make it really easy. And she got back money on the insurance claim for that Ski, and we repaired it for less than what she got back.”* – CEO and Founder, Forever Skis.

Although potentially challenging, Forever Skis' repair practice is adding economic value to its business model.

## ***SOCIAL SUSTAINABILITY***

Forever Skis' repair service contributes to the business model's social value by creating local job opportunities and promoting community engagement. The offering of repair services in their factory creates local job opportunities at the factory. Furthermore, forever Skis also engages with local sports stores to facilitate simpler repairs on their skis with a specially developed tape that they have developed. Providing this tape with glue and knowledge to the local sports shops can significantly improve the shop's current ski-repair service.

*“There is a lot of potential business that can be built in relation to maintenance and the like. So, if we operate like that, we shouldn't somehow create an expectation in the market that things can be repaired for free by the well-intentioned company and so on. They should offer the service, of course, but they should charge money for it, because then sports shops can as well, especially those that are struggling. There is a golden opportunity now to build up expertise and repair facilities all around and carry out maintenance. But then they must be able to make money from it because there are less and less sports shops that get a smaller and smaller part of the pie around the villages and small towns in Norway, and the big cities for that matter. And in relation to that tape, it's amazing how many simple operations you can actually do with it on just a small bench and some resin in a bomb tower.”* – CEO and Founder, Forever Skis.

Forever Skis is passionate about the future of struggling brick-and-mortar sports shops and wishes for a thriving ecosystem where local sports shops can offer repair services as a part of their value offering. So, facilitating easy ski repairs in local ski shops, community engagement, and working towards making an expectation in the market for paid repair is a step in the right direction. Forever Skis is taking social responsibility with its repair practice, delivering significant social value.

### ***ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION***

By making durable and repairable skis and offering repair on zed skis, Forever Skis can prolong the customer's time between needing new skis or needing to repress the skis. Therefore, it effectively slows down the resource loop as the resources stay longer in circulation. Skis are a product that is especially exposed to damage as it is always in contact with the ground. By repairing these more minor damages for their customers, Forever Skis' customers can keep their skis longer before needing to buy new ones. Offering this kind of repair service is stated by the founder to be something that separates Forever Skis from many other ski manufacturers and retailers.

*“If you ask ski manufacturers otherwise, then in a way you only get the answer now that it is somewhat standard that you buy skis online and then if there is something wrong or something goes wrong with it, then you are told to drill holes and so send photos of you drilling holes through the skis, and you will be sent new ones. And what's interesting about that is that they consider skis that have drilled holes in them to be broken. It says a bit about the way they see it, but it's really easy to repair skis with holes in them.”* – CEO and Founder, Forever Skis.

Forever Skis’ repair service can thereby be argued to decrease the consumption of new skis, as shown in point (b) in the sustainable consumption figure below. It involves cycling products and materials (c) as a resource strategy to preserve value through refurbishing the skis.

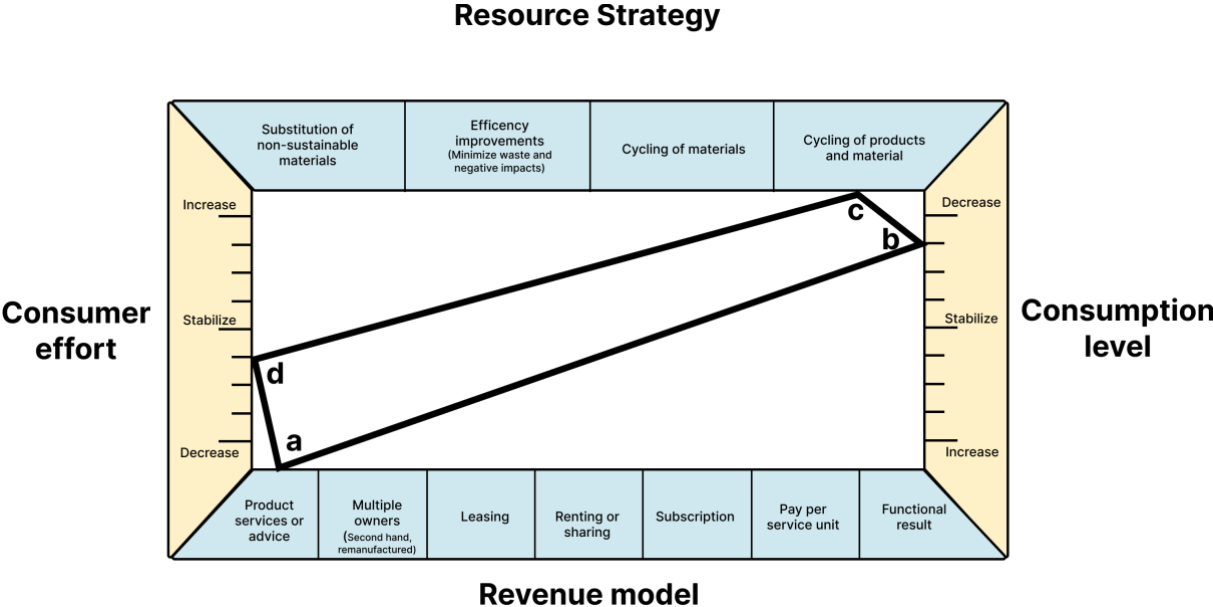


Figure 6 - Repair, Forever Skis - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

The practice uses a product-oriented revenue model of product service (a) to capture the value, and there is likely to be a light decrease in consumer effort (d). This is because the repair service results in a decreased search cost for the customer compared to looking for alternative repair solutions, fixing it themselves, or buying new skis. However, buying new skis could be more convenient as it does not involve delivering them somewhere or waiting for them to return. Nevertheless, skis are a relatively expensive product and often involves significant search cost to find the right pair. At the same time, more minor repairs usually run at a fraction of the cost of a new ski. Even the gnarliest damages are repairable for less than the cost of a new pair, as stated by the founder in an earlier quote above. From analyzing the environmental sustainability based on the social consumption framework, it is notable that the repair offering will offer a more convenient solution for the customer and deliver environmental value for the business model.

**4.1.3.3 Practice 3 – Using Recycled Carbon Fiber**

***ECONOMICAL SUSTAINABILITY***

The use of recycled carbon fiber could be economically beneficial if it leads to reduced costs in the production of skis. The partnership that extracts carbon fiber from used windmill blades could offer the used carbon fiber at a lower price than new carbon fiber from other suppliers. However, since the authors did not receive information regarding carbon fiber prices, this is hard to determine. The prices could likely be higher due to the resource-intensive carbon extraction process. The cost of relying on this carbon fiber could also be higher as the supply could be unpredictable. On the other hand, if the use of recycled carbon fiber aligns well enough with the marketing of the skis, it could lead to higher sales and profits.

### ***SOCIAL SUSTAINABILITY***

Forever Skis are partnering up with the local industry in their initiative to use recycled carbon fiber in their skis. It is, therefore, a way of engaging with the community and supporting local supply chains. You could thereby argue that the practice delivers some social value. The founder also stated that partnering up with the carbon fiber company is “In a way, just a story to show that this can turn into new products” – CEO and Founder, Forever Skis. Additionally, this practice engages with the community by inspiring other companies to follow.

### ***ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION***

Determining the environmental sustainability of the practice of using recycled carbon fiber in their skis is a challenging predicament. On the one hand, is the need for new carbon fiber reduced. Yet, on the other hand, the recycled carbon fiber needs to be extracted from the worn-out windmill blades. The founder of Forever Skis stated the following on the challenge of extracting the carbon fiber:

*“You first use a lot of energy to make windmill blades with the composite, then we use a lot of energy to cut it up and break it down again to make new fiber from the same fiber. And then you sort of have to make something new out of it again then and in that process there you kind of have. So you've kind of been fighting uphill energetically the whole way through, haven't you?”* – CEO and Founder, Forever Skis.

This resource-heavy process of recycling products to their fiber form makes it hard to determine the environmental sustainability of using recycled carbon fiber in its products.

“So the best thing is that the windmill blade first and foremost becomes a windmill blade, because the fiber and the materials with lightning conductors of copper integrated inside have value primarily in the shape of a windmill blade and it is completely unimaginable the same how fierce that windmill blade has become struck or crushed by a lightning strike or broken or burned somehow, then all the possible processes that you do to extract the fiber will exert so much that you have already lost the effort that it would actually cost to repair that windmill blade.” – CEO and Founder, Forever Skis.

However, it is notable that the carbon fiber is used over again rather than ending up in a landfill. When it comes to a sustainable consumption framework, the result of the consumption could have multiple effects. The initiative reduces the consumption of raw materials for Forever Skis by using the resource strategy of substituting for more sustainable materials (c). However, this could lead to the product appealing more to sustainability-focused customers. This appeal could lead to increased consumption of new skis to a likely stabilized or slightly increased consumption level (b).

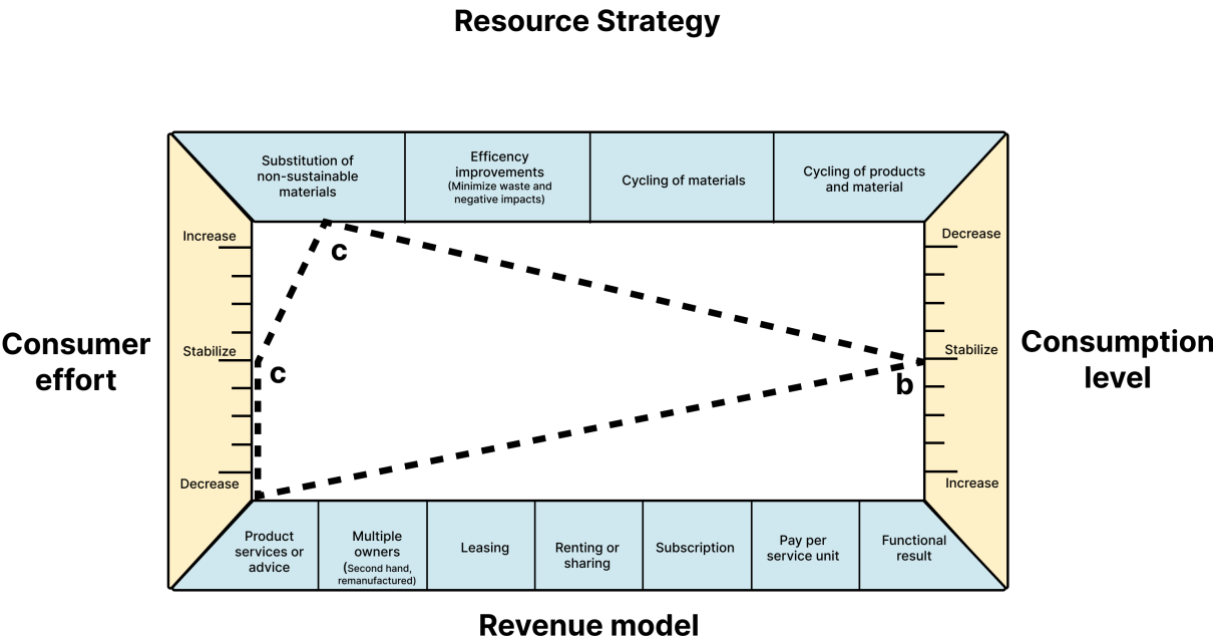


Figure 7 - Recycled Carbon Fiber, Forever Skis - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

As the practice would not directly affect the consumer effort, the consumer effort would be stable (d). For the revenue model, none of the models fit as the practice is not a product service. The sustainable consumption framework only fits partially for the practice of using recycled materials but is still included, as it illustrates, to some extent, the effect on consumption. From the process of analyzing the environmental sustainability based on the social consumption

framework, it is questionable if the practice of extracting and using recycled carbon fiber would deliver much environmental value for the business model.

### 4.1.4 Case Summary

Forever Skis have arguably made the world’s first circular ski with its reuse, recycling/remanufacturing, repair, and resale initiatives and using recycled materials. These initiatives are combined into the practices of repressing and reselling its skis, repairing its skis, and using recycled carbon fiber which was analyzed based on the triple based on their impacts on the triple bottom line and sustainable consumption. The practices of **repressing skis** and **repair** services are both helping to slow the resource loop by extending the lifespan of the products. Both practices rely on a stamp system to document the ski’s history and create emotional durability for the product. Both practices have been determined to have the potential to generate significant economic value for the business model, and the launch of repressing skis has been proven to be profitable. By creating local value, both practices also contribute to social value by creating local job opportunities, fair wages under Norwegian working conditions, and engaging with the community. The practice of **using recycled carbon fiber** is still in its early stages. It could be economically valuable for their bottom line, depending on the cost difference compared to virgin carbon fiber. The social and environmental value is, however, still questionable. All practices were analyzed with the sustainable consumption framework, which is summarized in the figure below:

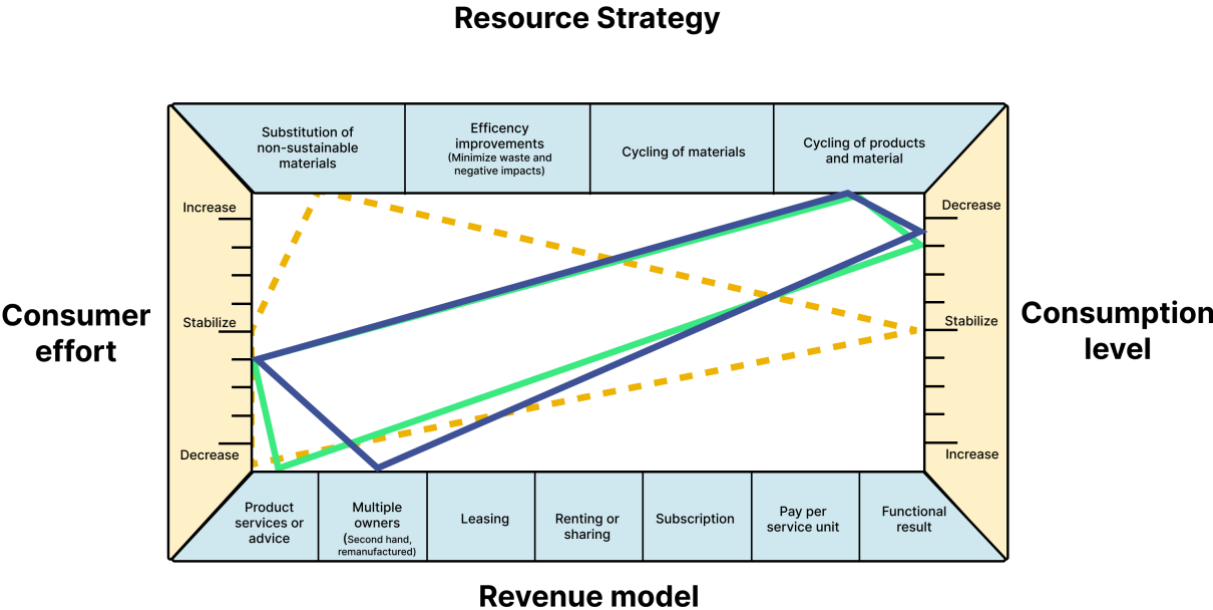


Figure 8 - Practice Summary, Forever Skis - Sustainable Consumption Business Model Framework (Tunn et al., 2019)



As depicted in the sustainable consumption figure, repressing and repair (represented by the blue and green lines, respectively) both exhibit a significant decrease in consumption level, with repressing having the largest decreasing impact. This is achieved together with a slight decrease in consumer effort, giving them a higher adaptability among the consumers. The practice of using recycled materials (represented by the yellow dotted line) was shown to not fit entirely in with the sustainable consumption framework. It exhibited a questionable impact on the consumption level with the possibility of a slight increase despite using a resource strategy of substituting for more sustainable materials.

