Environmental sustainability in sporting goods companies

The case of tennis equipment

Theresa Junkermann

Dissertation written under the supervision of professor Laure Leglise

Dissertation submitted in partial fulfilment of requirements for the MSc in Business, at the Universidade Católica Portuguesa, 01/06/2023.

Abstract

Title: Environmental sustainability in sporting goods companies - The case of tennis equipment

Author: Theresa Junkermann (152121507)

Recently, a greater focus has been on developing more sustainable sports equipment, as its considerable environmental impact has come under increased scrutiny (Becker et al., 2022). But *how can actors from sporting goods companies manage tensions when implementing a sustainability strategy alongside their existing strategy?* This study aims to explore the tensions that arise with implementing a sustainability strategy and uncover opportunities to work through these tensions to manage its implementation effectively. To answer my research question, I employed the conceptual process model by Hengst et al. (2020) as my theoretical lens. I opted for a qualitative method and conducted a multi-case study on tennis companies, including Dunlop Sports, Wilson Sporting Goods, HEAD, and Babolat. The findings show that actors working on sports equipment with greater sustainability experience tensions between the demands of their sustainability strategy and their existing one in specific tasks. Actors must address these tensions by (1) trading off demands of both strategies in the choice of product features, (2) prioritizing sustainability values over existing values, (3) combining demands of both strategies within their overall strategic goals and (4) continuously adapting to dynamic changes in their environment to effectively implement their sustainability strategy alongside their existing strategy.

Keywords: Sustainability, strategic implementation, tensions, tensions management, sports equipment, tennis

Resumo

Título: Sustentabilidade ambiental na indústria de artigos desportivos - o caso do equipamento de ténis

Autor: Theresa Junkermann (152121507)

Recentemente, tem havido um maior enfoque no desenvolvimento de equipamento desportivo mais sustentável, uma vez que o seu impacto considerável no ambiente tem sido alvo de um maior escrutínio (Becker et al., 2022). Mas como podem os actores das empresas de artigos desportivos gerir as tensões quando implementam uma estratégia de sustentabilidade a par da sua estratégia existente? O objectivo deste estudo é explorar as tensões que surgem com a implementação de uma estratégia de sustentabilidade e descobrir oportunidades de trabalhar através dessas tensões para gerir a sua implementação de forma eficaz. Para responder à minha questão de investigação, utilizei o modelo conceptual de processo de Hengst et al. (2020) como lente teórica. Optei por um método qualitativo e realizei um estudo de casos múltiplos em empresas de ténis, incluindo a Dunlop Sports, a Wilson Sporting Goods, a HEAD e a Babolat. Os resultados mostram que os actores que trabalham em equipamento desportivo com maior sustentabilidade experimentam tensões entre as exigências da sua estratégia de sustentabilidade e a sua estratégia existente em determinadas tarefas. Os intervenientes devem resolver estas tensões (1) trocando as exigências de ambas as estratégias na escolha das características do produto, (2) dando prioridade aos valores de sustentabilidade em detrimento dos valores existentes, (3) combinando as exigências de ambas as estratégias no âmbito dos seus objectivos estratégicos globais e (4) adaptando-se continuamente às mudanças dinâmicas no seu ambiente para implementar eficazmente a sua estratégia de sustentabilidade juntamente com a sua estratégia existente.

Palavras-chave: Sustentabilidade, implementação estratégica, tensões, gestão de tensões, equipamento desportivo, ténis

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1. Introduction

Approximately 54,000 tennis balls are disposed of and thrown in landfill during professional tennis tournaments over a time period of only two weeks (Ashtakoula, 2021). This number of tennis balls corresponds to 8,540 kg of CO_2 emissions, equivalent to the amount of CO_2 generated by flying 59 times from Frankfurt, Germany, to Lisbon, Portugal (Kommenda, 2019; Quist, 2021). Nevertheless, this is only a fraction of the entire sporting goods industry's environmental impact on our planet. Therefore, novel sustainability strategies that target the recent trend of making sports equipment more sustainable are becoming prominent (Becker et al., 2022). Previous research in sports has shown that the integration of sustainable practices leads to several conflicts with the demands of the existing strategic approach (Fuchs & Hovemann, 2022; Svensson et al., 2023). These conflicts refer to as tensions (Van der Byl & Slawinski, 2015). Tensions are prone to result in a decoupling between the existing and sustainability strategy rather than a tight integration, meaning that the strategies most likely exist alongside each other and must be co-enacted rather than the sustainability strategy being included into the existing strategy (Hengst et al., 2020). The prevailing approach to managing such complex tensions is the paradoxical approach. It seeks to understand, accept, and simultaneously work on the competing demands that cause tensions (Van der Byl & Slawinski, 2015). To date, there is a lack of studies on how to manage the tensions that arise from the transition to sports equipment with greater sustainability. Additionally, within the strategy implementation research, scholars have focused primarily on conceptualizing the implementation process of strategies (Weiser et al., 2020). Yet, there is a dearth of research that focuses on *how* actors put the conceptualization of a strategy into action and *how* they manage tensions that arise from the implementation process (Van der Byl & Slawinski, 2015). The present study contributes to previous literature on strategic implementation, tension management, and sustainability. Due to the topicality of the transition to sports equipment with greater sustainability, the present study is able to capture this dynamic strategic implementation process in its early stages, consequently contributing to the ongoing sustainability discourse (Becker et al., 2022).

Therefore, the following research question emerges: *How can actors from sporting goods companies manage tensions when implementing a sustainability strategy alongside their existing strategy?*

To answer my research question, I employed the conceptual process model by Hengst et al. (2020) as my theoretical lens. I opted for a qualitative method, more specifically, a multi-case study. I focused on tennis companies because they have recently embraced the trend toward creating sports equipment more sustainable, and tennis equipment has a significant impact on the environment. The cases I chose include Dunlop Sports, Wilson Sporting Goods, HEAD, and Babolat. The findings reveal that actors from sporting goods companies experience tensions between the competing demands of their newly introduced sustainability strategy and their existing one. Tensions arose between the conflicting demands of both strategies regarding product features, values, and goals. To manage these tensions in specific tasks, actors need to (1) trade off the demands of both strategies in the choice about product features, (2) prioritize the values of the sustainability strategy over the values of the existing strategy, and (3) combine aspects from both strategies in their overall strategic goals. Across all tensions, actors must constantly analyze the external environment and adapt to dynamic changes. Considering these aspects facilitates effective implementation of the sustainability strategy in sporting goods companies.

First, I review the previous literature on business sustainability and tensions management to identify the gap, followed by my research question and an introduction of the framework I used as a theoretical lens to answer my research question. Next, I present the methodology, enabling me to answer my research question adequately. Then, in the empirical setting chapter, I demonstrate the tennis companies I selected to show their relevance within sustainable sports equipment. Afterwards, I present my findings, followed by a discussion to compare the findings to existing literature and to highlight the contribution of the present study. Finally, the conclusion aims to give an answer to my research question and point out limitations as well as future research suggestions.

2. Literature Review

The environmental impact of sports equipment and its trend toward greater sustainability have come under increased scrutiny (Becker et al., 2022; Subic et al., 2010). Due to the various tensions that arise between the demands of existing and newly introduced sustainable ways of working, implementing sustainable practices can be challenging (Hahn et al., 2015; Hengst et al., 2020). Yet, there is a lack of research that investigates how actors from sporting goods companies manage tensions arising from their transition to sports equipment with greater sustainability.

First, I will provide an overview of the role of sustainability within the sports industry, followed by a focus on environmental sustainability. Subsequently, I will emphasize the tensions that arise from shifting towards more sustainable practices. Lastly, I will present the conceptual process model conceptualized by Hengst et al. (2020), which I will use to answer my research question.

2.1 Sports companies and the focus on environmental sustainability

Sustainability has become a major concern in today's society, posing as an ever more instantaneous need for action to protect our planet from the irreversible consequences of human behavior. As George Monbiot once said, *"The earth is in a death spiral. It will take radical action to save us."* (Monbiot, 2018, p.1). With that being said, it is not surprising that the sports industry is also progressively concerned with sustainability matters. In the following section, the sports industry and business sustainability will be defined, followed by a closer look at the role of business sustainability in sports.

2.1.1 Sports industry

The sports industry is "*a market in which people, activities, businesses, and organizations involved in producing, facilitating, promoting, or organizing any activity, experience, or business focused on sports*." (Arikan, 2020, p. 192). Accordingly, it is a diversified industry ranging from participation, entertainment, equipment and apparel, promotional products, sports facilities, marketing research, and management services (Hassan, 2011). It encompasses three organizational sectors, namely the public, non-profit, and commercial (Pedersen & Thibault, 2022). Due to its multifaceted nature, the sports industry creates various jobs, from manufacturing to services, and fosters development and innovation. A McKinsey study analyzing sports industry trends in 2022 found that two out

of three consumers prefer more sustainable products. This underlines the importance for sports companies to incorporate sustainability into their business activities (Becker et al., 2022).

2.1.2 The shift towards business sustainability

Incorporating sustainability into business activities refers to the concept of business sustainability. Business sustainability is a controversial concept, as no consensus has been reached on its definition. However, addressing the concept is crucial to gain a common understanding of it (Hahn & Tampe, 2021). Rooted in systems thinking, which refers to the understanding that an organization is embedded in a socio-ecological system, business sustainability refers to the ability of a company to incorporate social and environmental considerations in addition to economic aspects (Hahn & Tampe, 2021).

Sports companies have initially followed an economic-oriented business model. Nevertheless, an increase in business sustainability efforts is noticeable (Svensson et al., 2023). Drivers for adopting more sustainable practices include, among others, pressure from stakeholders, e.g., media, consumers, and associations, or gaining a competitive advantage (Skinner et al., 2018; Trendafilova et al., 2013). To date, sports companies are beginning to raise awareness and educate stakeholders about sustainability issues. This can lead to the formulation of sustainability strategies and eventually to sophisticated activities (McCullough et al., 2016). The shift towards more sustainability within the sports industry was also present at the ISPO (2023) (the International Trade Fair for Sporting Goods and Sports Fashion) - the largest trade fair for the sports business in Germany. The ISPO pointed out that sports companies need to review their current business operations to find novel and sustainable business pathways. Adding on that, a study by Han & Niu (2023) on sporting goods manufacturing in China found that all three aspects of sustainability (social, environmental and economical) can be improved if the company's strategic direction includes both sustainability and entrepreneurship. Similarly, green radical product innovation, which imposes to create *"minimal cost to the environment without compromising the financial gains"* (p. 2), improves all three aspects of sustainability as well (Han & Niu, 2023). Therefore, it is recommended that sports companies should consider aspects of novel strategic orientation and innovation regarding sustainability and thus prioritize accordingly.

2.1.3 Environmental sustainability efforts

Regarding business sustainability, sports companies focus primarily on environmental considerations (Hackenberg, 2021; Oddie, 2023). This can be explained by the bidirectional relationship between the environment and sports (McCullough et al., 2020). On the one hand, the environment affects the sport. Several sporting events have had to be canceled, and concerns have been raised about staging future Winter Olympics Games due to the changing environmental conditions caused by global warming (Martin, 2022; Orr & Inoue, 2019). On the other hand, sport has an impact on the environment, for example, through the use of resources for sporting events or the use of unsustainable materials for sporting goods (Collins et al., 2009; Subic et al., 2010).

A transition towards greater environmental sustainability has recently emerged within the sporting goods industry. The sporting goods industry is the *"sphere of production creating goods for purchase and consumption relating to the practice of or an interest in a sport"* (Tomlinson, 2010, p. 373). It comprises of sports apparel, sports footwear, and sports equipment (Subic et al., 2010). Sports equipment, in particular, noted environmental sustainability efforts. According to Statista (2023), the revenues of the global sports equipment market reached €157 billion in 2023 and is expected to increase annually by 5.61% until 2027. The trend towards sustainable sports equipment rose, among others, from the concerns about its environmental impact. Subic et al. (2010) found that the greatest environmental impact is associated with the production phase, where choices of processes and raw materials are made. Hence, strategies to make the product design process more sustainable have emerged. These strategies encompass both the equipment and the packaging, as both are essential to the equipment's performance. To date, the amount of sustainable sports equipment within the market is constantly increasing, ranging from ski, basketball, and football all the way to tennis (Hirsh, 2022; Rosehill, 2022; Tennispro, n.d.; Wilson, n.d.).

These findings show that business sustainability is becoming increasingly crucial for sports companies, especially in relation to environmental concerns. The sporting goods industry is particularly noticeable in this regard, as it has recently started implementing strategies to make sports equipment more sustainable.

2.2 Issues that arise from shifting towards business sustainability

Shifting towards more sustainable practices, however, comes with challenges. These challenges can also be referred to as tensions (Van der Byl & Slawinski, 2015). The following section will focus

on tensions that arise when implementing a sustainability strategy. It then explores how these tensions can be addressed. Since the literature within the sports industry is limited, the information will be complemented by intersectoral studies.

2.2.1 Tensions when implementing a sustainability strategy

While the previous way of working focused on economic demands, the shift to business sustainability brings additional demands from social and environmental considerations. For example, a demand of the existing strategy includes increasing profits, while addressing environmental demands from the sustainability strategy may require high levels of investment. The demands may thus diverge or be incompatible, leading to tensions (Hahn et al., 2015; Van der Byl & Slawinski, 2015).

Tensions arising from implementing a sustainability strategy can potentially result in decoupling between both strategies rather than a tight integration (Aguinis & Glavas, 2013). Decoupling means that the sustainability strategy is symbolically adopted yet, unable to be integrated substantially (Haack & Schoeneborn, 2015). This is caused by the lack of legitimacy of the sustainability strategy. Thus, in order to implement a strategy effectively, it must have legitimacy (Hengst et al., 2020). Hahn et al. (2015) went beyond the tensions between the different demands of the strategies by adding "tensions between levels". Levels refer to the embeddedness of individuals within a broader system of organizational and systemic levels. Even if a sustainability strategy is legitimate on the organizational level, it still might not be successfully integrated in practice if it is kept symbolically within activities in action (Hengst et al., 2020). These findings emphasize the complexity of various tensions and the need to manage them successfully.

Within the sports industry, there is a lack of managerial studies that investigate tensions in terms of business sustainability. However, some tensions have been revealed. The ISPO intimated that a tension arises from the difficulty of maintaining the level of efficiency and innovation required while incorporating sustainability aspects into their operations (ISPO, 2023). This is especially evident in sports equipment due to its high complexity, functionality, and technicality (Fuchs & Hovemann, 2022). Above that, the performance of the equipment is of paramount importance. Performance within the sport context is about *"faster, higher, and stronger"*(Svensson et al., 2023, p. 4). „*Only in sport, the growth of profits is not the primary target […]. Instead, it is about increasing performance."* (Svensson et al., 2023, p. 4). This is also underscored by the consumer side as they purchase new sports equipment in order to increase their performance (Svensson et al., 2023). Thus,

the prioritization of the performance of sports equipment could create tensions with the increased attention to sustainability matters (Pedersen & Thibault, 2022). These findings provide insight into tensions that arise within the sports industry. However, more insightful research is needed that looks deeper into the strategic implementation process of sustainability efforts and how to manage the resulting tensions (Breitbarth et al., 2023; Pedersen & Thibault, 2022).

2.2.2 Tension management to effectively integrate the sustainability strategy

There are different approaches on how tensions have been managed that emerge from incorporating social and environmental efforts in addition to economic aspects. Van der Byl & Slawinski (2015) identified four general approaches of tension management: Win-win, trade-off, integrative, or paradox lens. They especially highlight the paradox lens for future research as it *"provides an opportunity to evaluate complex sustainability issues and generate creative approaches to them"* (p. 54). With this approach, the nature of the tensions can be identified. It seeks to understand, accept, and simultaneously work on the competing demands that cause tensions (Van der Byl & Slawinski, 2015). Smith and Lewis (2011) revealed that it fosters learning, creativity, flexibility, resilience and unleashes human potential. As such, the paradoxical approach can manage tensions caused by competing demands of a sustainability strategy and existing strategy. It can even facilitate a tight integration between both strategies (Hengst et al., 2020). Previous research has mainly focused on conceptualizing strategic implementation. Yet, scholars emphasize the need for *how* actors put the conceptualization of a strategy into action by applying the paradoxical approach (Van der Byl & Slawinski, 2015; Weiser et al., 2020).

Overall, the review of previous literature has shown that the sports industry, more specifically sports equipment, represents an evolving field that has a significant impact on the environment and tries to create novel sustainability strategies that contribute to the trend of sustainable sports equipment. The transition comes with tensions. To date, there are studies highlighting tensions within the sports industry, yet, there is a lack of studies that address the implementation of sustainability strategies in practice. Furthermore, the research has shown that the paradox lens on tension management is a suitable approach to solving complex sustainability challenges like that. Yet, a paradoxical perspective on how to manage tensions in action is needed within sporting goods companies. Hence, the identified gap within the literature led to the following research question:

How can actors from sporting goods companies manage tensions when implementing a sustainability strategy alongside their existing strategy?

2.3 The theoretical framework

To answer the research question, I chose to use the framework created by Hengst et al. (2020). Previous studies have shown that actors experience tensions in practice on the action level, meaning on a task-by-task basis, when sustainability strategies are integrated within their existing strategy (Hahn et al., 2015; Van der Byl & Slawinski, 2015). While a sustainability strategy might be legitimate on the organizational level, it may not be the case on the action level. This happens if actors keep the sustainability strategy peripheral to the tasks they work on instead of integrating it into them (Hahn et al., 2015; Hengst et al., 2020). Actors need to work through the tensions that arise from the integration of a sustainability strategy in iterative strings of recurrent actions, called action cycles (C), as working through tensions can legitimate the sustainability strategy at the action level (D) and can co-enact it with the existing strategy (B). Cumulating the tension management in specific tasks over time might even enforce the sustainability strategy's legitimacy and foster the co-enactment of both strategies on the organizational level (A).

The framework consists of the following three tensions that arise at the action level: (1) tensions between the product features, (2) tensions between values, and (3) tensions between different strategic goals. The tensions trigger different action cycles when actors try to work through the tensions. (1) triggers compromising-reinterpreting or splitting cycles, (2) triggers sacrificing-valorizing cycles, and (3) triggers procedural embracing-synergizing cycles. The tensions and the associated action cycles are presented in Figure 1 and will be explained in more detail below.