## **4.2 Case 2 - ECO Outdoor**

### **4.2.1 Case information:**

ECO Outdoor was founded over a century ago with the goal of making the world's first highly functional backpack explicitly designed for hiking and outdoor activities. They have a rich history of making clothes for expeditions, hiking, and other outdoor activities. Their extensive product range includes backpacks, tents, sleeping bags, and technical clothing for skiing and the outdoors. The company has been considered a forerunner in circular practices, and they have actively provided valuable services such as repair facilities, second-hand sales, and rental options to promote a more sustainable approach. They have a revenue surpassing 500 million NOK and employ a team of 56 dedicated individuals.

### **4.2.2 Practice Descriptions**

#### **4.2.2.1 Practices Related to Narrowing Resource Flows**

*Reduce:* Regarding practices related to narrowing resource flows, ECO Outdoor has initiated several pilot projects to explore alternative materials that do not contain harmful chemicals. They described this as challenging since the material needs to keep the customers dry and secure a high level of functionality. They still use impregnation with perfluorinated compounds that take a long time to break down in nature. They hope there will be viable alternatives soon that could be as functional as today's material without using PFCs.

#### **4.2.2.2 Practices Related to Slowing Resource Flows**

### ***Practice 1 — Repair***

Repair plays a significant role in ECO Outdoors's business model and operations. Since its start, the company has offered repair services to its customers. It started with its backpacks, which could be sent back to the factory for repairs when it was in northern Norway. Although most of the production has moved abroad since then, ECO Outdoor kept some of the factory's sewing employees on board. Today they have a well-functioning sewing room with eight staff members dedicated to repairing today's products from customers at their head office.

The sewing room acts as a hub for the repair services and is a significant cornerstone in their circular approach:

*“Having a sewing room is a great advantage for us because it serves as the foundation for the other services we provide. We deal with used items, collecting and selling them. We also use the sewing room when we rent clothes out, which means it needs to pass through the sewing room from time to time.”* – Sustainable Officer, ECO Outdoor

However, offering the repair practice is challenging in terms of costs, repair taxes, and limited external support. Nevertheless, ECO Outdoor recognizes its importance and advantages in customer satisfaction and product development. The company aims to minimize the need for future repairs and enhance overall product quality by addressing issues discovered during repairs. Through their partner Norwegian Circularity Project, they have joined a project with three other brands to make a national repair center for clothing. While interviewing the Norwegian Circularity Project CEO, it was made clear that it recognizes ECO Outdoor's circular initiatives and their wish to collaborate.

### ***Practice 2 — Rental***

ECO Outdoor has explored and tested a range of rental and subscription models. Many of the products created by ECO Outdoor are designed for sporadic and occasional use rather than a year-round necessity. As a result, they describe their products as highly suitable for renting.

*“We create products that people essentially don't need to own. You might only need them once a year, such as for hunting. This makes our products suitable for rent”* – Sustainable Officer, ECO Outdoor

Rental partnerships with organizations like *Den Norske Turistforening* have been explored, focusing on locations where people frequently engage in outdoor activities. At locations like Gjendesheim, where tourists and locals enjoy mountain walks, they have successfully offered rented camping equipment and clothing. However, the rented equipment requires proper maintenance after use, including washing and repairs. Despite giving decent results, they acknowledge the necessity of a cultural shift in people's mindset and perception of renting gear to get more frequent rentals:

*"It's totally okay to rent a bowling school and sleep with bed sheets in hotels that have used ones, you know. Something needs to change when it comes to products like we deliver."* – Sustainable Officer, ECO Outdoor

One area where rental has shown more significant success is with children's clothing. Children quickly outgrow their clothes, making it impractical for parents to purchase new, expensive items continuously. By offering a subscription model, they provide a cost-effective solution for parents. Although they believed they had achieved a product-market fit for renting children's gear, the project was put on hold because they did not have the necessary infrastructure to handle the subscription-based orders and takebacks. However, they currently offer some rentals at their physical store in Oslo, providing a selection of clothing, backpacks, tents, sleeping bags, and footwear. However, finding suitable solutions for delivering and returning rented items remains challenging, especially when customers require them at short notice.

*"We need to explore efficient delivery and pick-up solutions, particularly by fostering collaborations with sports retailers. This would allow customers to conveniently pick up rented items from their local sports stores. However, for this model to be truly viable, it requires scalability. Renting out a jacket would need to be repeated 3, or 4 times before generating the same revenue as selling it brand new."* – Sustainable Officer, ECO Outdoor

To address this, they are actively seeking efficient delivery and pick-up solutions. Collaborating more closely with sporting goods chains and establishing local pick-up points could improve accessibility for customers. However, scaling these operations is crucial for rental to become as profitable as selling new items.

### ***Practice 3 — Resale***

ECO Outdoor has implemented a resale practice that involves a series of steps to ensure the quality of the pre-owned items they put out for sale. Initially, the items are cleaned in collaboration with their washing partners. After that, the items are sent to the sewing room for any necessary repairs or alterations. They are then labeled with a user tag before being made available for sale at a discounted price in their store in Oslo or through their online store.

The company recognizes the significant potential of the resale market, with internal projections indicating that second-hand sales may grow twice as fast as new sales. They closely monitor this market, acknowledging the economic benefits it can bring. While ECO Outdoor has observed a high demand for resale items in its store, they have limited resources and infrastructure for its “resale supply chain.” Their operations are primarily focused on their Oslo store, with a limited online presence. As a result, the process remains labor-intensive and small-scale. Despite this, they have witnessed a massive gain in popularity over the recent years, as the shelves quickly empty when stocked with pre-owned items. Previous experience of filling its Oslo store with pre-owned items was achieving the store’s daily turnover in just three hours.

Customers are drawn to the resale offerings as they perceive the opportunity to make a good deal while being more sustainable. An essential factor is that they trust that ECO Outdoor has thoroughly cleaned, repaired, and inspected the items before selling them. Although the company cannot guarantee the waterproofing of certain items, such as jackets with membranes, customers appreciate the overall quality and value provided.

However, their capacity limits the current operations, and they are not fully prepared for significant scaling. Nonetheless, ECO Outdoor continues to explore opportunities in the resale market, continuously striving to enhance its processes and expand its online presence in the future for more sales and volume.

*«While there's a considerable amount of work involved, we acknowledge that scaling up would require careful preparation. Although we haven't done resale online, we remain focused on our purpose and have the goal of scaling our resale operations. »* – Sustainable Officer, ECO Outdoor

#### **4.2.2.3 Practices Related to Closing Resource Flows**

ECO Outdoor prioritizes extending the lifespan of their clothes over recycling them, recognizing the tradeoff between sustainability and the chosen materials’ functionality. The

interviewee also argues that they have prioritized slowing resource loops because there are more possibilities with its existing business model in this area. Nevertheless, they monitor the industry and regulations closely regarding recycling and have opted to use some recycled polyester, down, and wool in their products. While they have incorporated PET(Plastic) from bottles into some of their polyester clothing, obtaining these bottles from companies like Coca-Cola has proven costly and challenging due to competition. ECO Outdoor eagerly awaits developments from the European Union and the industry, hoping for advancements in sustainable “closing” practices. Furthermore, they strive to minimize the use of raw oil in their clothing production, demonstrating their commitment to reducing environmental impact.

## **4.2.3 Relation to Sustainable Circular Business Models**

### **4.2.3.1 Practice 1 — Repair**

#### ***ECONOMICAL SUSTAINABILITY***

The profitability of repairs varies across different models, making it a challenging aspect of their operations. The costs associated with the repair, such as labor and facilities, pose significant financial hurdles. Additionally, Norwegian wages are higher compared to production locations like Vietnam. Furthermore, ECO Outdoor maintains various sewing machines, including filling and one-armed sewing machines, adding to the expenses. It is hard for the interviewer to give exact financial calculations around their repair service, and a thorough evaluation of the financial implications has yet to be conducted. However, the repair service is described as a future possibility for profit. It is strongly believed by the interviewer to be an essential cornerstone for the rest of the circular practices.

#### ***SOCIAL SUSTAINABILITY***

By offering repair options, the company creates employment opportunities in Norway and provides fair wages and a favorable work environment for its employees. While many traditional linear business models in the outdoor gear industry have shifted their production overseas, ECO Outdoor has retained and attracted skilled workers to their repair services, contributing to local job creation. ECO Outdoor emphasizes repair services and demonstrates its commitment to social sustainability by supporting local employment, promoting job stability, and fostering positive customer relationships.

## ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION

The company promotes more sustainable use of resources by offering repair services. Instead of discarding and replacing products, customers have the option to repair and continue using them, reducing the environmental impact associated with manufacturing new items. In the context of sustainable consumption, ECO Outdoor's focus on repair services aligns with the principles of decreasing waste and overall consumption levels. As shown in Figure 9, ECO Outdoor offers product services through repairs(a). Since customers can repair instead of buying new products, the consumption level decrease(b). The repair is done by sewers at ECO Outdoor by cycling materials/products(c). Repair is either sent by mail or delivered to their store in Oslo, making it easily accessible and more convenient than doing the repair itself or buying new products (d).

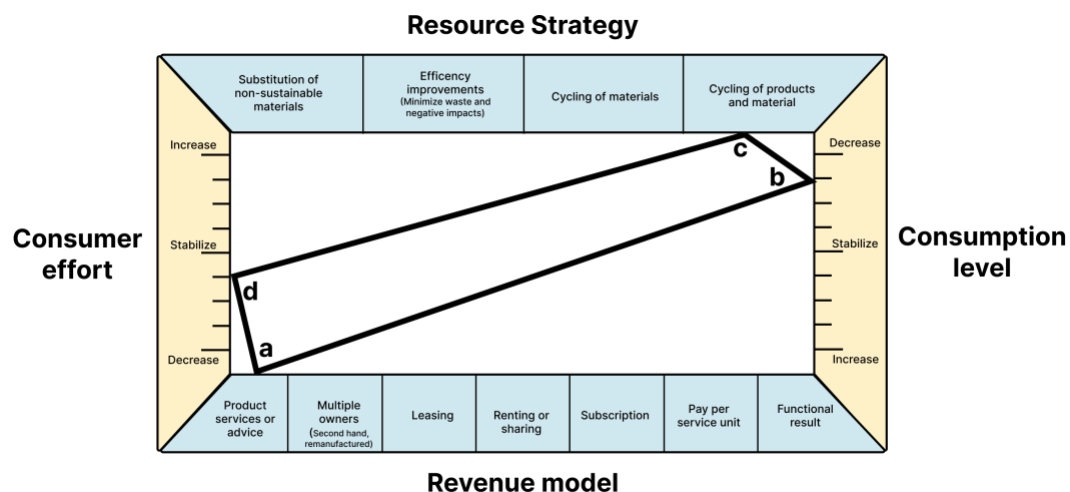


Figure 9 - Repair, ECO Outdoor - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

### 4.2.3.2 Practice 2 — Rental

## ECONOMICAL SUSTAINABILITY

ECO Outdoor acknowledges the financial challenges of the rental model, such as the need for a high volume of rentals and proper maintenance to ensure profitability. Exploring rental partnerships with sports retailers and establishing efficient delivery and pick-up solutions are part of the company's strategy to scale the rental operations and improve financial viability.

Based on their calculations and consultations with DNT, multiple rentals (e.g., renting a jacket three or four times) can yield comparable earnings to selling a new item. Currently, ECO Outdoor has yet to achieve profitability with its rental initiatives. However, they firmly believe that as the volume of rentals increases, there are significant opportunities for future profitability. They remain optimistic about the potential success of their rental model as it gains traction and attracts more customers.

**SOCIAL SUSTAINABILITY**

Collaborating with organizations like *Den Norske Turistforening* and offering rental services at locations like Gjendesheim fosters community engagement and supports outdoor activities for tourists and locals. Rental options provided by ECO Outdoor also offer a cost-effective solution for customers, particularly regarding children’s gear. Parents can save money by subscribing to rental services instead of continuously purchasing items their children quickly outgrow.

**ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION**

Renting products instead of privately owning them reduces consumption and promotes more sustainable resource usage. ECO Outdoor’s focus on renting extends the product’s lifecycle and reduces the environmental impact of producing new products. To summarize, ECO Outdoor’s exploration of rental practices reflects its dedication to reducing consumption. By offering rental options, they reduce waste, promote resource efficiency, and provide cost-effective solutions for their customers. They acknowledge the need for a cultural shift, continue to seek efficient delivery solutions and strive for scalability to ensure the long-term success of their rental initiatives.