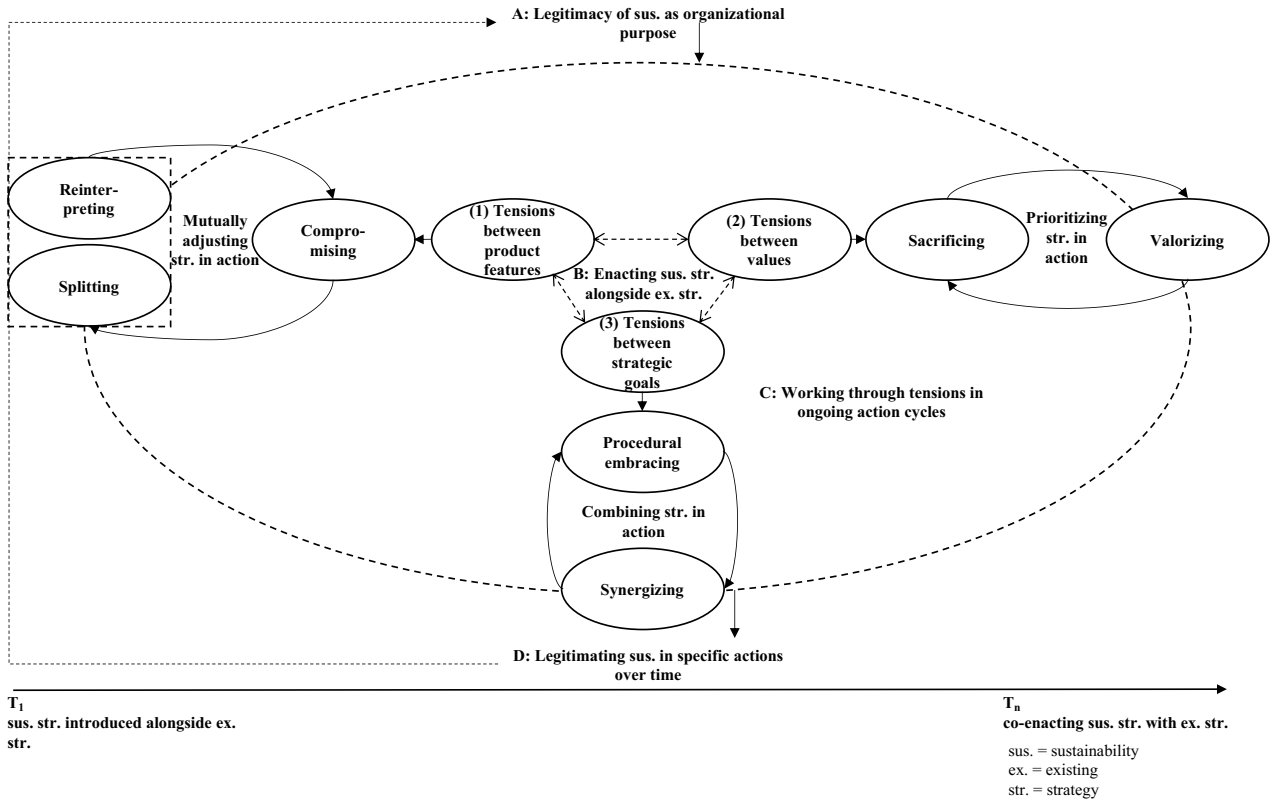

Figure 1: Conceptual process model, Hengst et al. (2020).

(1) Tensions between product features occur when incompatibilities arise between sustainable and existing physical features of a product. Actors can work through such tensions with compromising-reinterpreting action cycles or compromising-splitting action cycles. These action cycles try to mutually adjust the sustainability and existing strategy in action. Compromising means that actors have to trade off between the demands of the existing strategy and the sustainability strategy regarding their divergent demands for product features. Actors can then either reinterpret their trade-off as being good for both strategies or split a product into two separate products, where one focuses on sustainability features and the other one on existing features.

(2) Tensions between values arise when sustainability efforts threaten the organization's competitiveness. Such tensions can be overcome with sacrificing-valorizing action cycles. These cycles prioritize either the sustainability or existing strategy in action. This means that actors sacrifice one strategy to satisfy the other and afterwards legitimate their decision as giving them moral superiority for doing the "*right thing*".

(3) Tensions between different strategic goals occur, for example, when large investments

associated with sustainability efforts are incompatible with the goal of making profit. Such tensions can be worked through with procedural embracing-synergizing cycles. This means that actors incorporate sustainability within their existing procedures and try to find synergies between them. Hence, these action cycles try to combine the sustainability and existing strategy in action.

The framework demonstrates a conceptual approach that fills the gap of how actors respond to tensions that arise from the implementation of a sustainability strategy alongside an existing strategy. It uses the paradoxical approach to manage tensions as it aims to work through tensions by addressing the competing demands simultaneously. As the framework creates a conceptual basis, Hengst et al. (2020) suggest that future research should apply the framework theoretically. Therefore, it provides an appropriate framework to address the research question related to sporting goods companies.

3. Methodology

The choice of methodology is crucial for addressing the research question (Birkinshaw et al., 2011). I opted for a qualitative approach in the form of a multi-case study comprising both primary and secondary data. The primary data consists of semi-structured case and industry expert interviews with open-ended questions. These were supported and complemented by the secondary data, which consists of internal and external archival data. To analyze the data, I used the coding method. The following section explains the methodology and its rationale for answering my research question.

3.1 Research design

Choosing a qualitative approach can be attributed to the limited prior literature on both tension management on the action level (Hengst et al., 2020) and top management studies within the sports industry (Breitbarth et al., 2023). Previous research within the sports industry has emphasized the need to conduct studies that go beyond the theoretical basis, looking deeper into the strategic implementation process of sustainability efforts (Birkinshaw et al., 2011; Breitbarth et al., 2023). Through the qualitative approach, I was able to reveal the tensions and their dynamic action cycles in a sophisticated and detailed way (Graebner et al., 2012). The framework I have chosen also relies on a qualitative approach. The theme of action-level tensions addressed in the framework requires a close capture of individual experiences, for which a qualitative approach is more suitable than a quantitative approach (Graebner et al., 2012; Hengst et al., 2020). It allowed me to investigate the complexity and interrelated elements of managing tensions in relation to sustainability, ultimately providing me with a deeper understanding to answer my research question in a comprehensive and nuanced manner (Graebner et al., 2012). I conducted a multiple-case study. Choosing a case study design allowed me to explore the *how* of my phenomena under investigation (Yin, 2009). Due to the absence of legislation on sustainability in regard to sports equipment, companies are not restricted by certain guidelines (Svensson et al., 2023). Hence, the use of multiple cases was essential to explore the differences and similarities between the cases under study (Stake, 2013). It enhanced the richness of my study and offered me a compelling and robust understanding of their divergent tension management (Yin, 2009). To select the specific cases, I decided to narrow down the scope from sporting goods companies to tennis. It is an evolving sector where novel sustainability strategies are being developed to follow the trend of manufacturing sustainable sports equipment. Tennis equipment, including rackets, balls, and their packaging, has a significant impact on the environment due to its short life cycles and environmentally harmful materials, making it an appealing field of research (Ashtakoula, 2021). The selection criteria were tennis companies that are committed to producing tennis equipment with

greater sustainability and have already demonstrated this commitment by launching at least one item of tennis equipment labeled as being sustainable. The market share was also a criterion that I considered as I wanted to have a selection that represents and shapes the industry sufficiently. However, I did not limit my selection to a specific geographic area to obtain a global and holistic picture of the phenomenon under study. The keywords for my selection were, therefore, as follows: "tennis companies", "sustainability", "tennis equipment" and "market share". To get a first impression of identifying potential cases, I went to the ABN AMRO ATP500 tennis tournament. Based on my previous research on the internet and my observation during the tournament, I started networking with employees from potential cases. Additionally, I sent emails, contacted employees on LinkedIn, and used my network of experts within the tennis industry. In the end, I had four cases, which is within the range of the number of cases recommended by Stake (2013) to obtain sufficient, but not excessive, information. The cases that fulfilled my criteria are the following: Dunlop Sports, Wilson Sporting Goods, HEAD, and Babolat.

3.2 Data collection

I collected both primary and secondary data. The primary data included semi-structured interviews with employees from the four cases under study as well as industry experts. The interview guide allowed me to be responsive to each interviewee and to foster a natural conversational dynamic, resulting in rich and detailed data collection (Birkinshaw et al., 2011). Overall, I conducted 13 interviews with employees from the cases under study and four interviews with industry experts. The interviews took place between 06/03/2023 and 05/05/2023 and were held via Microsoft Teams with audio recording and transcript. Each interview lasted between 25 and 60 minutes. The key topics and questions involved business sustainability, sustainability approaches, tensions, and its management. For the interviews with the industry experts, I added the topic of the sports and tennis industry with its tensions in general to get a comprehensive understanding of the context. The interviewees from the cases were selected based on their involvement in the topic of sustainability. Consistent with the framework that I chose, I did not limit the selection of interviewees to specific positions, locations, or hierarchies within the companies (Hengst et al., 2020). The corporate functions of the interviewees from all four cases are presented below in Table 1.

Positions within Companies – Primary Data	
Position	Total Interviews
Environmental and social KPIs	1
Marketing	3
Product innovation and development	5
Product management	4

Table 1: Positions within companies of cases.

For Dunlop Sports, I conducted three interviews, listed in Table 2. The first interviewee provided insights into the complexity of incorporating sustainability aspects within tennis equipment, while the second interviewee highlighted the tensions of Dunlop being embedded within the industry. The last interviewee brought a more global and strategic vision of Dunlop's long-term sustainability goals and tensions.

Dunlop Sports – Primary Data					
Type of data	Name	Organization	Position	Date	Length
Interview	Christian Kanwischer	Dunlop Sports	Junior Product and Marketing Manager Tennis	06/03/23	37 min
Interview	Florian Straehle	Dunlop Sports	Product Manager Tennis and Category Manager Slinger	15/03/23	60 min
Interview	Oliver Bartsch	Dunlop Sports	Global Category Manager Tennis	31/03/23	42 min

Table 2: Primary data collected - Dunlop Sports.

For Wilson, I was able to conduct three interviews, as demonstrated inTable 3. The first interviewee shared a consumer- and market-oriented perspective on the tensions that arise with sustainability efforts concerning tennis equipment. The second interviewee gave a holistic perspective on the tensions in implementing a sustainability strategy, and the last interviewee emphasized the tension management of product features from a research perspective.

Wilson Sporting Goods – Primary Data					
Type of data	Name	Organization	Position	Date	Length
Interview	Jonas Wäschle	Wilson Sporting Goods	Sports Marketing Manager Tennis and Padel Germany	21/03/23	50 min
Interview	Nicole De La Cruz	Wilson Sporting Goods	Global Sustainability Director	06/04/23	46 min
Interview	Chloe Lee	Wilson Sporting Goods	Principal Engineer for Advanced Materials	12/04/23	53 min

Table 3: Primary data collected – Wilson Sporting Goods.

Table 4 presents the four interviews that I conducted with employees from HEAD. The first and fourth interviewees revealed specific tensions in the different categories within the tennis division, namely rackets and balls, whilst the second and third interviewees provided me with tensions around product material and tensions that arise from the interrelation and interdependence between the industry, HEAD, and its customers.

HEAD – Primary Data					
Type of data	Name	Organization	Position	Date	Length
Interview	Maximilian Bauer	HEAD	Global Product Manager Tour Racquets	22/03/23	42 min
Interview	Nathan Elliott	HEAD	Senior Research and Development Engineer	23/03/23	50 min
Interview	Florian Maier	HEAD	Marketing Manager	28/03/23	53 min
Interview	Mauro Pinaffo	HEAD	Senior Product Manager Balls and Accessories	03/04/23	59 min

Table 4: Primary data collected – HEAD.

For Babolat, I had three interviews, presented in Table 5. The first interviewee provided me with a strategic perspective on sustainability tension management (short- and long-term), the second

with tension management on specific tasks, and the last on a narrower perspective on particular product categories.

Babolat – Primary Data					
Type of data	Name	Organization	Position	Date	Length
Interview	Aldric Bourgier	Babolat	Director of Innovation and Development	05/04/23	36 min
Interview	Laura Bidegaray Navarron	Babolat	Innovation Manager	18/04/23	48 min
Interview	Coline Herin	Babolat	Junior Innovation Project Manager	25/04/23	49 min

Table 5: Primary data collected – Babolat.

For the interviews with the industry experts, I conducted four interviews in total, presented in Table 6. These interviews allowed me to gain a more comprehensive and holistic understanding of the context of the sports industry and tennis and its path to greater sustainability. The first two interviewees are from Renewaball, a company that collects and recycles used tennis balls (Renewaball, n.d.). They provided me with insights into a sustainable solution for tennis balls, which highlights strategies for overcoming sustainability tensions. The third interviewee is from Sport Handelt Fair, an initiative that strives to make the sports industry more sustainable (Sport handelt Fair, n.d.). The interviewee emphasized the importance and challenges within the sports industry, along with possible sustainable solutions. The last interviewee works for the ITF (International Tennis Federation), which is the governing body for tennis (ITF, 2023). The interviewee elaborated on the tennis industry's status quo and future prospects in terms of sustainability.

Industry Experts – Primary Data					
Type of data	Name	Organization	Position	Date	Length
Interview	Hélène Hoogeboom	Renewaball	Co-founder	23/03/23	26 min
Interview	Eric Petersen	Renewaball	Co-founder	31/03/23	32 min
Interview	Anton Klischewski	Sport handelt Fair	Campaign Member	06/04/23	41 min
Interview	Jamie Capel-Davies	ITF	Science and Technical	05/05/23	30 min

Table 6: Primary data collected – Industry experts.

The secondary data I collected provided specific information for each case in terms of the company's history, size, scope, strategy, and performance, as well as how the tensions are managed in each case in terms of sustainability. The data consists of magazine articles, annual and sustainability reports, websites, blogs, and internal documents (e.g., presentations, studies, and information sheets). I have limited my search for secondary data to the last seven years, 2017 to 2023, to ensure that the data is up to date. Further selection criteria were sustainability, especially regarding tennis equipment, the context of the cases, and the origin of the data, to collect both internal and external data. Table 7Table 8Table 9Table 10.

Dunlop Sports – Secondary Data					
Type of Data	Internal/ External	Title	Name of author	Organization	Date
Magazine Article	External	Neuer Partner, Neuer Ball	TNB	TNB	2022
Integrated Report	External	Creating Value throughout the Sumitomo Rubber Group – Long-Term Sustainability Policy: "Driving Our Future Challenge 2050"	Sumitomo Rubber Industries	Sumitomo Rubber Industries	2022
Website	External	The Dunlop Sports Story, Our Heritage	Dunlop Sports	Dunlop Sports	2023
Information Sheet	Internal	Dunlop International Europe Ltd. – Information Sheet	Dunlop Sports	Dunlop Sports	N/A
Website	External	Group Profile	Sumitomo Rubber Industries	Sumitomo Rubber Industries	N/A
Website	External	Sumitomo Rubber Completes Acquisition of DUNLOP Brand Business from Sports Direct International	Sumitomo Rubber Industries	Sumitomo Rubber Industries	2017

Table 7: Secondary data collected - Dunlop Sports.

Wilson Sporting Goods – Secondary Data					
Type of Data	Internal/ External	Title	Name of author	Organization	Date
Blogpost	External	Six reasons to feel good about the world's first eco-conscious tennis racket	Wilson Blog	Wilson	N/A
Blogpost	External	When donuts & tennis balls collide	Wilson Blog	Wilson	N/A
Blogpost	External	Wilson Labs: Triniti	Wilson Blog	Wilson	N/A

Magazine Article	External	Tennis-Aufstand wegen Öko-Ball	Erik Peters	Die Bild	2021
PowerPoint Presentation	Internal	Climate Action Plan	Wilson	Wilson	2022
PowerPoint Presentation	Internal	Sustainability Targets	Amer Sports	Amer Sports	2023
E-Mail	Internal	Information about Organizational Structure	Nicole De La Cruz	Wilson	2023
Sustainability Report	External	Sustainability Report 2021	Amer Sports	Amer Sports	
Website	External	Talking Sports & Sustainability with Wilson Sporting Goods	Tayllor Henczel	The Environmentor	2021
Website	External	Wilson Sporting Goods' Recent 'Reawakening'	Michael LeRé	Forbes	2022

Table 8: Secondary data collected – Wilson Sporting Goods.

HEAD – Secondary Data					
Type of Data	Internal/ External	Title	Name of author	Organization	Date
Website	External	About HEAD	HEAD	HEAD	N/A
Website	External	HEAD - Top performance over an entire decade			
Website	External	HEAD ReThink	HEAD	HEAD	N/A
PowerPoint Presentation	Internal	Sustainable Tennis Racket Design – Flax Technology	Dr. Nathan Elliott	HEAD	2022
Word Document (Head PR)	Internal	HEADs Engagement für Nachhaltigkeit zeigt sich in der Umweltfreundlicheren Tennisballdose	Thomas Truffin	HEAD	2022
Flyer	Internal	HEAD Reset – Your Choice	HEAD	HEAD	2022
PowerPoint Presentation	Internal	Help us saving the planet – one ball at a time	HEAD	HEAD	N/A
Saubermacher Analysis	Internal	Consulting service – Sustainable tennis balls and ball cans	Sabrina Lunzer	Saubermacher	2022
PowerPoint Presentation	Internal	Sustainability – Head	N/A	HEAD	2022
PowerPoint Presentation	Internal	HEAD – Company Presentation	HEAD	HEAD	2020

Table 9: Secondary data collected – HEAD.

Babolat – Secondary Data					
Type of Data	Internal/ External	Title	Name of author	Organization	Date
Website	External	Babolat in partnership with Eco-Technilin introduce flax fibers in Pure Aero tennis racquets	N/A	JEC	2022
Website	External	Our expertise	Babolat	Babolat	N/A
Website	External	Our history	Babolat	Babolat	N/A
Website	External	Our values	Babolat	Babolat	N/A

Table 10: Secondary data collected – Babolat.

Through the range of perspectives of the case interviewees with their different positions, hierarchies and locations, I gained a deep and multi-layered insight into the tensions and how they are managed at the action level. By selecting three or four interviewees per case, I was able to triangulate the perspective of a single person and gain a more holistic understanding of the issue under investigation. This is called data source triangulation. However, I was not able to interview the same variety of positions, locations, and hierarchies in each case as I was limited by the availability of interviewees. As employees of the companies, they may want to maintain their positive external image. This limitation is especially valid for my chosen topic, as sustainability efforts are nowadays seen as a unique selling point for a company (Delmas & Burbano, 2011). To triangulate this bias, I, therefore, supplemented my data collection with interviews with industry experts as well as secondary data (method triangulation) (Denzin, 1978).

3.3 Data analysis

I analyzed the data using the coding method, which is the predominant operation for qualitative data analysis (Williams & Moser, 2019). Accordingly, I created first-order codes, second-order themes, and aggregated dimensions. To have a starting point, I based my predefined codes on those of my chosen framework of Hengst et al. (2020) (see Figure 2). I collected the transcripts of the interviews in a Word file and organized relevant quotations in an Excel file. During the process of creating codes, I went through several stages of refinement. The following quote: "*At the end of the day, that's our job: Build products so they perform*" (*Interview of Sports Marketing Manager Tennis and Padel Germany of Wilson*) is an example of the predefined first-order code "*prioritizing fun and performance features over prioritizing sustainability KPIs*".