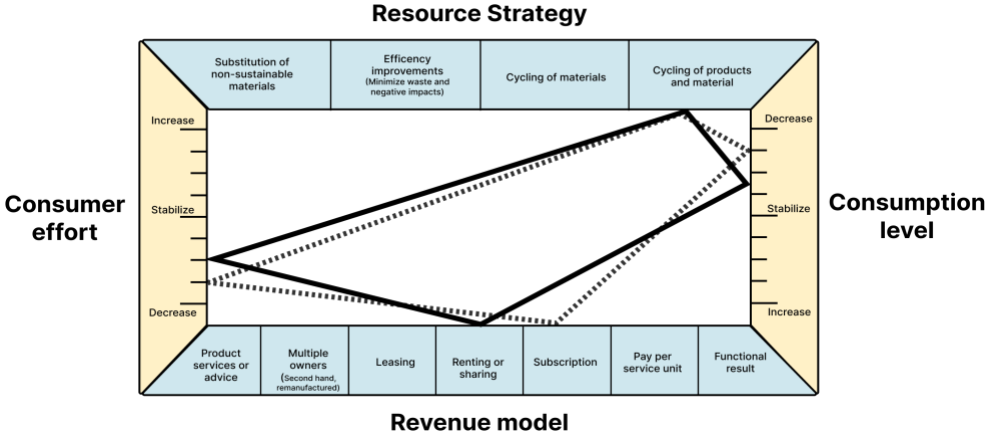


Figure 10 - Rentals, ECO Outdoor - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

As shown in Figure 10, ECO Outdoor offers two distinct renting models. The dotted line represents their subscription model for children's clothing, allowing customers to access a continuous supply of age-appropriate gear. On the other hand, the solid line represents their traditional renting approach available at selected locations and their Oslo store. These two models cater to different needs and preferences, providing flexibility and convenience for a diverse range of customers, decreasing overall consumer effort. Since people can rent products, they do not use on a regular basis, instead of owning, the overall consumption level decrease.

#### **4.2.3.3 — Practice 3 - Resale**

##### ***ECONOMICAL SUSTAINABILITY***

While ECO Outdoor has different challenges and infrastructure requirements for scaling up its resale operations, they recognize the potential for financial viability. The popularity of their resale offerings indicates a market demand for pre-owned outdoor gear. By building on this operation and demand, ECO Outdoor can generate revenue and potentially improve its financial performance in the future. The resale practice presents an opportunity to diversify its business model and capture a share of the growing secondhand market.

##### ***SOCIAL SUSTAINABILITY***

ECO Outdoor's resale practice contributes to social sustainability by offering affordable options to consumers. By providing pre-owned outdoor gear, they enable individuals and families to access high-quality outdoor products at reduced prices. This benefits customers who may have budget constraints or prioritize sustainability in their purchasing decisions. Additionally, the resale practice promotes circular economy principles, encouraging a shift in consumer mindset towards reuse and reducing waste.

##### ***ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION***

The resale practice significantly reduces the environmental footprint associated with outdoor gear production. By extending the lifespan of products through resale, ECO Outdoor helps reduce the demand for new manufacturing and the extraction of raw materials. This approach conserves natural resources, minimizes energy consumption, and reduces greenhouse gas emissions. Additionally, by properly cleaning and repairing items before resale, they ensure



that the products are in good condition, promoting their longevity and reducing the overall environmental impact.

ECO Outdoor’s resale practice promotes a more sustainable approach to consumption by extending the lifecycle of outdoor gear. Rather than buying new products, consumers can purchase pre-owned items that still serve their intended purpose. This reduces the need for new production, mitigates resource depletion, and minimizes waste. By embracing the resale option, consumers can actively participate in reducing their environmental footprint. Since they only offer resale at their physical store in Oslo and only have tested an online model a few times, they have not yet made it easier for the consumer to buy used clothing than new ones. Therefore, consumer effort will be the same as going to their physical store and buying a new product.

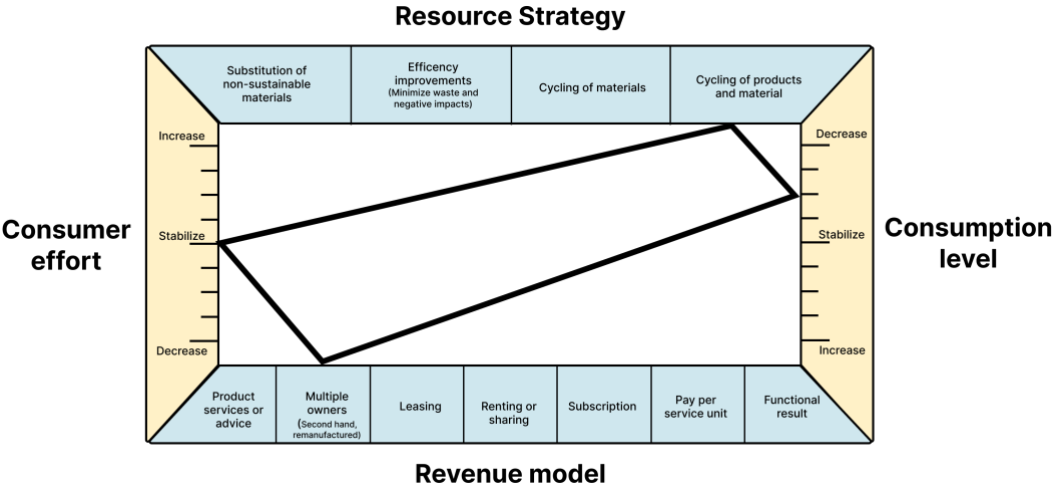


Figure 11 - Resale, ECO Outdoor - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

### 4.2.4 Case summary

ECO Outdoor practices contribute to environmental, social, and financial sustainability. Extending product lifespan through repair, rental, and resale reduces the need for new manufacturing, conserves resources, and reduces consumption. These practices support local employment, create job opportunities, and provide fair wages.

**Repair** is a significant aspect and cornerstone of their circular business model, with a dedicated sewing room and skilled staff. They also believe repair services help build customer relationships, gather insights into product wear and tear, and reduce the need for future repairs. ECO Outdoor has also tested **rental and subscription models** for sporadically used products, such as children’s clothes and outdoor equipment. While facing challenges in delivery and

scalability, they see rental options as a cost-effective solution to reduce consumption. **Resale** is another practice implemented by ECO Outdoor, refurbishing and selling pre-owned items in their store. They recognize the potential growth of the resale market and the economic benefits it can bring, but they will need better infrastructure to scale. ECO Outdoor’s circular practices align with principles of sustainable consumption by reducing waste, promoting resource efficiency, and offering cost-effective alternatives to buying new products.

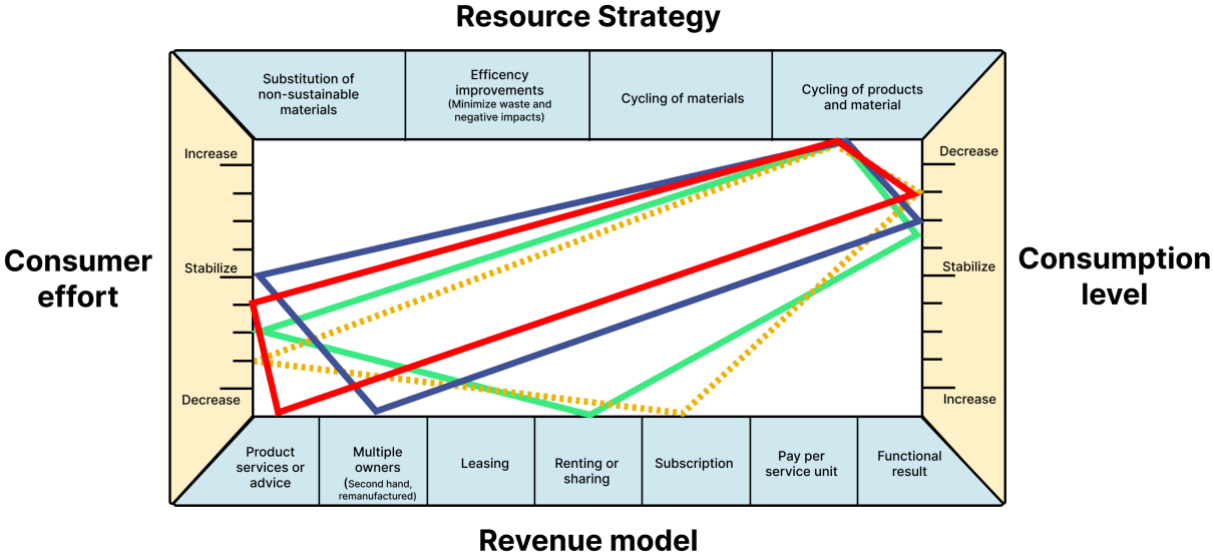


Figure 12 - Practice summary, ECO Outdoor - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

The sustainable consumption figure shows that the rental and subscription models (represented by the yellow and green lines) show the most significant reduction in consumer effort. The lower consumer effort suggests a higher demand and easier accessibility for customers, increasing the possibility of the practice being successful. On the other hand, the blue line represents the resale model, which decreases consumption but does not necessarily make it more convenient for consumers to choose this option. Finally, the red line represents their repair service, which contributes to sustainable consumption but may not provide the same level of ease for customers as the rental and subscription models.

## 4.3 Case 3 – Limitless Gear

### 4.3.1 Case Information:

Founded in Norway in 2006, Limitless Gear set out on a mission to create high-quality bags and products for special operation forces and outdoor expedition specialists. Initially, The company focused on developing bags designed to meet the demands of diverse environments, ranging from maritime operations to challenging expeditions in the Arctic. After years they have developed sleeping bags, backpacks, and clothing with uncompromised functionality. One notable aspect of Limitless Gear is its strong affiliation with the military. The co-founders themselves are veterans, bringing their firsthand experience and expertise to the company.

The core of Limitless Gear's product development and operations revolves around prioritizing functionality and durability. They place significant emphasis on ensuring that their gear is reliable and functional, understanding the critical role their products play in demanding situations. They offer both repairs and resale through their partner Resalable. Currently, Limitless Gear employs four full-time employees who drive the company's operations. Their revenue has exceeded an impressive 3.4 million NOK, indicating the company's growth and its success in catering to a specialized market.

### 4.3.2 Practice Descriptions

#### 4.3.2.1 Practices Related to Narrowing Resource Flows

**Reduce:** Currently, Limitless Gear are focusing on packaging and exploring alternative methods to reduce the use of plastic. Their goal is to create a sustainable system where the packaging can accompany the customer or the products from the factory to their final destination. The packaging is an area that they are actively working on and believe that there is great potential for improvement in this aspect.

#### 4.3.2.1 Practices Related to Slowing Resource Flows

##### *Practice 1 – Repair*

Limitless Gear started its repair program by collaborating with the company Resalable in 2021. In order to understand how they operate their repair practice, we will give a short introduction

to Resalable. Resalable is a Norwegian start-up founded in 2020 focusing on developing the technology and design for the repair and reuse concepts. In doing this, they have designed a “re-commerce” platform for handling repair and resale online, aiming to create a white-label service that aligns with the brand’s identity.

*“We offer end-to-end solutions from the initial concept to the final implementation for circular practices. With our platform, you will have the tools and resources necessary to successfully run your own repair and resale program.” – CPO, Resalable*

They handle the entire process of repairing and reselling products on behalf of the brands. The practices are offered through a separate online website with a unique spin-off brand. Resalable works as a software-as-a-service model where customers pay a monthly fee to use their re-commerce platform. The company emphasizes neutrality and acts as a third-party service provider, handling repairs and receiving payment from the brands.

*“We are completely neutral when it comes to how we do our work. This is essential to our partners because they are competitive and do not want other brands to get insights on their product development and next years collection” – CPO, Resalable*

Limitless Gear recognizes the benefits of participating in a program like Resalable offers, where they can get components repaired and resell products that are no longer needed from their customers to other customers. Small companies like Limitless Gear have limited resources and infrastructure for processes like repair. They have therefore outsourced a large part of the process to Resalable. They note that there were more sewing rooms available for repairs in the past, but now there are fewer, making it more difficult for a small company to handle the repairs. They understand that the logistics involved in sending products back and forth for repairs, which Resalable addresses, are necessary for the success of such a system.

*“Utilizing an existing repair system offers the potential for profitability, while developing our own system would have been an economic disaster.” - Co-Founder, Limitless Gear*

They emphasize the importance of ensuring that the quality of repairs is good when Resalable takes responsibility for the repairs, as it reflects on the brand’s reputation. They believe it is more practical for specialized repair businesses to handle the repairs due to the limited number of repairs they require. They mention the specialized equipment and training needed for repairing waterproof bags and zippers. They conclude that while Resalable handles the repairs,

it is crucial for the brand to maintain a level of quality and association with the repairs, even if performed by a different party.

### ***Practice 2 – Resale***

Limitless Gear has, as explained above, partnered with Resalable to manage its resale program. They have received positive feedback from customers who appreciate their initiative and prefer purchasing pre-owned items. Still, Limitless Gear has encountered challenges in terms of low product trade-ins. Additionally, Limitless-Gear has made efforts to establish collaborations with its professional customers, such as the military, who currently lack a system in place. By implementing circular practices like resale within institutions like the military, they see significant potential for themselves and Resalable. By onboarding public actors, they can achieve higher volume and attention for their resale program. The Co-Founder further states:

*“Even if the bags have some scratches. They can still be utilized in society. They don’t need to be confined to an institution; they still have significance.”* - Co-Founder, Limitless Gear

Limitless Gear is further considering adding insignias on the bags to further evolve their resale offer, with the history from the previous owner. Stories like what expeditions the bag has been a part of or where it has traveled. These insignias would likely give their resale products more historical significance and increased emotional durability.

## **4.3.3 Relation to Sustainable Circular Business Models**

### **4.1.3.1 Practice 1 - Repair**

#### ***ECONOMICAL SUSTAINABILITY***

Engaging with existing repair systems proves to be a more financially viable option for Limitless Gear. By leveraging established platforms like Resalable, they avoid the significant costs associated with developing and maintaining their own repair infrastructure. This approach allows them to allocate their resources more effectively, focusing on their core competencies and maintaining profitability. Due to low usage, they still do not know if it is financially viable in the long term.

#### ***SOCIAL SUSTAINABILITY***

Their Repair programs support local societies by collaborating with specialized repair businesses, creating employment opportunities within communities. By offering repair services, they contribute to a culture of responsible consumption and provide an alternative to discarding products. The repair service not only extends the lifespan of their products but also allows customers to continue using them, fostering a sense of value and satisfaction.

**ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION**

Limitless Gear’s involvement in repair programs aligns with its commitment to reducing environmental impact. This approach reduces waste generation, energy consumption, and greenhouse gas emissions associated with production and disposal. Limitless Gear actively contributes to a more sustainable and circular economy by embracing repair as a solution.

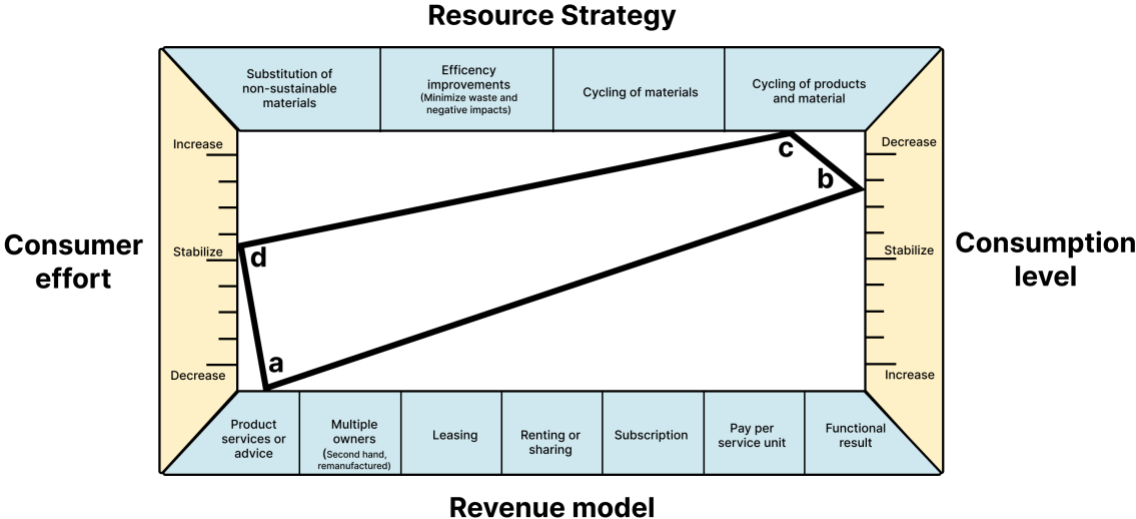


Figure 13 - Repair, Limitless Gear - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

Limitless Gear’s repair promotes sustainable consumption by reducing overall consumption as depicted in the figure above. However, one potential challenge is that the repair service is offered through a separate website with its own branding. This may require consumers to invest more effort in locating the service compared to a more integrated system.

**4.1.3.2 Practice 2 - Resale**

**ECONOMICAL SUSTAINABILITY**

The resale program opens a secondary market for their products, providing an additional revenue stream for Limitless Gear and Resalable. Limitless Gear can leverage the resale

program to attract new customers interested in purchasing pre-owned equipment at a lower cost, expanding their customer base and potentially increasing sales. With this said, they currently need more volume to find it profitable, but with the possibility of onboarding public actors, they could make it profitable.

**SOCIAL SUSTAINABILITY**

By facilitating the resale of their products, Limitless Gear promotes accessibility to affordable gear, allowing individuals with limited resources to buy. The resale program also employs people working with the practice.

**ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION**

The resale program contributes to a more sustainable approach to consumption by promoting the reuse and circulation of sports equipment, reducing the need for new production.

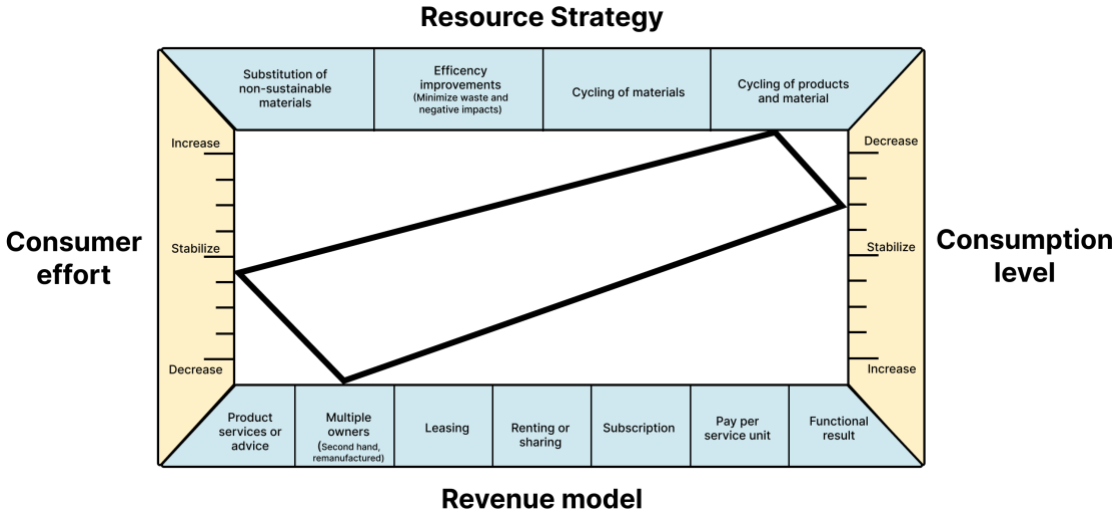


Figure 14 - Resale, Limitless Gear - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

The resale program reduces consumption since consumers can buy used products verified by Limitless Gear. Consumers get to actively participate in reducing the demand for new production, thereby conserving resources and minimizing the environmental footprint associated with manufacturing. Resalable helps with potential repairs before launching the product on its resale platform. The resale program simplifies the process for consumers to sell their used Limitless Gear products, to Limitless Gear, compared to selling them themselves.

Overall, Limitless Gear’s resale program aligns with sustainable consumption principles by promoting the reuse of sports equipment and reducing the need for new production. It also minimizes consumer effort by providing an accessible platform for buying and selling, making sustainable choices more convenient and appealing to a broader range of consumers.

### 4.3.4 Case Summary

Limitless Gear specializes in high-quality bags and products for special operation forces and outdoor specialists and has implemented **repair** and **resale** programs in collaboration with Resalable. From an economic standpoint, engaging with existing repair systems, such as Resalable, is a financially viable option for Limitless Gear. It allows them to allocate resources effectively, focusing on their core competencies while maintaining profitability. The resale program opens a secondary market for their products, generating additional revenue streams. At the same time, as attracting new customers interested in purchasing pre-owned equipment at a lower cost. Furthermore, regarding the environmental perspective, the repair and resale programs contribute to sustainable consumption practices. However, it is worth noting that the repair program’s (red line) effectiveness may require consumer effort as it is offered through a different website with a spin-off branding. This spin-off may pose a challenge in locating and repairing products compared to a more integrated system. Nonetheless, the resale (blue line) program simplifies the process for consumers by providing a centralized platform for buying and selling used or circular products.

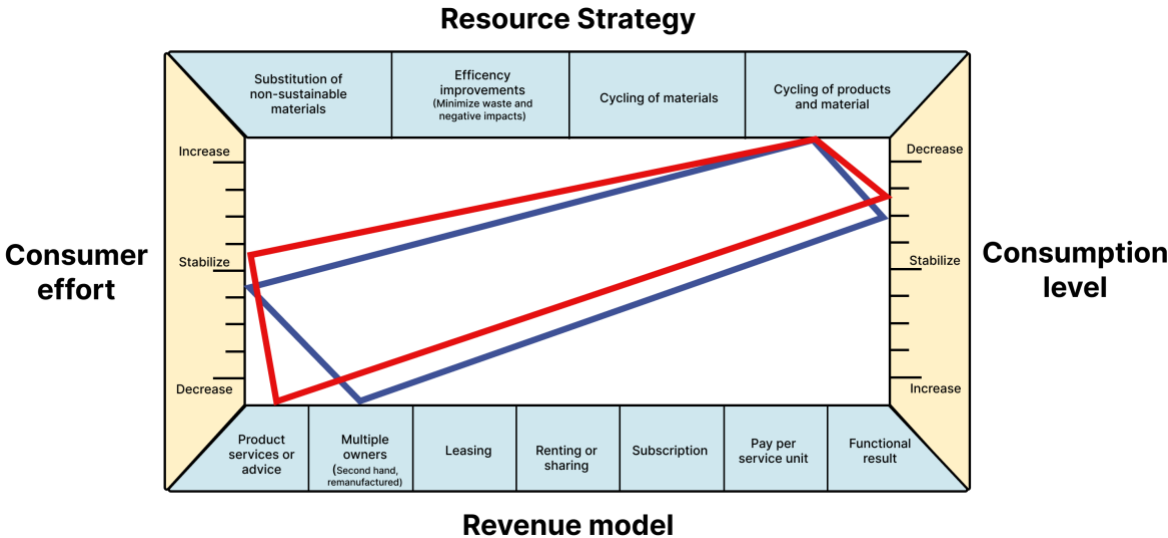


Figure 15 - Practice summary, Limitless Gear - Sustainable Consumption Business Model Framework (Tunn et al., 2019)



Overall, Limitless Gear's practice of repair and resale relates to sustainable consumption principles, contribute to the triple bottom line, and supports its commitment to reducing environmental impact while adding social and economic value to its business model.

## **4.4 Case 4 – High Alpine**

### **4.4.1 Case Information**

High Alpine is a Norwegian high-end ski and golf clothing brand that creates functional and timeless outfits for skiing and golfing enthusiasts. Founded in 2000, High Alpine started its journey with a small ski collection and quickly established strategic partnerships with top-tier retailers to showcase the technical benefits of its products. Today they offer a wide variety of clothing and accessories for skiing, golfing, and lifestyle.

In 2019, High Alpine caught the attention of an American company within the same industry, leading to its acquisition. Despite this acquisition, the brand maintains its roots in Oslo, where it has retained its offices and continues to thrive. High Alpine recognized the importance of minimizing its environmental footprint and has tried to find innovative solutions to achieve this goal. One significant step they took was establishing a collaboration with Resalable for the repair and resale of its products.

### **4.4.2 Practice Descriptions**

#### **4.4.2.1 Practices Related to Narrowing Resource Flows**

*Reduce:* High Alpine emphasizes the significant issue of overproduction within the industry. They aim to ensure that no clothing goes to waste, and as a result, they have never discarded any garments. In addition to its commitment to reducing overproduction, High Alpine strategically has all its production in Europe. They view Europe as a more favorable option in terms of resource utilization for their manufacturing process.

#### **4.4.2.2 Practices Related to Slowing Resource Flows**

##### ***Practice 1 - Repair***

High Alpine recognizes that its products used in outdoor environments may experience wear and tear over time. To address this, they offer a repair service through Resalable in line with Limitless Gear. Customers can have their jackets or other items repaired through the repair service. The informant from High Alpine acknowledges that a jacket may lose some of its original functionality after a repair. However, they highlight an essential aspect that the average consumer may not necessarily require the extreme level of functionality as expedition-grade clothing. As a result, they also offer repair kits in Norway. Repair kits allow customers easy access to repair and reduce the need for items to be sent to distant locations for repairs. They also work with Resalable, which strives to make a local network of sewers in different parts of Norway that can repair their products to reduce logistics. The CPO of Resalable talked about this network in the interview.

*“Why can’t we just send the sweater that need to be fixed to the closest sewer? We want to easily connect with a local network of sewers determine where the sweater should be sent for repair. Then, you can choose the nearest repair center with the appropriate certification to handle that type of damage, ensuring the shortest possible route for the sweater.”* – CPO, Resalable

### ***Practice 2 - Resale***

In line with Limitless Gear, High Alpine lets Resalable handle its resale and collection of pre-owned products. They feel that they need a third party to handle this for them because of the infrastructure needed. They also believe it is essential for the provider to be neutral because of intense competition between the brands.

*“We feel that it is critical to have third parties that initiate these platforms. We have talked to many other brands, also some larger ones, and they are afraid of their competitive situation as well.”* – Co-founder, High Alpine

During our conversation, the interviewee also expressed concerns about potential trade-offs associated with resale practices. One of the challenges highlighted was the need to send clothing items through various channels, from repair to sales. This process involves logistical complexities and may result in additional transportation and handling, which can have environmental implications.

## 4.4.3 Relation to Sustainable Circular Business Models

### 4.4.3.1 Practice 1 - Repair

#### *ECONOMICAL SUSTAINABILITY*

Engaging with existing repair systems proves to be a more financially viable option for High Alpine. By leveraging established platforms like Resalable, they avoid the high costs of developing and maintaining a repair infrastructure. They have so far repaired around 20-25 pieces, and the volume is still too low to make it profitable.

#### *SOCIAL SUSTAINABILITY*

High Alpine Repair program supports local societies by collaborating with specialized repair businesses, creating employment opportunities within communities.

#### *ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION*

High Alpine involvement in repair programs aligns with its commitment to reducing environmental impact. This approach reduces waste generation, energy consumption, and greenhouse gas emissions associated with production and disposal. High Alpine's involvement in repair programs and repair kits supports sustainable consumption by empowering consumers to make conscious choices and actively participate in efforts to reduce waste and extend product lifespans. However, one potential challenge in line with Limitless Gear is the potential increase in consumer effort from the spin-off brand. These effects are depicted in the figure below.

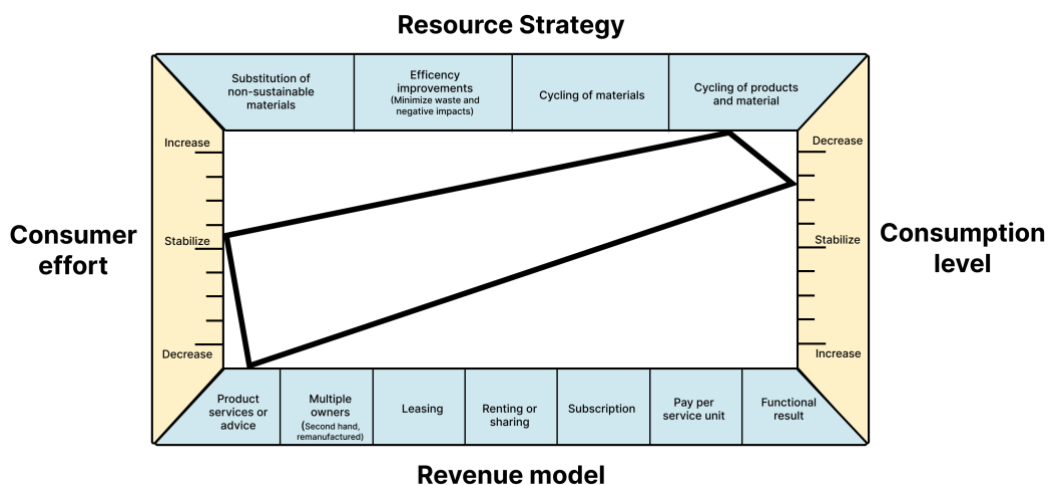


Figure 16 - Repair, High Alpine - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

#### 4.4.3.2 Practice 2 - Resale

##### *ECONOMICAL SUSTAINABILITY*

The resale program opens a secondary market for their products, providing an additional revenue stream for High Alpine and Resalable. They currently need more volume to find it profitable, with only 40-50 pieces resold.