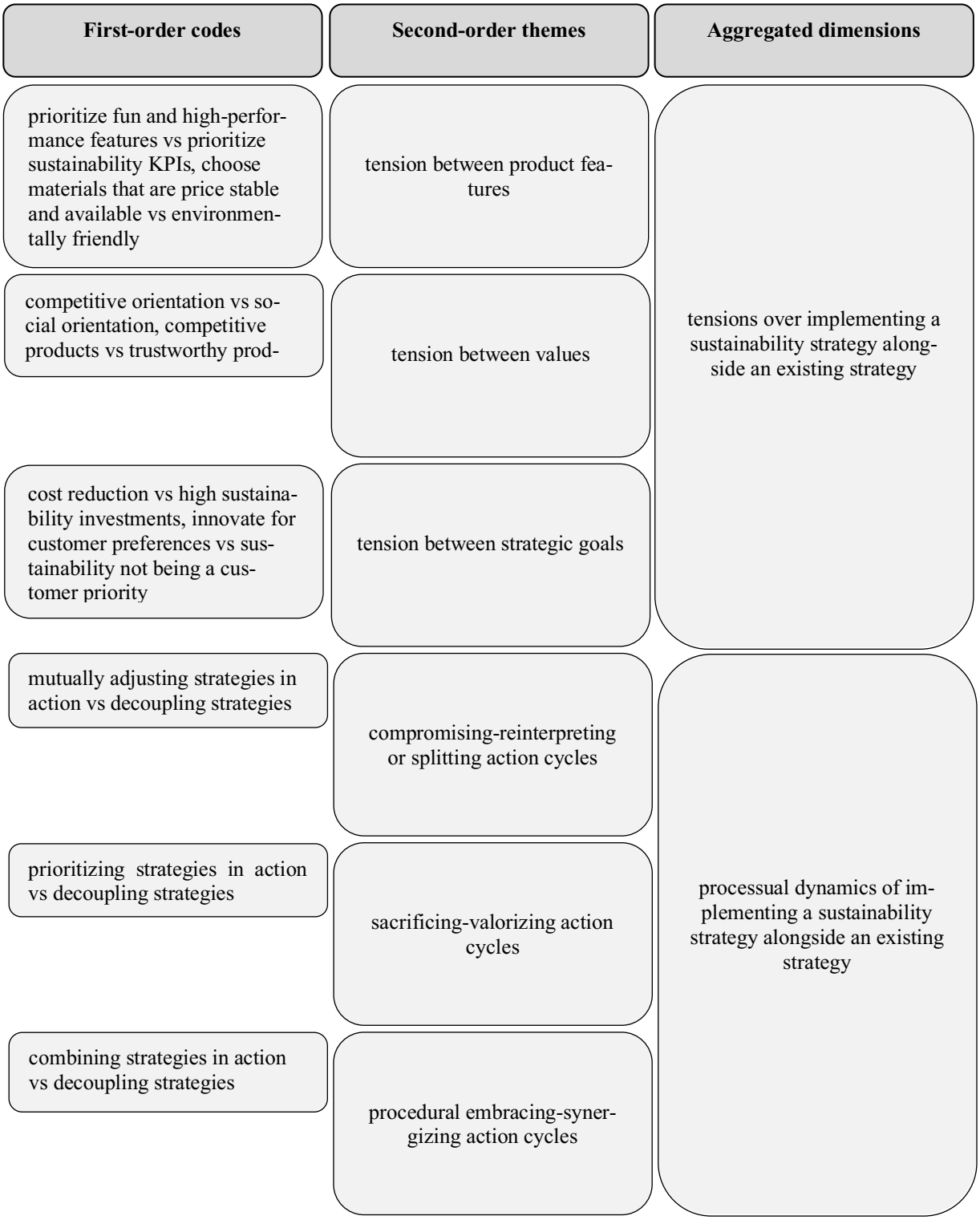

Figure 2: Coding tree, in accordance with Hengst et al. (2020).

Based on my collected data and my research question, I created additional codes, useful to enhance and cover the collected data. The coding tree can be seen in Figure 3, with the added codes in bold. An example of the first-order code of *"focusing on own sustainable solutions vs intensifying competitor research"* is as follows: *"We look closely at competitors […] to draw our conclusions about*

what might work and what might not, so that we can also be efficient […].” (*Interview of Product Manager Tennis and Category Manager Slinger of Dunlop*).

First-order codes	Second-order themes	Aggregated dimensions
prioritize fun and high-performance features vs prioritize sustainability KPIs, choose materials that are price stable and available vs environmentally friendly, **choose cost efficient processes vs sustainable processes, maintaining functionality of product vs focusing on sustainable features, existing product features vs availability of sustainable innovative solutions**	tension between product features	tensions over implementing a sustainability strategy alongside an existing strategy
competitive orientation vs social orientation, competitive products vs trustworthy products, **sustainability as competitive advantage vs disadvantage, competition over sustainable solutions vs collaborative approach, existing vs sustainability brand identity and standards**	tension between values	
cost reduction vs high sustainability investments, innovate for customer preferences vs sustainability not being a customer priority investment, **failure vs success of sustainable innovation, aiming first-mover benefits vs collaborative sustainable approach, certainty versus uncertainty**	tensions between strategic goals	
decoupling strategies vs mutually adjusting strategies in action, **short vs long-term goals**	compromising-reinterpreting or splitting action cycles	processual dynamics of implementing a sustainability strategy alongside an existing strategy
decoupling strategies vs prioritizing strategies in action	sacrificing-valorizing action cycles	
decoupling strategies vs combining strategies in action	Procedural embracing-synergizing action cycles	
sticking to existing processes vs intensifying customer research, focusing on own industry vs learning from other industries, relying on own technologies vs looking out for sustainable technological opportunities, acting on existing regulations vs working with foresight in regard to regulations, focusing on own sustainable solutions vs intensifying competitor research	**analyzing-adapting action cycles**	

Figure 3: Adapted coding tree.

4. Empirical Setting

In line with my research question, I have selected four cases that are committed to incorporating sustainability strategies into their sports equipment offerings. They all belong to the tennis industry, given that I will answer my research question based on tennis equipment. To adequately represent the tennis industry, I chose the tennis companies with the largest market shares. In the upcoming section, I will illustrate the following four cases and their relevance in terms of sustainability: Dunlop Sports, Wilson Sporting Goods, HEAD, and Babolat.

4.1 Dunlop Sports

Dunlop Sports is a sporting goods manufacturer, which is one of the world market leaders in tennis, squash, padel, badminton, and table tennis. Originating from the tire business, founded in 1889 by John Boyd Dunlop, Dunlop entered the tennis ball market in 1923. Nowadays, Dunlop established itself within the racket sports equipment and apparel, selling products such as rackets, balls, bags, strings, accessories, and apparel (Dunlop, 2023). In 2017, the brand was acquired by Sumitomo Rubber Industries, Ltd. (SRI), a Japanese company that operates globally in the tire, sports, and industrial products business. Since then, SRI has been involved in Dunlop's business and product planning (Sumitomo Rubber Industries, 2022, 2017). In 2021, the sports brand of SRI, including golf, wellness and tennis, recorded sales revenues of around €689 million (Sumitomo Rubber Industries, 2022). Dunlop itself is a multinational company, operating in Europe, the US, Asia, Australia, and South Africa. To date, Dunlop has around 90 employees in Europe. Focusing on tennis, Dunlop enjoys high international standing as the official tennis ball partner of the ATP Tour (the global governing body of men's professional tennis (ATP, n.d.)) and numerous tennis tournaments worldwide. These tournaments include the Australian Open, the Nitto ATP, and Next Gen ATP Finals as well as five of the nine annual Masters 1000 tournaments (*Internal Document, Dunlop*).

In terms of sustainability in tennis equipment, Dunlop is focused on finding *"a [sustainable] solution around the packaging now and then [attacking] the bigger project, which is to change the product itself"* (*Interview, Product Manager, Dunlop*). Dunlop has already launched the TNB 3.0, the St. James Premium tennis ball, and the FORT tennis ball (Dunlop, n.d.). The TNB 3.0, for example, is a sustainable packaging solution released in 2023. The PET (plastic tube) is offered with a separate inner part made of 100% recycled paper, making the separation and recycling easier for the customer at the end-of-use of the tennis balls (TNB, 2023).

Shifting the view towards future targets, by 2030, Dunlop wants to reduce the amount of plastic used in product packaging by half (Dunlop, n.d.). To achieve this goal, Dunlop will start using paper lids for their ball tubes in 2024 instead of plastic lids (*Interview, Junior Product Manager, Dunlop*). In addition to this, Dunlop wants to release its first tennis ball made from 100% sustainable raw material by 2030 and to complete the transition to 100% sustainable raw materials in all tennis balls sold by 2050 (Sumitomo Rubber Industries, 2022). *"It is a step-by-step process, but [Dunlop has] started with [their] sustainability mission" (Interview of Global Category Manager Tennis of Dunlop)*.

4.2 Wilson Sporting Goods

Wilson Sporting Goods is a sporting goods company, which was founded in 1914 in Chicago, Illinois, by Thomas Wilson. Wilson creates high-performance equipment, apparel, footwear, and accessories for 14 sports, including, amongst others, basketball, baseball, soccer, softball, and tennis (Amer Sports, 2022). Due to their broad spectrum, some sports are grouped into business units. Tennis, for example, is based in the racket sports division. The company is a subsidiary of the Finnish group Amer Sports, besides brands including Arc'teryx, Salomon, Peak Performance, Atomic, Armada ENVE Composities, ATEC, DeMarini, EvoShield, Louisville Slugger, and Luxilon (Amer Sports, 2022). Wilson is headquartered in Chicago, where 281 of its 1,300 employees worldwide are based (*Interview, Sustainability Manager, Wilson*). Its annual revenues have been estimated at $458.6 million to $518.9 million (LoRé, 2022). In tennis, Wilson is the official ball partner of the French and U.S. Open (two out of the four major tennis tournaments of the year) and is sponsoring professional tennis players like Roger Federer, Serena Williams, and Stefano Tsitsipas (*Interview, Sustainability Manager, Wilson*).

Regarding their efforts of creating tennis equipment more sustainable, Wilson's approach is to *„aspire to rethink, re-educate and reinvent the way we live, work and play"* (Henczel, 2021, p.1). So far, Wilson has launched the Triniti tennis ball, the Earth Day Rackets, the limited-edition Naked Series rackets, and Eco-overcaps for tennis ball cans (*Internal document, Wilson*). The Triniti, for example, is their "*ball for the planet*" launched in 2019. It comes with fully recyclable packaging and promises to maintain longer than a conventional tennis ball, resulting in a reduction of waste (Wilson Blog, 2019). Wilson's primary focus is on reduction, followed by recycling options and sustainability innovations (*Interview of Principal Engineer for Advanced Materials of Wilson*).