##### *SOCIAL SUSTAINABILITY*

By facilitating the resale of its products, High Alpine promotes accessibility to affordable gear, allowing individuals with limited resources to buy high-end outdoor products.

##### *ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION*

The resale program contributes to a more sustainable approach to consumption by promoting the reuse and circulation of sports equipment, reducing the need for new production.

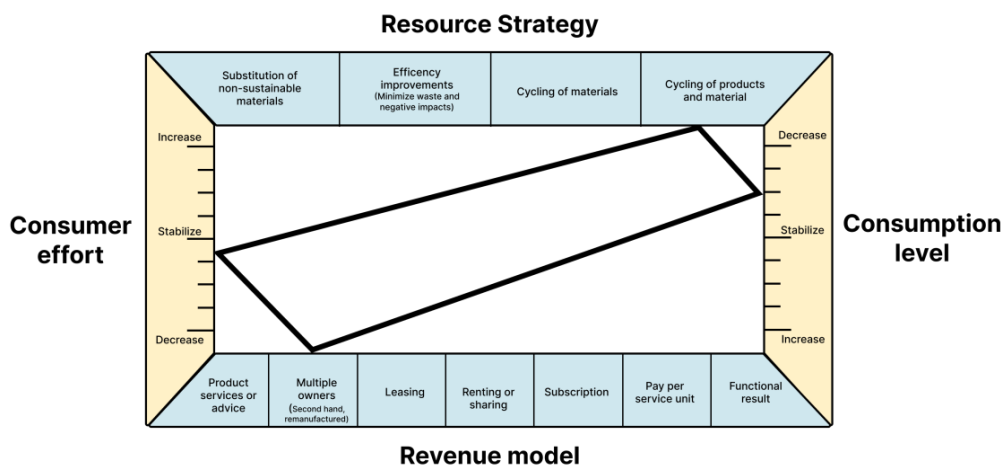


Figure 17 - Resale, High Alpine - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

The resale program has the same environmental impact as Limitless Gear's resale practice.

#### 4.4.4 Case Summary

High Alpine offers various high-end skiing, golfing, and lifestyle products. It has recognized the industry's overproduction issue and strives to minimize waste. It has chosen an all-European production, repair kits, and a collaboration with Resalable for **repair** and **resale** in line with Limitless Gear on the way to its goal.

With 40-50 resold products yet, and 20-25 repairs initiated, High Alpine needs a higher frequency to see significant profits. High Alpine can, in line with Limitless Gear, skip out on the high costs of offering in-house repairs. Relying on the same partner for resale and repair, the impact on the triple bottom line and sustainable consumption stays much the same as Limitless Gear. This is illustrated in the figure below with repair represented by the yellow line and resale by the green.

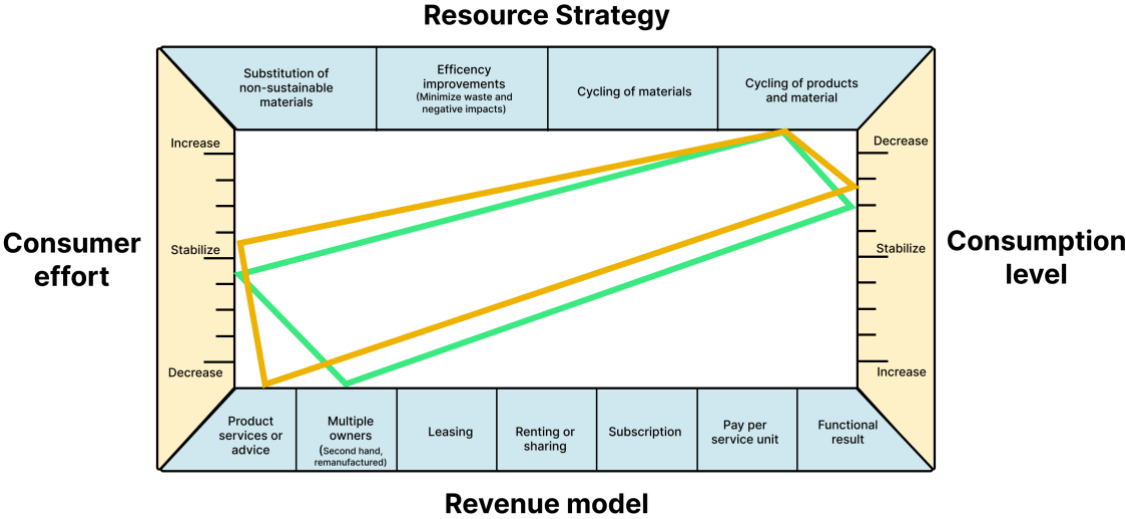


Figure 18 – Practice summary, High Alpine - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

## 4.5 Case 5 – Nordic Endurance

### 4.5.1 Case Information:

For almost 50 years, Nordic Endurance has made specialized technical sports apparel for a small range of endurance sports disciplines. Starting with orientation 47 years ago, which has now evolved into five main sports disciplines, including orientation, running, biking, skiing, and triathlon. The company operates primarily in the Scandinavian market and produces most of its products in its factory in Estonia. All orders are made to order and primarily include customization for the customer. This is because their primary market is B2B, with sports clubs, organizations, and businesses ordering sportswear and uniforms with their own logos and design. They have a minimum order quantity of 5 products for their customized sports apparel.

However, consumers can order smaller non-customized orders from Nordic Endurance's website or brand stores at their facilities in Norway and Estonia.

With an annual turnover of around 35 million NOKs, 700 monthly orders, and just short of 30 employees, Nordic Endurance has grown into an essential player in the B2B segment of technical sports apparel. They state to have a high focus on sustainability and have initiated several initiatives over the last years. They are a member of a Norwegian trade organization for ethical and sustainable trade, delivering yearly sustainability reports.

## **4.5.2 Practice Descriptions**

### **4.5.2.1 Practices related to Narrowing Resource Flows**

**Reduce:** One of the major sustainability focuses for Nordic Endurance is the practice of reducing waste, materials, and energy where they can. Products are made to demand, making the process of eliminating excess storage and waste simpler.

*“Our rig is very friendly as we are, after all, made on demand. We do not stock a very large volume. We do not make finished goods until they have been purchased by the end customer, and we also have our production in Estonia, so it is a short way to the market, which is located mainly in Scandinavia as of today.”* – Development and Design Manager, Nordic Endurance

In the sustainability report (2021), it is reported that all packaging and production waste is recycled except for contaminated packaging and textile waste. Throughout 2021, many changes were made to minimize waste, achieving significant results for multiple types of waste, which were presented in the sustainability report. This focus is not only on minimizing waste but also minimizing the production inputs needed for production. From the interview, the informant brought forth one of these reductions to light.

*“We tried to reduce the paper we use to print our products with a few years ago, then we reduced the thickness of them, and then we actually cut the consumption of paper by 50%. That is an example of such strange things that are a bit funny when you start turning over stone for stone.”* – Development and Design Manager, Nordic Endurance

### **4.5.2.2 Practices related to Slowing Resource Flows**

### ***Practice 1 - Repair Service***

Nordic Endurance is currently in the process of launching a repair service at its factory in Estonia. The repair service will be its first practice meant to slow the flow of resources after looking into the possibilities for rental and resale models but ruling them out for the time being. As the repair service is currently being launched, it is not operational yet, but the repair service is meant to get a dedicated sewing line at their factory in Estonia. This will enable them to repair broken garments for their customers, but also open for other possibilities, as stated by the development and design manager during the interview:

*“But what's fun about it being club products is that it's printed in your own design. So say, for example, if you have scratched up one arm for example and got a hole, then we also have the option to, for example, only replace one panel. Because we have the design file, so we can print a new one and then you can replace only that and then get a repaired product back. It is also the case that we work a lot with clubs that have sponsors and such, and it is a matter of course where you change some of the sponsors, and then there is also the possibility of changing, perhaps only the panel where the sponsors will be on, if the product is still in good condition. And that you can then send in an older product and then get an updated product back without necessarily having to buy a completely new product.”*– Development and Design Manager, Nordic Endurance

#### **4.5.2.3 Practices related to Closing Resource Flows**

##### ***Practice 2 — Using Recycled Materials***

As a measure to close resource flows Nordic Endurance has implemented the practice of using recycled materials in their production, and primarily then the use of recycled polyester.

*“We use recycled materials. It is part of step one towards circularity in a way. The point is that we must replace where we can, so we replace the materials. After all, we are mainly a polyester company. We make highly technical products that are printable, and to have the best quality and durability, it must be polyester or have a high percentage of polyester in our products. So in that sense, we see that there is a risk with us, and to reduce it the first step is to switch from virgin polyester to recycled.”*– Development and Design Manager, Nordic Endurance

The risk that the informant is here referring to is stated in the sustainability reports (2021,2022) to be an environmental risk because polyester is a non-degradable material. Their goal is, therefore, to minimize the use of virgin polyester and phase out virgin polyester in its entirety by 2030. From the public sustainability report (2021), the percentage of recycled fabrics in the product line was stated to be 38%. However, it was stated in the interview to have risen to around 44% as of 2022, which is also confirmed in the yet-to-be-released sustainability report (2022).

### **4.5.3 Relation to Sustainable Circular Business Models**

#### **4.5.3.1 Practice 1 —Repair Service**

##### ***ECONOMICAL SUSTAINABILITY***

The economic sustainability of Nordic Endurance’s repair services has multiple angles. Firstly, the cost associated with having a dedicated sewing line for repairs could prove quite costly compared to the repair service’s income, depending on the level of paid repairs they receive. The sewing line takes up dedicated space and employees, which could be used for other value-adding services. The profitability of the repair service thereby comes down to how big the demand for paid repairs is.

However, even if the repair service proves to be unprofitable in itself at the start, it could still add significant economic value to the business model. By launching this repair service with the possibility to switch out single panels after sponsor change or damages, the buyer can look at the product more as an investment than a pure consumption, as they can easily alter or repair the products on a regular basis, thereby postponing the next time that they need to buy brand new products. This could result in some consumers picking Nordic Endurance over the competitors because of their competitive advantage. It could also lower the price sensitivity for Nordic Endurance’s products and could let them price themselves higher than their competitors without losing sales.

However, the result of companies only altering their products when changing sponsors will mean that the clubs and organizations that change sponsors frequently, and thereby change uniforms frequently, will no longer need to buy brand-new products as frequently. When they can switch to a single panel for a lower price, there is no need to spend extra on new products



if the old ones still work. Nordic Endurance will thereby possibly lose out on significant revenue from selling new products to its repeat customers.

The complete economic impact of the repair service is challenging to assess, as it could be value-adding on some levels but value-subtracting on others. As the repair service is yet to be completely launched, these answers are difficult to conclude.

### ***SOCIAL SUSTAINABILITY***

The social impact of Nordic Endurance’s repair service breaks down to the impact of increased job opportunities with fair wages at their factory in Estonia. It is also contributing to community engagement with their club customers.

### ***ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION***

Nordic Endurance’s launch of a repair service results in the possibility of the sold garments and products staying in circulation for longer, thus slowing the flow of resources through the loop. Broken products can easily be fixed, even customized products where the logos have gotten torn off because of the design files that Nordic Endurance possesses. With the possibility to change single panels after sponsor changes, this will likely reduce the need to buy brand-new uniforms as frequently. The consumption level is thereby likely to decrease, as shown in point (b) in the sustainable consumption figure below. This is achieved using the resource strategy of cycling products and materials (c) as single panels can be exchanged and a revenue model of product service (a).

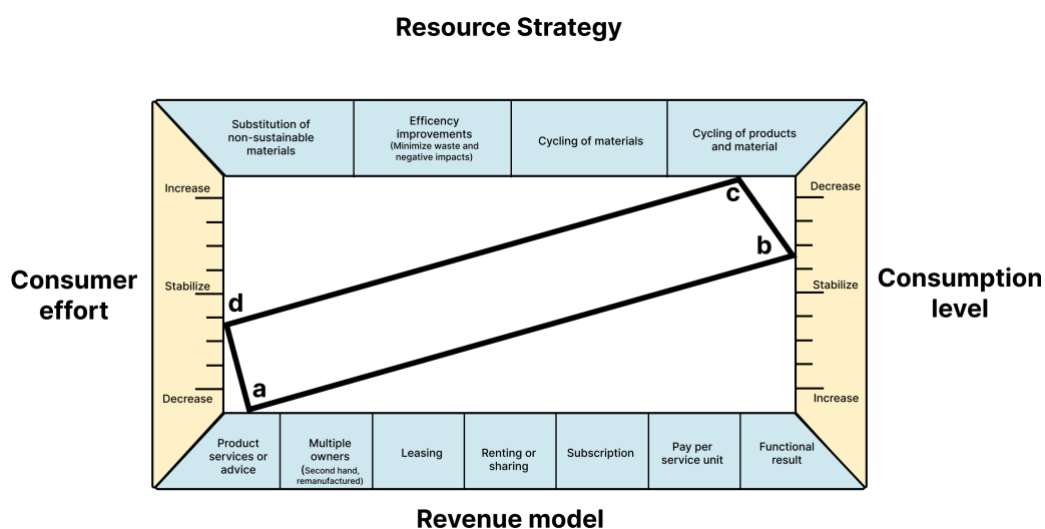


Figure 19 - Repair, Nordic Endurance- Sustainable Consumption Business Model Framework (Tunn et al., 2019)

As the customers can quickly deliver the products they need to have altered or repaired directly to Nordic Endurance and have them returned for a lower price than a new product, the consumer effort can be argued to decrease (d). Nordic Endurance handles the design files and the repairs with little thought or expense needed from the customer, making it an arguably more convenient option than buying new. From the process of analyzing the environmental sustainability based on the social consumption framework, it is therefore considered likely that the practice will create environmental value for the business model.