Looking into the future, Wilson wants to use its environmental impact assessment for 2022 as their baseline for setting targets and actions for a decarbonization plan. The goal is to achieve net zero before 2050 (*Interview, Sustainability Manager, Wilson*). Additionally, Wilson wants to align its strategy with the sustainability strategy of its mother company, Amer Sports. One KPI mentioned by Amer Sports in terms of materials and circular design is, for example, to set standards for hard goods (e.g., sports equipment) (*Internal document, Wilson*). Wilson received some consumer pushback when launching the Triniti. However, they want to *"make a difference and lead"* the sustainable change by example (*Interview of Sports Marketing Manager Tennis and Padel Germany of Wilson).*

4.3 HEAD

HEAD is a global manufacturer and marketer of sports equipment and apparel, founded in 1950 by Howard Head. Initially in the ski business, HEAD expanded beyond winter sports into racket sports, water sports, sportswear, and licensing. HEAD sells its products under several brands, including HEAD, Penn, Tyrolia, Mares, SSI, rEvo, LiveAboard, Zoggs, and Indigo (HEAD, n.d.). The company is headquartered in Kennelbach, Austria, where around 300 of the 600 employees worldwide are based (excluding production sites). It is a multinational company with 16 own subsidiaries and 68 distributors worldwide. In 2022, HEAD noted revenues of over €550 million. Within the racket sports division, HEAD sells products like rackets, strings, balls, grips and accessories in tennis, pickleball, padel, squash and racquetball. In regards to tennis, HEAD is especially known for its high-quality rackets and is sponsoring professional tennis players like Andy Murray, Alexander Zverev, and Ashleigh Barty (HEAD, 2022).

HEAD Rethink – *"Think, Rethink, Act"* is HEAD's guiding framework to address sustainability. Looking onto tennis equipment that incorporates sustainability aspects, HEAD launched the Head Reset tennis ball and the Flax Racket. The Reset tennis ball, for example, is a tennis ball for coaches and recreational players with an increase in durability that either comes in a 100% recycled carton box or a 100% recycled plastic bag, depending on the amount of tennis balls needed. Additionally, HEAD changed the plastic PET tubes of tennis balls to make them recognizable for recycling stations, saving up to 10 times more CO_2 compared to existing ball cans (HEAD ReThink, n.d.).

Regarding future targets, HEAD wants to reduce its global footprint by (1) developing an increased number of products made of sustainable materials, (2) reducing packaging, and (3) increasing the efficiency of its shipping and logistics to reduce the impact on the environment (*Internal*

document, HEAD). HEAD sees sustainability as part of its *"DNA"* and therefore wants to continue and strengthen its sustainability efforts (*Interview of Global Product Manager Tour Racquets of HEAD*).

4.4 Babolat

Babolat is a manufacturer of tennis, padel and badminton equipment based in Lyon, France. As a family business, founded in 1875 by Pierre Babolat, Babolat is *"conveying nearly 150 years of emotion, enthusiasm, innovation, daring, and victories."* (Babolat, n.d.-c). Specialized in rackets, Babolat also sells strings, shoed, balls, shuttlecocks, bags, apparel and accessories. With its headquarters in Lyon, France, where around 200 people are employed, this multinational company has 11 offices in France, Spain, Italy, Austria, the UK, China, Japan and the U.S. In 2021, Babolat noted annual revenue of €170 million. In tennis, Babolat is the official racket partner for Wimbledon (one out of the four major tennis tournaments of the year) and is sponsoring the rackets of the professional tennis player Rafael Nadal (Babolat, n.d.-b, *Interview, Junior Innovation Project Manager, Babolat*).

In 2022 Babolat launched its first tennis equipment, the Pure Areo tennis racket, which incorporates sustainability features. It is a collaboration with Eco-Technilin, a natural fibre company, which emphasizes Babolat's culture of partnership. Besides the environmental benefits of incorporating flax elements into the racket, the Pure Areo also absorbs the vibration better when hitting the ball, which reduces the stress on the tennis player (Babolat, n.d.-a).

Babolat plans to use its 2022 environmental data as a baseline to set future sustainability targets. Babolat is at the beginning of its sustainability mission and wants to be *"humble and collaborative"* in the future to achieve more sustainability within its tennis equipment division (*Interview of Director of Innovation and Development of Babolat*).

5. Findings

In this section, I will answer my research question of how actors from sporting goods companies manage tensions when implementing a sustainability strategy alongside their existing strategy. The findings are based on the analysis of the four tennis companies I selected: Dunlop Sports, Wilson Sporting Goods, HEAD, and Babolat. To support the findings of my cases, I also considered secondary data and interviews with industry experts. I analyzed the data based on the conceptual process model conceptualized by Hengst et al. (2020). It represents the framework for my analysis from which I was able to identify tensions as well as action cycles to overcome tensions. The analysis also uncovered additional elements based on my collected data.

First, I will demonstrate the tensions actors experienced when implementing a sustainability strategy alongside an existing one. Subsequently, I will elaborate on the action cycles triggered by these tensions that enable actors to manage them. Lastly, I will give an overview of the findings.

5.1 Tensions in implementing a sustainability strategy

The upcoming section will present the findings from the following three tensions identified by the framework when implementing a sustainability strategy alongside an existing strategy: (1) Tensions between product features, (2) tensions between values, and (3) tensions between strategic goals.

5.1.1 Tensions between product features

The analysis of the data showed that in every case, the interviewees experienced tensions between product features. These tensions refer to the incomparability of incorporating features from both strategies into a physical product (Hengst et al., 2020). The interviewees reported that their existing strategy focuses on a constant improvement in the product's performance centered around durability, material selection, and production efficiency. However, incorporating sustainable features in the existing equipment or creating sustainable packaging might compromise the product features targeted by the existing strategy. Hence, while both strategies were considered legitimate, the interviewees experienced tensions when working on sustainable changes. In the case of HEAD, the following quotation represents an example of how the interviewees experienced the tensions:

" […] reaching a point where […] the performance of the product matches what it used to be when you used […] 'normal' materials that are considered less sustainable; this is the biggest challenge." (Interview of Senior Research and Development Engineer at HEAD).

Obstacles were limited technological possibilities, the unsustainable existing materials of tennis equipment, and performance-reducing as well as cost-intensive sustainable materials. The tensions interviewees faced were developing tennis equipment that is more sustainable while maintaining the efficiency and performance features of conventional tennis equipment. In this respect, the functionality of both the equipment itself and the packaging is crucial.

5.1.2 Tensions between values

The interviewees from all four cases experienced tensions between values when their sustainable values were incompatible with their competitive values. For example, the identity and standards of being a high-performance brand were mentioned as conflicting with sustainability values. In the case of Dunlop, this tension is illustrated by the following quote:

"It's very important for us to also keep the brand and product image at the right level because otherwise, the changes with the sustainability approach won't work in the end." (Interview of Product Manager Tennis and Category Manager Slinger of Dunlop Sports).

As the values of the existing strategy conflict with the values of the sustainability strategy, focusing on the sustainability strategy may be detrimental to competitiveness. Nevertheless, introducing tennis equipment with greater sustainability was also seen as a competitive advantage, as it is a *„race at the moment, who's going to manage what [sustainale change] first"* (*Interview of Innovation Manager of Babolat*). This resulted in tensions between competing for the advantage of being the first mover and pooling resources to create a sustainable solution in collaboration. Since collaboration is seen as a driver of sustainability, it is part of the sustainability strategy (Hahn & Tampe, 2021). The goal of brands to gain a competitive advantage by adopting sustainable changes is also accompanied by the fear that the trustworthiness of the product could be questioned, as: "*It is easy to get into greenwashing, you have to be really careful."* (*Interview of Global Category Manager Tennis of Dunlop*). Therefore, interviewees referred to the values of the sustainability strategy of being *"authentic"* (*Interview of Global Product Manager Tour Racquets and Senior Product Manager Balls and Accessories of HEAD*) and *"not lying to customers"* (*Interview of Junior Product and Marketing Manager, Dunlop)* when launching tennis equipment that incorporates sustainability aspects.

Hence, both the values of the sustainability strategy - being trustworthy, authentic, and collaborative in the spirit of sustainability - and the existing strategy - protecting brand identity and standards and achieving competitive advantage – were legitimate at the action level, thus creating tensions between values.

5.1.3 Tensions between strategic goals

Interviewees from all four cases experienced tensions when they tried to incorporate sustainability targets within their profit-oriented existing strategy. Interviewees mentioned that compliance with the sustainability strategy involves an investment in time and costs for personnel, processes, research and development, and market research. Thus, the increased investment results either in a premium price for the consumer or an additional cost for the company. The following quotation is an example of the case of Wilson, which highlights the tension between sustainability and costs:

"There's always a little bit of give, especially for sustainability [...], but when [sustainability efforts] start to get in the way of meeting KPIs and goals at the corporate level, then we simply don't have the corporate support." (Interview of Global Sustainability Director of Wilson).

Problematic in this context was the uncertainty regarding profitability, which was mentioned by the interviewees when talking about competitors, the company itself, and the customers. First, the company's sales were dependent on the actions of competitors, as there was a constant risk that they would introduce a more successful, sustainable product or launch the same product earlier, thereby relegating the brand to a follower position. Second, investing in sustainability entails a certain risk of failure, which would negatively affect a company's profitability. Third, the company's sales depend on whether sustainability is a customer priority or not. The data is inconsistent regarding consumer preferences, illustrated by the following quotations: *"Customers are willing to pay more if they can get something that is more eco-friendly." (Interview of Senior Product Manager Balls and Accessories of HEAD)* and *"After all, the price and performance of the product are much more important than the sustainability of the product."* (*Interview of Global Product Manager Tour Racquets of HEAD*). Additional concerns regarding customers were distrust and skepticism of sustainability claims and the lack of awareness of the environmental impact of tennis equipment.

Although both strategies were legitimate at the action level, they created tensions between adherence to sustainability and the risk that the investments would not offset the additional costs, subsequently affecting profitability.