#### **4.5.3.2 Practice 2 – Using Recycled Materials**

##### ***ECONOMICAL SUSTAINABILITY***

The switch from virgin polyester to recycled polyester includes a significant increase in material cost.

*“There is, after all, a roughly 15% increase in the price of the material when you switch to recycled, and it is a cost that we have swallowed as a company and that we have not passed on to the customers.”* – Development and Design Manager, Nordic Endurance

Since the increased cost does not pass onto the price given to their customer, the margin for Nordic Endurance is declining when switching to recycled polyester. So, by itself the economic impact is a loss in profit. However, by switching to recycled polyester, and being able to show to a percentage of recycled polyester in their products can be appealing for many customers. As the primary market is B2B, the businesses decision making in what uniforms to buy can reflect onto the entire business. Like some sports clubs might want uniforms that match their vision on sustainability, while some bigger companies have ESG goals and carbon footprints to consider. Switching to recycled polyester might therefore make these customers chose Nordic Endurance over their customers, leading to increased sales.

*“There are some large companies where we have to fill in certain forms before we can be approved as a supplier with them. Which is essentially exactly the same thing we do for our suppliers. That they must sign a code of conduct for us so that we can work with them. So then we see that some particularly large companies do it and can send us requests such as what this product contains and the like. So, we are seeing an increase in those requests.”*

–Development and Design Manager, Nordic Endurance

So Nordic Endurance is definitely noticing a demand for their recycled polyester products, and is likely to land more sales because of it. However, the informant stated that this did not mean they could increase their prices.

“We notice that it is appreciated and that it is also in demand. That they ask about which products have recycled material and so on. So, we are satisfied and happy that we have taken that assessment and made those choices. But it is somehow not enough. Because if we get too expensive, they'll choose someone else anyway, right? They are happy if they get it, but at the same time it may not be win or lose.”—Development and Design Manager, Nordic Endurance

The higher cost of materials can therefore not be covered by an increase in price but must come from increased sales. The economic impact of the practice is thereby dependent on the following increase in sales related to the practice.

### ***SOCIAL SUSTAINABILITY***

The social impact of use of recycled polyester is closely connected to the way the recycled polyester is both collected and produced. The collection of post-consumer plastics can have social benefits like removing local pollution from oceans, streams, beaches, and other areas, as well as creating labor opportunities related to the collection. By buying recycled polyester from post-production, it can contribute to job opportunities at the facility, and limit waste and pollution from that facility. This is however dependent on how this collection and production is done, as it could have a detrimental social impact as well.

*“Mainly as of today, our recycled materials come from post-production, i.e. from production waste you could say. So we just have to be honest about that, because that's what's available today. So post consumer has been the next step, but then in dialogue with Ethical Trade, there are some challenges with that now as well, considering how they collect it. Then suddenly, you have a new risk that you have to deal with there as well. Because how are the bottles picked up? It is usually from landfills in the third world and potentially child labor and that type of thing. Because we were very ready to jump over there, but again, we have to work a bit step by step to make sure we do the right thing.”*—Development and Design Manager, Nordic Endurance

This risk for unfair working conditions and child labor makes it important to have certainty of the collection and recycling process to avoid a negative social impact. Nordic Endurance is therefore waiting on taking the step to post-consumer and uses recycled polyester from certified post-production suppliers to limit the possibility of unfair working conditions.

### ***ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE CONSUMPTION***

As stated in the sustainability reports (2021, 2022) one of the biggest environmental risks for Nordic Endurance is the use of polyester as it is a non-degradable material. To limit this risk, they are yearly increasing their use of recycled polyester. This limits the need for using virgin polyester and contributes to keeping the already produced polyester in the loop. However, as the use is postproduction polyester and not from similar post-consumer products, it is not contributing to the recycling of similar products. Overall, will however the use of recycled polyester reduce Nordic Endurance's consumption of virgin polyester.

Even though the use of recycled materials limits the consumption of virgin polyester, it could lead to a potential increase in sales as discussed above under economical sustainability. This results in an increased the consumption level, and thus increasing the polyester consumption as well. Another potential risk connected to using recycled materials is the possible effect on durability and quality. If the use of recycled materials reduces the durability of the product, you end up with products that last shorter, thus increasing the overall consumption level. This is important in Nordic Endurance choice of materials as: *“Recycled must not come at the expense of quality”* –Development and Design Manager, Nordic Endurance. This also comes forth from the sustainability reports (2021,2022) with their stated goal of increasing the use of recycled materials to 100% by 2030 without sacrificing quality. The same was stated in the interview when asked if recycled materials ever affect the durability of the products:

*“There, we have taken a position that we do not do that. Then we would rather wait until that product is found in a better quality, because the least sustainable thing you can do is to make products that do not last and that deteriorate.”* –Development and Design Manager, Nordic Endurance.

Related to the sustainable consumption framework the use of recycled materials is not considered a product service system, which the sustainable consumption framework is made to assess. However just as for the Forever Skis case, we will use it to illustrate some of the effects

on consumption. For the use of recycled polyester, the consumption level is assumed to slightly increase (b). This is achieved by using a resource strategy of substituting to more sustainable materials (c), which reduces the consumption of virgin polyester, while contributing to increased sales. The consumer effort (d) would be slightly decreased for customers who are looking for products made of recycled materials, as the product info is easily available. The revenue model does not make sense to assess, as with the use of recycled carbon in the Forever Skis case.

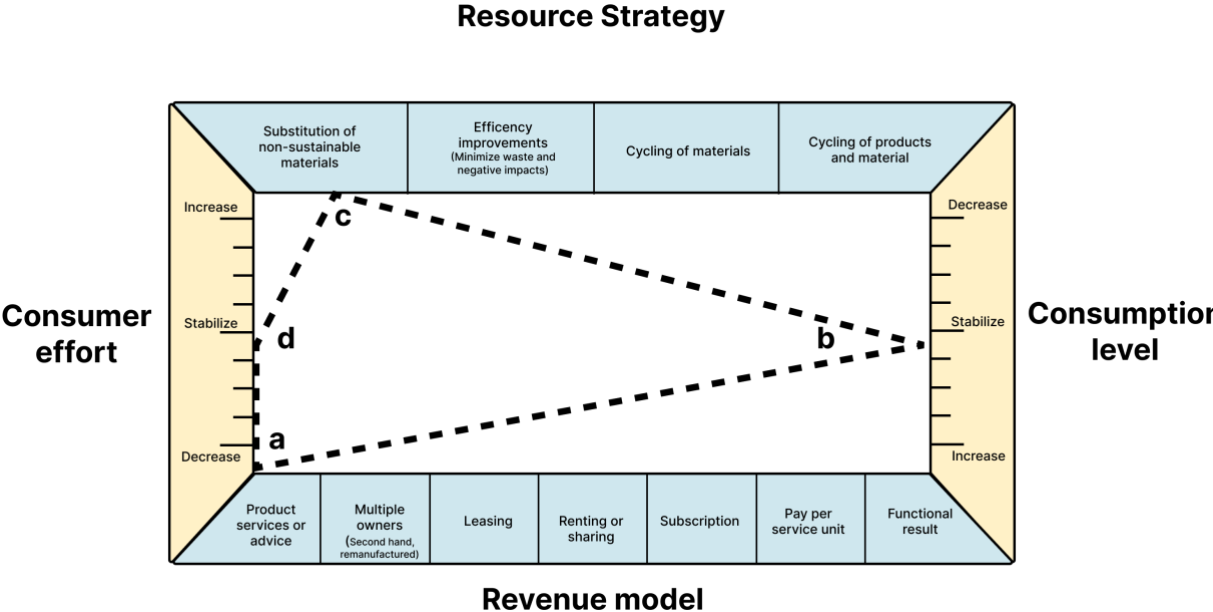


Figure 20 - – The Practice of Recycled Polyester for Nordic Endurance in the Sustainable Consumption Business Model Framework (Tunn et al., 2019)

### 4.5.4 Case Summary

Nordic Endurance is a company highly dependent on the use of polyester. To limit their environmental impact, they focus on **substituting virgin polyester for recycled polyester** with strict demands for quality and durability. Accompanying this practice is the launch of a **repair service** enabling for repairs and altering of the products to keep them longer in circulation.

Both the repair service has promising economic, social and environmental impacts. There is however a couple of potential risks. One risk for negative economic impacts for the repair service if new sales decrease significantly because of it and if the costs become unsustainable. A second risk for negative environmental impact for the use of recycled materials if sales increase significantly, thus increasing consumption level. And finally a social risk if collection

and production of recycled polyester leads to unfair working conditions and child labor. Both practices were also analyzed with the sustainable consumption framework which are summarized by the figure below:

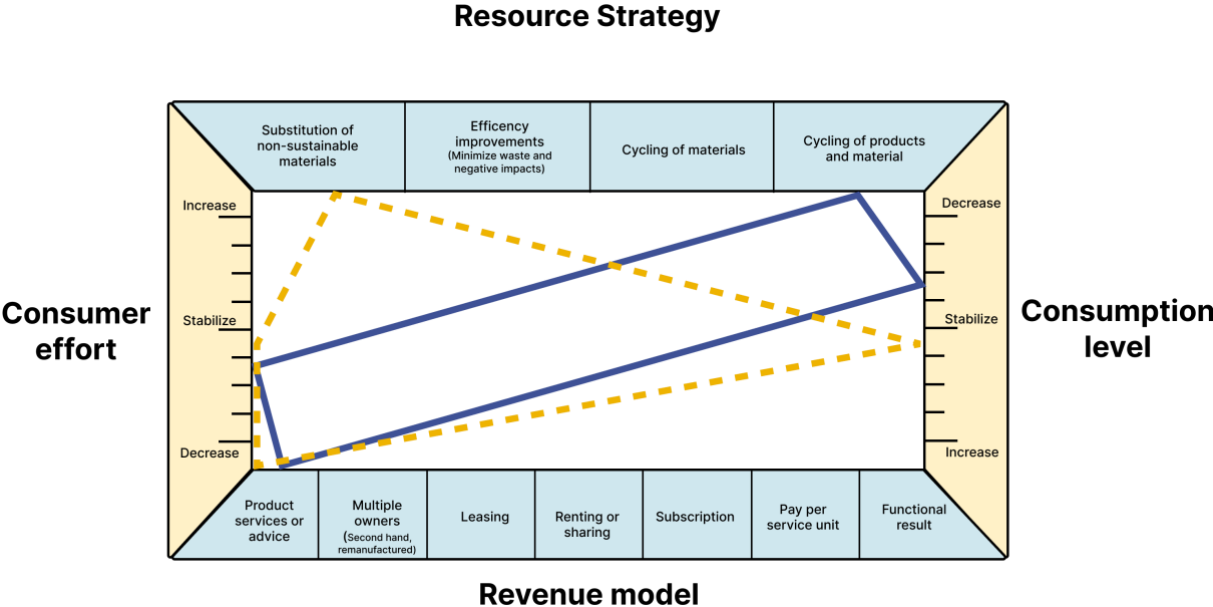


Figure 21 - Practice summary, Nordic Endurance - Sustainable Consumption Business Model Framework (Tunn et al., 2019)

As depicted in the sustainable consumption figure, repair (represented by the blue line) contributes in a much larger extent to a decrease in consumption level compared to recycled polyester (represented by the yellow dotted line). Both practices lead to a decrease in consumer effort, increasing the adoptability of the practices.

## 4.6 Cross-Case Analysis

### 4.6.1 Overview of the Practices

In this subchapter an overview of the similarities and differences in circular practices included in the five cases will follow. These differences and similarities are highlighted in *Table 10* below:

	Forever Skis	ECO Outdoor	Limitless Gear	High Alpine	Nordic Endurance
<b>NARROWING</b>					
<b>REDUCE</b>	Use less resources and make to order in Norway	Use less resources and chemicals	Use less resources and packaging	Use less resources, European production	Use less resources, make to order
<b>SLOWING</b>					
<b>RESELL</b>	Resale of repressed skis	Resale events and resale at Oslo brand store	Resale through collaboration partner	Resale through collaboration partner	
<b>REPAIR</b>	Repair service on its skis	Repair as an important cornerstone for the business model	Repair service through collaboration partner	Repair service through collaboration partner	Repair service set to be launched
<b>RENTAL</b>		Renting and subscription based rental services			
<b>CLOSING</b>					
<b>RECYCLED MATERIALS</b>	Recycled carbon fiber from windmills collaboration project	Some recycled polyester, down and wool			44% of materials in collection is recycled polyester
<b>RECYCLING</b>	Repressing of used skis				

Table 10 – Overview of the circular practices included in the cases

For the five selected cases, all brands mentioned **reduce** practices in some form, although none were a particularly defining part of their business model. For the practices related to slowing resource flows, bigger differentiations appeared. Four of the five brands offered **resale** practices, with Nordic Endurance being the only one without a resale practice. Their reasoning beyond not offering resale as part of their business model was stated in the interview as:

*“It’s a bit difficult with highly technical clothes, because they are products that you’ve sweated a lot in and that are actually very intimate. So they are inherently quite difficult to resell.”* – Development and Design Manager, Nordic Endurance.

This also comes together with the fact that most of the products sold by Nordic Endurance have been customized with the customer’s design and logos, making it harder to resell. For the practice of **repair**, however, all five cases offer repair services in some way, although their execution differs. Nordic Endurance has yet to release their repair practice, while Limitless Gear and High Alpine offer repair through their collaboration partner resalable. The practice of **rental** has shown to be the least tried practice in the case group, with only ECO Outdoor offering rental services as part of their business model. Two of the other cases stated in the interviews to have considered it, but they ended up not implementing it. When asked about including rental skis as a circular practice, Forever Skis’ founder answered:

*“It sounds good but has a negative effect because it only leads to more driving and more transport of skis back and forth. And I believe in ownership, as people who own their skis themselves think I take better care of those skis too. And that a ski that is for hire must be of a certain level, while a ski you are owning yourselves can in a way have a scratch in the sole without it doing so much for yourself. But if you are going to rent skis, you demand that they are spotless, and there will be an incredible amount of grinding and maintenance and things that put more wear and tear on the ski.”* – CEO and Founder, Forever Skis.

For the founder of Forever Skis, rentals are more about the potential convenience for the customer than the environmental impact. Nordic Endurance has the same problem for rental as they had for resale with intimate technical products.

*“Yes, it has been on my block as well, but again we are a bit back to the kind of products we have.”* –Development and Design Manager, Nordic Endurance.



They also request a take-back system for recycling the products after a potential rental period to avoid a lot of used products ending up in their warehouse. Additionally, Limitless Gear and High Alpine stated in the interview to have yet to consider it. However, Limitless Gear could see the potential for a leasing agreement for public procurements by their bigger B2B customers.

We observed some significant differences in the cases for the practices related to closing resource flows. The use of **recycled materials** was the number one circular focus for Nordic Endurance but was only briefly discussed by the other cases. Forever Skis and Eco Outdoor both partly use some recycled materials in their products, while Limitless Gear and High Alpine did not state to be using any recycled materials in their products. From the interview with the informant from Limitless Gear, it came forth that they are concerned about the quality and durability and its effect on the total lifespan and footprint of the product when changing to recycled materials.

*“Textiles and other things that are based on recycled materials or recycle textiles usually have a lower quality, if you notice fabric that has been plastic bottles and other things, then it usually has a lower quality and will have a shorter lifespan. So it is, in a way, a calculation that you have to work out. What will that lifetime be with a lower quality of the components versus running a higher quality over a longer lifetime? What is the total footprint over time?”* -Co-Founder, Limitless Gear

In the case group, the practice of **recycling** was only stated to be included in their business model by Forever Skis with their practice of repressing its skis. The other four cases point to the challenge that technology and suppliers are not ready for it yet. The fact that outdoor products are complex products consisting of many different materials and pieces was also pointed to by many of the cases as a challenge to recycling.

*“We don't think about recycling terribly much yet, I notice, because it's a bit because it has come incredibly short, and we kind of have to wait for the industry to sort of grow itself big before we can start with it.”* – Sustainable Officer, ECO Outdoor

*“At least we have understood that the market is not quite ready to accept it yet. We don't have anyone to deliver it to. Especially tights and trousers, and things like that which have a*

*combination of LYCRA and polyester or other materials, and then it's not entirely easy either. Not everyone can accept that.*” –Development and Design Manager, Nordic Endurance.

## **4.6.2 Sustainable Business Model Overview**

The findings and within-case analysis show several essential considerations for the practices in determining their relation to sustainability on the TBL and SC. First, while it is widely acknowledged among the interviewed companies that reducing overall consumption is a crucial aspect of sustainable business model transformation, individual practices display varying performance in achieving this goal. In this sub-section, we will look further into the practices' distinctions and similarities regarding TBL and SC. Given that most social sustainability perspectives on these practices share similar viewpoints, we will focus on the economic, environmental, and sustainable consumption aspects.

### **4.6.2.1 Economic Sustainability**

While all companies believe that offering circular practices adds value and has the potential for economic sustainability, there are varying perspectives and potential risks involved. With its in-house repair and resale practices, Forever Skis and ECO Outdoor recognize the financial challenges posed by high wages in Norway. However, Forever Skis have successfully made it financially viable and are currently making a profit on its second-hand sales. Additionally, they believe its repair service adds value to additional first-hand sales. Being a small company, Forever Skis finds tracking the exact value of its repair and resale operations easier. However, the exact number of losses in potential first-hand sales due to their repressed second-hand sales is still challenging to track. ECO Outdoor also emphasizes the additional economic value and customer connection these services achieve. However, they have faced difficulties quantifying their practices' precise value. Both companies argue that estimating the additional economic value is challenging due to the difficulty in tracking brand impact and first-hand sales.

Both ECO Outdoor and Forever Skis argue that their repair service strengthens their business model and provides essential insights into product durability, making them more sustainable in the long term. ECO Outdoor considers repair services a cornerstone of its sustainable approach and states that without repair, they would be unable to manage resale and rental practices. A critical difference between Forever Skis and the rest of the cases is that they produce their goods themselves in-house, simplifying the implementation of repair practices by reducing upfront

costs and infrastructure requirements. In contrast, the four other cases commonly argue that buying machines, infrastructure, and scaling repair practices is expensive.

Limitless Gear and High Alpine take a different approach to resale and repair by collaborating with Resalable and their “Re-Commerce” system. This strategy has proven financially viable for them as it avoids the costs associated with developing and maintaining their own repair and resale infrastructure. Additionally, High Alpine mentions that utilizing external platforms is their only viable option for offering repair services as a small company unable to bear the upfront costs. While both companies face challenges with low product trade-ins, they receive positive customer feedback and appreciation for their initiative in offering pre-owned items. Currently, they lack the volume in order to make it economically significant, but onboarding public actors in the future offers potentially big profits for Limitless Gear.

Nordic Endurance finds it challenging to assess the possible economic impact of its repair and recycling service as they are yet to launch its repair service in its facilities in Estonia. Using its own facilities in Estonia can skip some of the upfront costs and take advantage of lower wages. Additionally, they have noticed a demand for its products using recycled polyester, particularly in the B2B sector, where sustainability is a key consideration. This increased demand could lead to higher profits overall, although using recycled polyester is more expensive and may result in lower profit margins.

In summary, all the companies featured in the analysis share a common understanding of the importance of economic sustainability in their circular practices. While challenges exist, such as tracking the exact economic value added and high upfront costs, the potential for increased profitability, customer connection, and long-term sustainability make these practices valuable considerations for the companies moving forward.

#### **4.6.2.2 Environmental Sustainability and Sustainable Consumption**

This section focuses on the environmental sustainability and sustainable consumption aspects of the practices investigated in interviews with the five companies. Despite employing different strategies, all these companies contribute to reducing consumption and waste, although they have variations in consumer adoption.

All companies actively encourage sustainable consumption by offering repair services, resale options, or substituting virgin materials with recycled alternatives. Forever Skis promotes

recycling and reduces the need for virgin materials through the practice of repressing and reusing parts of the ski. With its repressed skis, Forever Skis significantly decrease consumption and encourage more sustainable consumption behaviors. The company also offers repair services through its own channels, making it convenient for customers and reducing search costs compared to alternative repair options or purchasing new skis.

ECO Outdoor also emphasizes its repair services, enabling customers to extend the lifespan of their products instead of discarding and replacing them. By providing a convenient repair process, whether through mail or at their store, ECO Outdoor encourages customers to choose repair over self-repair or buying new items. On the other hand, High Alpine offers self-repair kits to their customer and believes in this opportunity to repair themselves. Allowing consumers to repair quickly has the chance of high consumer adoption and reduced overall consumption.

ECO Outdoor, Forever Skis, High Alpine, and Limitless Gear all offer resale options to their customers, but their scope differs. ECO Outdoor's resale practice is marketed through its physical stores and online website. In contrast, High Alpine and Limitless Gear repair and resale program are offered through a separate website with their own branding, potentially requiring additional consumer effort to engage with the program compared to the other companies. This could lead to additional increased customer effort for High Alpine and Limitless Gear in order for customers to repair and resell their products. As a result, ECO Outdoor might have the potential for higher adoption of its repair and resale practices. All four companies (Forever Skis, ECO Outdoor, Limitless Gear, and High Alpine) recognize the importance of repair services in extending the lifespan of their products and as a cornerstone for their resale practice. Although Nordic Endurance is currently not offering a resale practice, they also recognize the importance of repair services in extending the lifespan of their products. Their yet-to-be-released repair service is also bound to enable re-customization for their customers, decreasing consumer efforts and consumption levels. Therefore, Nordic Endurance's repair service has a high likelihood of customer adoption, although the Estonia location might require more extended repair wait times. The environmental impact of transporting repairs back and forth to Estonia is also important to consider on the overall impact. Further, Nordic Endurance stands out for its specific emphasis on reducing its consumption of virgin polyester by substituting it with recycled polyester, aligning with its sustainability goals. However, it is important to consider the possible rebound effect and increased sales due to the demand for recycled polyester products.

In summary, the differences in sustainability practices and circularity performance among companies are influenced by factors such as the type of practice, company size, products, financials, production, and strategy. Both positive and negative aspects are associated with being a smaller or larger company, as well as the decision to outsource or handle practices in-house. The production location also plays a role, with local production offering advantages regarding existing recycling, repair, and reuse infrastructure. However, scaling such practices can be challenging, e.g., when ECO Outdoor faced difficulties after production moved away from northern Norway in the 1980s.

Smaller companies like Limitless Gear and High Alpine find it easier to outsource circular practices due to cost and agility in innovation. However, they sacrifice some control over the process, brand, and customer feedback compared to Forever Skis and ECO Outdoor. Despite being a small company, Forever Skis has successfully integrated sustainable practices into its operations, benefiting from local manufacturing and making circularity a part of its core business.

Overall, these practices contribute to sustainable consumption to varying degrees. With its local manufacturing approach, Forever Skis stands out as having the most comprehensive and impactful practices. On the other hand, Nordic Endurance may have different challenges due to its products' nature. However, all companies agree that sustainable consumption is a crucial aspect of the circular economy.

## **5|DISCUSSION**

The purpose of this thesis has been to “*Investigate the inclusion of circular practices in outdoor sporting goods companies’ business models.*” We have investigated what types of circular practices different OSG companies have included and to which degree the circular business models are sustainable in terms of the triple bottom line and sustainable consumption to answer the research question of this thesis.

This section will discuss the key findings and how they contribute to the existing literature. Our findings confirm and extend previous literature on OSGIs, highlighting their specific characteristics that contribute to the literature on sustainability and CBM in the textile industry. We will discuss the importance and wherein the resource loop practices take place, key areas of possibilities, and the various dilemmas that are resolved with distinct outcomes. We will discuss how the OSGI and its characteristics differ from the rest of the textile industry and extend on previous literature on circular practices in the textile industry. Lastly, we will discuss how these characteristics contribute to the literature on sustainable business models in the more extensive fashion and textile industry setting.

### **5.1 Circular Practices in The OSGI and their Characteristics**

The OSGI has distinctive characteristics that make certain circular practices more relevant and suitable compared to other industries, including traditional textiles. Through the research conducted in this master’s thesis, it has been found that slowing resource flow practices such as rental, repair, and resale are the most common and influential within the OSGI. This viewpoint is also supported by Fuchs & Hovemann (2022c), who argue that the OSGI benefits from one of its major functional requirements, durability. Our findings emphasize that durability has been a significant factor within the industry long before the concept of slowing the loop and CE emerged. Furthermore, this emphasis on durability can now be presented as an indicator of environmental awareness. OSGI products have always been durable due to their functional requirements and the industry’s historical focus on longevity. Longevity and quality are critical criteria for sustainability regardless of which industry one sell its products in. This “natural advantage” had shown to be an essential success factor for the OSGI when the concept

of Circular Economy got attention. Our findings contribute to the existing literature by demonstrating that the “natural advantages” are further enhanced when products are manufactured in-house and locally, presenting better opportunities for slowing resource practices. While the OSGI has made significant progress in practices related to slowing resource loops, as evidenced by the findings, opportunities remain to close the resource loop.

As our findings indicate, replacing materials used in the OSGI with existing recycled alternatives in the market is often challenging. However, it is crucial to closely monitor ongoing research and development in materials science for potential advancements that could address this limitation. One challenge identified in the findings is the higher cost of recycled materials. This finding aligns with the viewpoint presented by Vermunt et al. (2019), who argue that the price of circular materials is a significant hurdle for companies when including practices related to closing resource loops. Economic profitability is a driving force for actors within the OSGI, and the higher cost and potential quality issues associated with recycled materials pose challenges to their widespread adoption. Our findings contribute to the resource with our findings from Nordic Endurance, which presents a contrasting viewpoint on this matter. Despite experiencing lower profit margins, they have witnessed an increase in their customer base due to their efforts with closing resource flows. Furthermore, the recycling process for OSGI products can be complex due to the industry’s emphasis on maximizing the functionality and longevity of materials, making natural degradation challenging.

Balancing functionality and circularity within the OSGI present unique considerations compared to the broader textile industry. Our findings indicate that, as of today, most cases do not want to prioritize circularity and circular practices above functionality in materials and utilization. These findings are supported by Franco (2017), that argues functionality is an essential and non-negotiable priority for companies operating in the OSGI. Fuchs and Hovemann (2022c) further support this perspective, highlighting the challenges of implementing circular practices that may compromise functionality and potentially face higher consumer resistance. In contrast, one of our cases presented a different perspective that challenges the image of extreme functionality being essential for customers. They questioned the prevailing assumption in the literature that the average person needs gear capable of withstanding extreme conditions in expeditions and harsh climates. Additionally, they provided repair kits, empowering customers to repair their products independently. This approach raises further questions regarding the feasibility of integrating specific practices for functionality to

enhance circularity, which contradicts existing literature and findings from comparable companies.

In line with our findings, emotional durability, and historical significance play essential roles in the circular practices of the OSGI. Several of our cases have leveraged this emotional attachment by incorporating historical significance and marks in their reused products. These attachments create a sense of connection and nostalgia, which can be leveraged as a powerful tool for sustainable consumption and circular practices in the industry. This further shows that designing for durability in the OSGI goes beyond physical durability alone. Bocken et al. (2016) also emphasize that emotional durability is equally important. Simply having products with high physical durability does not guarantee longevity if consumers eventually grow tired of them or if they go out of style quickly because of trends. By fostering emotional connections and attachment to outdoor gear, findings show that companies can encourage customers to keep using their products for extended periods, thereby contributing to sustainable consumption practices within the OSGI.

To summarize, the characteristics of circular practices in OSGI highlight the suitability of slowing resource flows compared to other textile companies in the same industry. The challenge lies in finding alternatives for materials that are difficult to replace and ensuring proper recycling or disposal methods. Emotional durability and historical significance are essential in the OSGI, leveraging customers' emotional attachment to their gear to promote sustainable practices. The industry also has different views on finding the right balance between functionality and circularity, with brands adopting different approaches. Addressing these unique considerations will enable OSGI to enhance its sustainability efforts and contribute to a more circular economy.

## **5.2 Sustainable Circular Business Models**

In the long run, sustaining circular practices has shown to be challenging in many cases and requires a focus on sustainability across social, economic, environmental, and consumption factors (Wiebe et al., 2023). While many of the practices found in this thesis are considered sustainable, there are notable variations in how they address these different aspects of sustainability.