5.2 Tension management through action cycles

The framework of Hengst et al. (2020) explains that the three tensions outlined above trigger particular action cycles that help actors to manage the tensions by shaping the implementation processes of the sustainability strategy alongside the existing strategy. Hence, the following section will demonstrate the (1) compromising-reinterpreting or splitting cycles triggered by tensions between product features, (2) the sacrificing-valorizing cycles triggered by tensions between values, and (3) procedural embracing-synergizing cycles triggered by tensions between strategic goals. Based on my data, I added the (4) analyzing-adapting action cycle in which the interviewees engaged across all tensions.

5.2.1 Action cycles to manage tensions between product features

When actors experience tensions between the sustainability strategy and the existing strategy in tasks involving the physical product, they engage in the action cycle of compromising-reinterpreting or splitting. These cycles enable actors to mutually adjust both strategies on product-related tasks. Compromising refers to doing trade-offs between product features of the sustainability and existing strategy. When working through compromising, actors either reinterpreted their trade-offs as being beneficial for both strategies or split the targets of the strategies between two products (Hengst et al., 2020).

Compromising was observed in all four cases under study. The performance of the product is mentioned as the decisive factor in the incorporation of sustainability features. The following quotation from the case of Babolat illustrates this trade-off:

"Our recipe is to optimize the product, so make sure we keep the right performance but add as much as we can in terms of sustainable components." (Interview of Director of Innovation and Development of Babolat).

During the compromising-process, all four cases started with the low-hanging fruits, meaning sustainable product features that are easy and quick to change. Thus, they began with changing the

packaging first, followed by the long-term goal of creating sustainable tennis equipment that meets the performance of conventional tennis equipment.

Wilson and Babolat engaged in the compromising-reinterpreting action cycle. Wilson, for example, engaged in this iterative cycle when launching Triniti, its tennis ball, which has fully recyclable packaging and promises to last longer than a traditional tennis ball (Wilson Blog, 2019). The following quotation reflects on the benefits for both strategies:

"[…] the performance increase that you got was durability, […], that was sort of this added benefit." (Interview of Principal Engineer for Advanced Materials of Wilson).

However, the public has been relatively critical of Triniti in terms of its product features, which can be shown by the following quotations:

"People just hate the sound of the bounce; there's definitely pushback from the consumer side." (Interview of Global Sustainability Director of Wilson).

Cases that engaged in the compromising-splitting action cycle were HEAD and Dunlop. Rather than combining both strategies in one product, actors create products that prioritize one strategy. In the case of HEAD and Dunlop, both extended their product line with tennis balls for coaches and recreational players that incorporate sustainability features yet compromise the performance. As an interviewee from HEAD explained:

"It's not the ball for everyone, for example, high-level players cannot play with a recycled ball because it doesn't perform the same." (Interview of Senior Product Manager Balls and Accessories of HEAD).

Hence, all cases were involved in compromising between the sustainability and existing strategy on product-related tasks, where sustainability features were incorporated into the performance products. It requires a *"step-by-step process"* (*Interview of Innovation Manager of Babolat*) and "*marginal improvement[s]*" (*Interview of Sports Marketing Manager Tennis and Padel Germany of Wilson).* All cases emphasized starting with the packaging. Wilson and Babolat have reinterpreted, finding their tennis equipment beneficial to both strategies, while HEAD and Dunlop have split, adding

tennis balls to their product offerings that focus on the sustainability strategy to appeal to a specific target audience.

5.2.2 Action cycles to manage tensions between values

Actors engage in sacrificing-valorizing cycles when experiencing tensions between values. To manage these tensions, they sacrifice one strategy to prioritize the other and legitimate their choice by referring to moral values (Hengst et al., 2020).

The data showed that all four cases incorporate sustainability within their business activities yet, prioritise the existing strategy when experiencing tensions between values. Sacrificing the sustainability strategy was expressed when interviewees decided to focus on their high-performance identity and standards and when they would work individually on their sustainable approach rather than collaborate. Sacrificing in action is exemplified by the following quotations from an interviewee from Wilson:

"Wilson is a performance brand, and so we do keep performance as our sort of north star, so as we look to integrate sustainability, we understand that it has to come not at fault to the product." (Interview of Principal Engineer for Advanced Materials of Wilson).

In prioritizing the existing strategy, all interviewees evaluated their choice by pointing to the necessity. An example of this is the following quote from an interviewee of HEAD:

„It's just not possible yet in some cases. But if it was roughly the same in terms of cost, then, of course, we would always go for the more sustainable option." (Interview of Marketing Manager of HEAD).

Hence, although both strategies were legitimate, interviewees felt the need to prioritize the existing strategy over the sustainability strategy when the latter threatened the former in particular tasks. They would not allow that the sustainability strategy would compromise the values of the existing strategy, like the competitiveness or their high-performance brand identity. All cases valorized their decision as having no other choice to safeguard their existing strategy.

5.2.3 Action cycles to manage tensions between strategic goals

Procedural embracing-synergizing cycles are triggered when actors experience tensions between strategic goals. Compliance with the sustainability strategy can compromise profitability. To manage these tensions, actors can use existing management procedures, for example, procedures for generating data or reporting on KPIs, to integrate the sustainability strategy. Combining the existing strategy with the sustainability strategy can uncover synergies between them that benefit both strategies (Hengst et al., 2020).

Although all cases experienced tensions between strategic goals, only HEAD and Wilson mentioned engaging in procedural embracing-synergizing cycles. They mentioned that the constant cost-reducing procedures can find applicability in the sustainability strategy as reducing, for example, materials might result in a cost reduction for the company. The following example of Wilson elaborates on that:

"Our primary focus is reduction […], and that is obviously a great sustainability case, it's a great business case, people love that because I'm giving you cost savings.“ (Interview of Principal Engineer for Advanced Materials of Wilson).

Yet, the reduction procedure only makes up a small proportion of the costs because *"most of sustainability does include a cost increase.“ (Interview of Principal Engineer for Advanced Materials of Wilson).*

Hence, the data showed efforts regarding finding synergies, however, only limited were found. In the case of Wilson, the product's composition is mentioned as a limiting factor to the procedural embracing-synergizing cycles, which is emphasized by the following quotation:

"I think the products we work on are so unique […]; we were going in blind. […] There's not like a test that you can […] look at the material data sheet, and it says that it is going to work.“ (*Interview of Principal Engineer for Advanced Materials of Wilson*).

Therefore, although HEAD and Wilson worked on reduction processes that benefit both strategies, interviewees had difficulties engaging in the procedural embracing-synergizing cycles as finding

synergies was limited. The *"unique"* composition of the products was mentioned as a challenging factor in finding such synergies.

5.2.4 Action cycles across all tensions

Besides the action cycles for particular tensions, the data showed that all cases leveraged external factors across all tensions. Hence, I added the analyzing-adapting action cycle that actors engaged in when working through any of the three tensions conceptualized by Hengst et al. (2020). It means that actors continuously analyze their external environment and adapt to dynamic changes in order to manage tensions.

The external factors include intra- and inter-industry research, consumer feedback, technological possibilities, and regulations. First, the interviewees tried to find either lessons learned from other industries or competitors to find sustainable solutions for tennis equipment, to become the sustainable leader, and to increase efficiency by decreasing the investment needed for testing different solutions. Second, the interviewees intensified their feedback culture in terms of consumer feedback both pre and post the launch of tennis equipment with greater sustainability. In the case of Wilson, drawing on consumer feedback about the Triniti tennis ball helped them improve the ball's technology, mitigate the consumer side's pushback, and increase sales in the long run. Third, interviewees referred to the current technological possibilities that might hinder or facilitate the development, competitiveness, and investment of tennis equipment with greater sustainability. Fourth, interviewees mentioned that regulations would help them manage tensions at the action level because they might then be forced to pool resources together to develop sustainable solutions, which in turn would open up new possibilities for sustainable solutions, reduce competitiveness among cases, and decrease expenses per case.

Hence, the data showed that actors are within a system with different levels – individual, organizational, systemic - that they are influenced by and vice versa. As such, a constantly analyzing the environment and adapting to it can facilitate the management of tensions.

5.3 Strategic implications

In summary, the above results show that all four cases experienced three tensions when implementing the sustainability strategy: tensions between product features, values, and strategic goals. All four

cases mutually adjusted the demands from the sustainability strategy and the existing strategy when making choices about product features. Wilson and Babolat were reinterpreting this trade-off as being good for both strategies, whereas Dunlop and HEAD created products that served either their existing strategy or sustainability strategy. All four cases sacrificed the sustainability strategy when it was threatened by the values of the existing strategy and valorizing this prioritization as necessary for the business. The procedural embracing- synergizing action cycle was demonstrated in the case of Wilson and HEAD, yet, limited. All cases continuously analyzed their external environment and, based on it, adapted to dynamic changes.The tensions and action cycles that occurred in each case are presented in Table 11 and Table 12 below to give an overview of the findings.

Name of the case	Tensions over implementing a sustainability strategy alongside an existing strategy		
	Tensions between product features	Tensions between values	Tensions between strategic goals
Dunlop Sports	X	X	X
Wilson	X	X	X
HEAD	X	X	X
Babolat	X	X	X

Table 11: Experienced tensions per case

Name of the case	Processual dynamics of implementing a sustainability strategy alongside an existing strategy								
	Compro-mising	Reinter-preting	Split-ting	Sacrific-ing	Valoriz-ing	Procedural Embracing	Syner-gizing	Analyz-ing	Adapt-ing
Dunlop Sports	X		X	X	X			X	X
Wilson	X	X		X	X	X	X	X	X
HEAD	X		X	X	X	X	X	X	X
Babolat	X	X		X	X			X	X

Table 12: Experienced action cycles per case.

6. Discussion

This section will discuss the findings and compare them with the existing literature to identify commonalities and contrasts. In this way, the extent to which the present study has contributed to the existing studies will be revealed. Moreover, the contribution of the study will be demonstrated by an improved version of the conceptual process model conceptualized by Hengst et al. (2020).