Our findings found notable differences between a collaboration versus a non-collaboration approach to repair and resale. Two of the cases interviewed got help through collaboration and said this was necessary for them regarding financials and infrastructure. Smaller companies often find themselves compelled to outsource due to resource limitations, which can be an initial step toward profitability. However, this may result in less control over the brand and process. Balancing the need for profitability with sustainability becomes crucial in such cases. This approach is supported by research, which highlights that through outsourcing and collaborations with external entities, companies can share the financial risk associated with investing in circular practices, ultimately reducing the overall risk for the company (Saha et al., 2021).

On the other hand, two cases did all the repair and resale in-house, arguing that outdoor products have such complex functionality and materials that they need complete control over their products. Their ability to effectively launch these initiatives independently contradicts the notion that partnering with third parties is necessary for implementing circular practices. However, there remain uncertainties regarding the scalability of this type of business model. While their current implementation of resale and in-house repair practices has been successful, it is unclear whether these strategies can be effectively scaled up to accommodate larger volumes and a broader customer base.

Our findings further show that the level of consumer effort required and the time-consuming nature of circular practices also play a crucial role in their possibility to be profitable and promote sustainable consumption. Practices that demand high consumer effort may result in lower adoption rates and limited opportunities for sustainable consumption. This is confirmed and closely connected with the literature, arguing that the consumers' knowledge and acceptance of circular practices pose significant challenges for OSGI companies and their adoption of such practices (Arrigo, 2021; Saha et al., 2021). One of the cases in the findings highlighted this challenge of consumer acceptance of resale offerings due to hygiene issues. This challenge aligns with (Vermunt et al., 2019) statement about consumer concerns about quality, hygiene, and comfort when buying reused clothes.

Most cases in this thesis share a similar viewpoint on rentals except for one case. Our findings show that facilitated renting in locations where the products are needed, for example, in the mountains, has a better chance of success. Also, the findings agree with existing literature that

the environmental impact can be reduced by having local collection points, local rental offers, and repair (Fuchs & Hovemann, 2022b).

As observed in the findings, incentives can facilitate the adoption of circular practices, such as recycling and resale. In these cases, the customers redeem a gift card or discount when they hand in their old products for resale or recycling. OSGI companies can provide incentives that encourage consumers to engage in circular economy practices, which in turn can enhance their understanding of sustainable consumption. These incentives are often referred to as essential tools in the literature, as highlighted by Fuchs and Hovemann (2022b).

The findings show that circular services' rebound effects and potential negative external impacts pose an intriguing paradox. Most cases acknowledge that repair and resale might not be financially viable on their own. However, they argue that the overall impact on its brand, including increased sales and marketing, makes it economically viable. This paradox highlights the challenge of relying on new product sales while striving for sustainability. This rebound effect may cause a negative environmental impact, which is highly undervalued, as argued by (André & Björklund, 2022) One of the significant dilemmas for circular practices is between additional sales gained from offering the practice and reducing consumption. Understanding the true intentions of OSG companies in this regard is crucial, as some companies view circular practices as a means to generate additional sales. Although some of the five cases currently rely on new product sales, the aspiration for sustainability drives a shift towards reduced consumption. Striking a balance between these two objectives is essential for the long-term sustainable development of the industry and should be further evaluated.

To summarize, sustaining circular practices, in the long run, presents challenges that require a comprehensive approach to their impact on social, economic, environmental, and consumption factors. The choice between collaboration and non-collaboration in repair and resale practices has positive and negative implications for companies and their long-term effects. While in-house repair and resale offer complete control and convenience, partnering with third parties can help manage the challenges associated with circular processes and reduce financial risk. However, the scalability of independent models remains to be determined. Consumer knowledge, acceptance, and the required level of effort play crucial roles in adopting circular practices. The paradox of rebound effects and the balance between additional sales and reduced consumption pose critical dilemmas for OSGI companies. Conveying their true intentions and

striking a balance between profitability and sustainability is essential for the industry's long-term development.

## 6|CONCLUSION

This thesis had the purpose of *Investigating the inclusion of circular practices in outdoor sporting goods companies' business models*. By investigating how different companies have included circular practices and using insights from the literature about CBMs, SC, and TBL, the authors have aimed to answer the research question presented in Chapter 1.2.

- ◇ **RQ:** How do Norwegian outdoor sports brands include circular practices in their business models and how do the practices relate to sustainable circular business models?

A qualitative multiple-case study of five outdoor sports brands was used to answer the RQ. The findings of this study provide valuable insights into the circular practices adopted by OSG companies and their relation to sustainable circular business models. The research identified that slowing resource flow practices, such as rental, repair, and resale, are the most common and influential within the OSGI. These findings align with the arguments presented by Fuchs and Hovemann (2022c) and Bocken et al. (2016) regarding the suitability of durability and slowing resource flows within the industry. The OSGI's historical focus on longevity and durability has positioned it well to embrace circular economy principles.

The study also revealed that replacing materials with existing recycled alternatives in the market is often challenging for OSG companies. The cost and potential quality issues associated with recycled materials were identified as significant barriers. These findings are consistent with the viewpoint of Vermunt et al. (2019) and highlight the economic profitability considerations and challenges OSG companies face when implementing circular practices.

Balancing functionality and circularity within the OSGI was found to be a unique consideration compared to the broader textile industry. The importance of functionality and consumer resistance to compromise was highlighted. The differing viewpoints of companies like ECO Outdoor and High Alpine regarding extreme functionality further illustrate the need for a careful balance. These findings align with the perspectives presented by Franco (2017) and Fuchs and Hovemann (2022c) on the significance of functionality in the OSGI and the challenges associated with circular practices that may compromise it.

The study also emphasized the significance of emotional durability and historical significance in the OSGI's circular practices. The attachment and emotional connections that individuals and

consumers develop with their outdoor gear were identified as powerful tools for sustainability. These findings are consistent with the arguments presented by Coscieme et al. (2022) regarding emotional durability and its influence on the lifespan of products. Overall, the findings support the unique characteristics of circular practices in the OSGI and their alignment with existing literature. They provide valuable insights into the challenges and considerations OSG companies face when including circular practices.

Although this study offers valuable insights, it is necessary to recognize its limitations. Firstly, the research concentrated solely on Norwegian OSG companies, which may limit the findings to other regions or industries. Secondly, the study relied on qualitative data from interviews with selected companies. While this approach allowed for in-depth exploration, it may not capture the full diversity of circular practices within the OSGI. Future research could employ quantitative methods or conduct a broader survey to gain a more comprehensive overview of circular practices in the industry. Additionally, the study primarily focused on the perspectives of OSG companies and their adoption of circular practices, and not from a stakeholder, consumer, or policymaker point of view.

This study has shed light on the circular practices of outdoor sporting goods companies and their relationship to sustainable circular business models. Yet, several avenues for further research could enhance our understanding of this field. The following recommendations are proposed for further research:

### **Multiple Stakeholders**

Future research could incorporate the perspectives of other stakeholders, such as consumers and policymakers, to provide a more holistic understanding of sustainable circular business models within the OSGI.

### **Action Plans and Regulations**

As mentioned in the Introduction, the Norwegian government issued an action plan in 2021 for 2050, where circular business model development is in great focus (miljødepartementet, 2021). The effect of both Norwegian and International action plans like this one and others like it, and the potential regulations which could follow were not studied in this thesis. The potential effect these regulations could have on the inclusion of circular practices and their sustainability could be significant, making it a potential field for future research.

### **Consumer Behavior and Acceptance**

Exploring consumer attitudes, motivations, and behaviors regarding circular practices in the outdoor sporting goods industry would provide valuable insights. Research could investigate consumer acceptance of rental, repair, and resale options and the factors that influence their decisions to engage in sustainable consumption practices. Understanding consumer preferences and barriers would assist companies in tailoring their circular offerings to meet consumer needs and expectations better.

### **Recycling Practices**

Recycling practices were found in the findings to be the least included practice in the case group. The cases noted challenges regarding complex products and heterogeneous materials as hurdles to overcome. There were also wishes for better take-back systems and industry collaboration for the high upfront costs and investments needed to make recycling practices viable. With the importance of recycling practices to close the loop, we recommend future research to study how recycling practices can be made viable and sustainable for OSGI companies in the future.

### **The Scalability of Circular Practices**

Forever Skis has successfully implemented its in-house repair, recycling, and resale practices without relying on collaborations or partnerships. Their ability to independently launch these initiatives contradicts the belief that engaging with third parties is necessary for successfully implementing circular practices. However, there are still uncertainties surrounding the scalability of Forever Skis' business model. While their implementation of these practices has been successful, whether these strategies can be scaled remains to be seen. We, therefore, recommend future research to study how in-house practices can be scaled up and the long-term positive and negative impacts.

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# 8|APPENDIX 1 – INTERVIEW GUIDE

The interview guide is included in its original format in Norwegian, as all the interviews were conducted in the Norwegian language.

## 1. Generell introduksjon:

- Kort introduksjon av forfatterne, INDØK / NTNUs Entreprenørskole, masteroppgaven, formål og RQ.
- Fortelle at oppgaven vil bli anonymisert i henhold til Sikt sine retningslinjer.
- Spørre om tillatelse til å ta lydopptak og transkribere intervjuet.
- Spørsmål før intervjuet starter.

## 2. Selskapet og intervjuobjektet

- Kan du fortelle kort om bedriften din og produktene dere lager?
- Kan du fortelle om din rolle i bedriften og innflytelse på bærekraftige strategier i bedriften?
- Hvor mange er involvert i denne typer prosesser i bedriften?

## 3. Sirkulære forretningsmuligheter

- Hvor stort fokus har dere på sirkulære og bærekraftige muligheter i din bedrift?
- Hvilke produkttyper har dere testet sirkulære tiltak på?

## 4. Sportsbransjen

- Hva vil du si er dine og norske sportsmerker største fordel i skapning av sirkulære forretningsmuligheter?
  - Er dette en fordel dere drar utnytte av?
- Hva vil du si er dine og norske sportsmerker største utfordring i skapning av sirkulære forretningsmuligheter?
- Har dere samarbeidet med andre bedrifter eller organisasjoner for å fremme sirkularitet i sportsbransjen?
  - Hvilke samarbeid?
  - Hvorfor initierte dere dette samarbeidet?

## 5. Redusere resurser (narrowing)

- Har dere tiltak for å redusere bruken av ressurser ved produksjon av et produkt? Feks mindre vann, energi, emballasje og miljøskadelige kjemikalier?
- Hvilke eventuelle utfordringer og goder har disse innsnevringene bydd på?

## 6. Levetid (slowing).

- Hva mener du er de viktigste tiltakene for å øke tiden et produkt er i sirkulering i sportsbransjen?

## 7. Durability:

- Hvilke tiltak har blitt gjort for at produktene deres har lengst mulig varighet (høy durability)?

- Skiller dere mellom tiltak for “emotional durability” (tidløshet) og “physical durability”?
- 8. Reparasjon:**
- Tilbyr dere eller planlegger dere å tilby tjenester for reparasjon av produktene deres?
  - Tilbyr dere dette alene eller via et samarbeid?
    - Hvorfor initierte dere evt dette samarbeidet?
  - Har dere fokus på mulighet for reparasjon når produktet blir designet?
  - Hvilke utfordringer opplever dere knyttet til muliggjøring for reparasjon?
    - Er noen av disse spesifikke for sportsbransjen?
- 9. Utleie**
- Har dere tilbudt eller planlegger/vurderer dere tjenester for utleie av utvalgte produkter?
    - Hvilke produkter?
    - Hvor?
    - Samarbeid?
  - Har dere opplevd eller har dere identifisert noen spesifikke fordeler knyttet til å tilby utleie av deres produkter?
  - Har dere opplevd eller har dere identifisert noen spesifikke utfordringer knyttet til å tilby utleie?
- 10. Gjenbruk, gjensalg og resirkulering**
- Har dere tilbudt eller planlegger dere tjenester for gjenbruk og videresalg av utvalgte produkter?
  - Hvilke tiltak har dere gjennomført for resirkulering av produktene deres?
  - Har dere et internt eller eksternt system for pant / returordning av eldre produkter?
    - Har dere et incentiv til kunder for å levere tilbake produktene?
    - Hva gjør dere deretter med produktene?
  - Har dere opplevd eller har dere identifisert utfordringer knyttet til å tilby gjenbruk og gjensalg?
- 11. Lønnsomhet**
- Tror du tjenester som gjensalg, leie eller reparasjon i fremtiden kan by på en markant del av din bedrifts totale omsetning?
  - Hva tror du stopper disse tiltakene fra å bli lønnsomme?
  - Hva skal til for å få disse tiltakene lønnsomme?
  - Er det tiltak som du anser mer lønnsomme enn andre?
- 12. Design for resirkulering**
- Opplever du at krav til funksjonalitet gjør design for resirkulerbarhet vanskeligere?
  - Er det plagg/produkter som er «enklere» enn andre å resirkulere?
  - Hvilke utfordringer er knyttet til resirkulering av deres produkter?
- 13. Bruk av resirkulert materiale**
- Bruker dere resirkulert materiale i noen av produktene deres?
  - Hvilke produkter og hva slags materiale?

- Er noe av dette materialet post consumer? Hva skal evt til for å øke bruken av post consumer materiale?
- Opplever du at krav til funksjonalitet gjør bruken av resirkulerbart materiale vanskelig?
- Hvilke andre utfordringer er knyttet til bruken av resirkulert materiale?
- Er bruken av resirkulert materiale viktig for deres kunder?
- Er bruk av resirkulert materiale billigere eller dyrere for dere enn nytt materiale?
  - Ser du for deg at dette skal/kan endre seg?

#### **14. Avslutningsvis**

- Hvordan har kundene deres respondert på deres sirkulære strategier? Har dere sett en økning i kundelojalitet eller engasjement?
- Hvorfor tror du at aktører i sportsbransjen oftere enn andre blir dratt frem foreunners/forbilder innenfor sirkulær økonomi?
- Har dere måttet gjøre noen avveininger mellom funksjonalitet og sirkularitet?
  - Hvilke typer avveininger?
  - Hva var grunnen?
  - Hva skjedde etter?
  - Hvordan møtte kunden dette?
- Er det noe annet du vil legge til om din bedrifts tilnærming til sirkularitet og bærekraftig?
- Er det noe du anser som vesentlig og utelatt i intervjuet som du ønsker å tilføye?
- Kan vi kontakte deg i etterkant om det dukker opp noe nødvendig avklaringer eller spørsmål?
- Har du noe dokumentasjon eller data som vi kunne fått tilgang på som kan være relevant? Være klar på hva vi kan bruke/ikke bruke.