The tensions between product features were confirmed in all four cases. These tensions correspond to the incomparability of the demands from the sustainability strategy and the existing strategy in terms of the features of the physical product (Hengst et al., 2020). The findings showed that the performance of the tennis equipment is the most important feature targeted by the existing strategy. Svensson et al. (2023) went even further by stating that the performance of sports equipment is the primary target within the sports industry, even more important than increasing profits. Hence, this specificity of the industry sets the framework for the implementation of a sustainability strategy. Incorporating sustainability features within tennis equipment, however, compromises the performance, making its implementation difficult. Tennis equipment has functionality and complex composition. These conditions make introducing sustainable materials or recycling processes challenging, as any product change could affect performance or functionality. The results underscore previous sustainability tensions experienced in other products with similar conditions, such as electrical and electronic equipment (Forti et al., 2020; Fuchs & Hovemann, 2022).

The tensions between values, which is the incomparability between sustainable values and competitive values from the existing strategy, were confirmed in all four cases. The interviewees mentioned the high-performance company identity and standards as being opposed to their sustainability values. However, McCullough et al. (2016) found that environmental sustainability efforts can even promote a positive image of a company and attract environmentally conscious fans and sponsors. These contrasting results emphasize the lack of legitimacy of the sustainability strategy within the cases under study as they only manifest their values of the existing strategy rather than enacting them with the sustainability strategy (Hengst et al., 2020). The lack of legitimacy can be further emphasized by the individual approach of all cases in order to gain a competitive advantage since it opposes McCullough et al.'s (2016) suggestion of collaborating with various players for the sake of sustainability. In addition, this emergence of the sustainable *"race"* (Interview of Junior Product and Marketing Manager Tennis of Dunlop) between the cases promoted the fear of trustworthiness and authenticity of tennis equipment that incorporates sustainability elements. This touches on the issue that

there is no common definition of business sustainability since it increases the uncertainty of the effectiveness and trustworthiness of sustainability efforts, as any product can be declared sustainable or non-sustainable. Thus, the findings are consistent with the previous studies as they also stress the need for a common understanding of business sustainability in order to reduce the difficulty of classifying the success of sustainability efforts (Hahn & Tampe, 2021; Meuer et al., 2020).

In all four cases under study, the interviewees expressed tensions between strategic goals, which refers to an incomparability between the compliance of environmental goals and profitability. The findings highlight that adherence to sustainability goals initiates additional costs and uncertainty regarding profitability. This uncertainty stems upon customers, competitors, and the company's internal operations. This is in line with the tensions between the levels, namely individual, organizational, and systemic, as mentioned by Hahn et al. (2015). Therefore, it is crucial to acknowledge the multi-layered nature of business sustainability, even though the framework I chose from Hengst et al. (2020) focuses on the individual level.

All cases engaged in compromising processes, meaning trading-off features from the sustainability and existing strategy within the physical product. The findings suggest the need for novel innovations. This is consistent with the results of a study from Han and Niu (2023), as they showed that green radical product innovation can improve all aspects of sustainability (financial, environmental, and social). Furthermore, my findings confirmed the two approaches of reinterpreting and splitting by Hengst et al. (2020). Yet, reinterpreted sustainable changes as being good for both strategies might collide with the consumer perspective. This underscores a study by Hahn et al. (2015) as they emphasize the necessity to consider that individual efforts are embedded in a larger context.

The sacrificing-valorizing action cycle was present in all four cases, which refers to prioritizing one strategy and its valorizing through moral justification. Each case prioritized the existing strategy when the sustainability strategy threatened its values. These results were contrary to those of Hengst et al. (2020), where managers gave priority to the sustainability strategy and, thus, promoted the implementation of it. In my case, however, prioritizing the existing strategy did not amplify the implementation of the sustainability strategy within the existing strategy. Valorizing the choice by the necessity of keeping the business alive actually worsened it as it reduced the legitimacy of the sustainability strategy in relation to the specific tasks. Repeating this action cycle in different tasks over time can even result in decoupling of both strategies (Aguinis & Glavas, 2013; Haack & Schoeneborn, 2015; Hengst et al., 2020). Hence, the results underscore the crucial role of actors

mentioned by Ameer and Khan (2022), as their individual values, morals, and beliefs have indeed a significant impact on sustainable efforts. Thus, the findings suggest that actors need to prioritize their sustainability strategy to enact it alongside their existing strategy rather than decoupling.

Only two cases engaged in the procedural-embracing and synergizing action cycle, which refers to using existing procedures that also perform the sustainability strategy and, through that finding synergies between both strategies. Both Wilson and Babolat found synergies in their reduction procedures. However, the uniqueness of tennis equipment was mentioned as a hindering aspect. Looking at the results of Hengst et al. (2020) add the aspect of time to it, as their results show that actors found their first synergies after working on it for one year. Thus, actors should try to find synergies within their procedures, although it might take time or is limited by the product's condition.

All cases engaged in the analyzing-adapting action cycle, which refers to analyzing the environment and adapting to the dynamic changes. The analysis involved consumers, competitors, industries, technological possibilities, and regulatory changes. Including the focus on consumers is in accordance with the findings from Han and Niu (2023) since they have shown that the consumer focus enhances all three sustainability aspects, namely social, environmental, and financial. Furthermore, considering external factors is consistent with previous research of Ameer and Khan (2022), Hahn et al. (2015), and Weiser et al. (2020). They all emphasize the systems in which actors operate, including the individual, organizational, and systemic levels. Ameer & Khan (2022) underlines the relevance of the different levels when implementing sustainable practices within an organization, Hahn et al. (2015) uncovered tensions between the levels, emphasizing their interrelations and interdependence, while Weiser et al. (2020) stress the influence of the levels when implementing strategies. Additionally, even Hengst et al. (2020) mentioned the interrelation between the different levels. They pointed out that an existing and sustainability strategy can be decoupled on the individual level if the latter is only legitimate at the organizational level, yet, not at the individual level. Therefore, actors need to recognize the different levels, analyze the external environment, and adapt to dynamic changes to facilitate the implementation of a sustainability strategy alongside an existing strategy.

In sum, the data adds to the framework that actors need to prioritize the sustainability strategy in action to manage tensions between values rather than prioritizing the existing strategy (ii). Moreover, although the framework from Hengst et al. (2020) focuses on the individual tensions of actors when working on tasks, the levels still need to be included within the framework. The findings showed that actors need to start adapting a holistic view to manage various tensions (E). They need to

constantly analyse the environment and adapt to changes. Thus, Figure 4 demonstrates the adapted conceptual process model based on my findings.

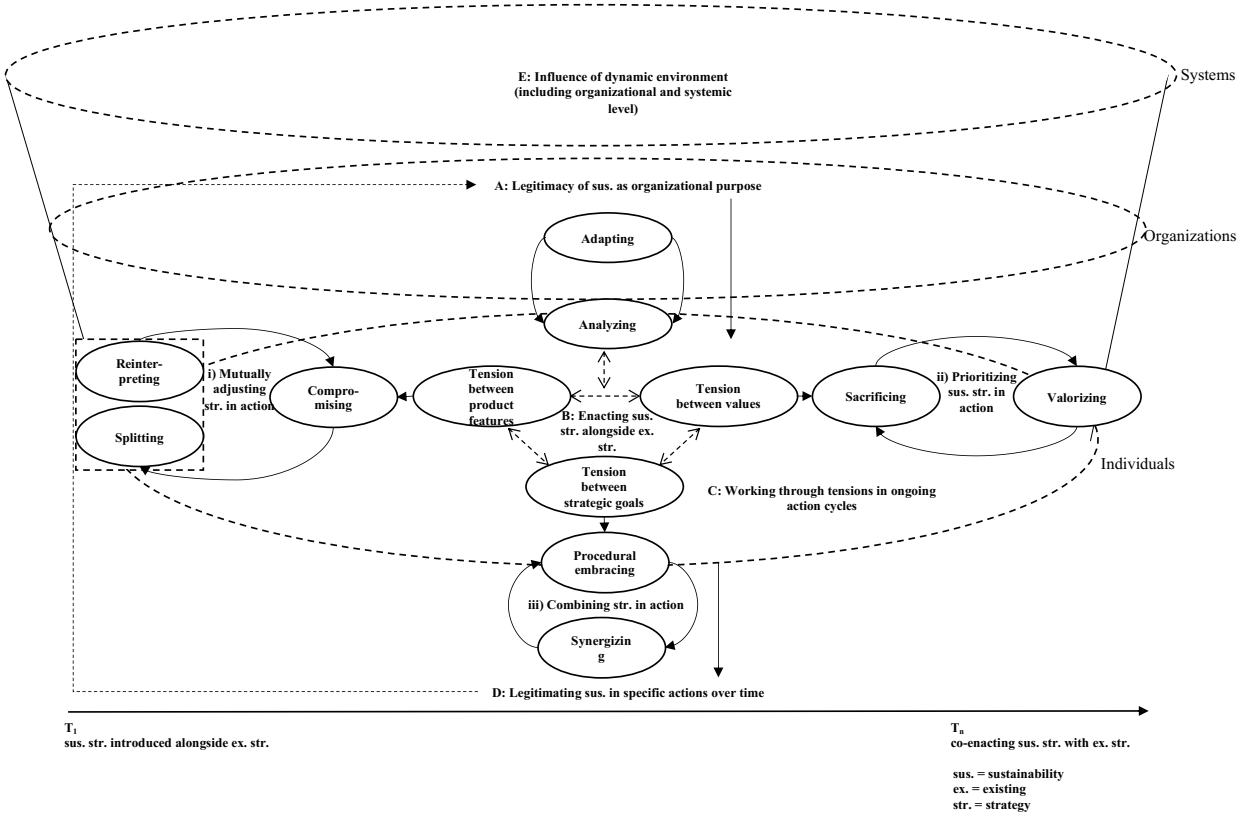

Figure 4: Adapted conceptual process model, in accordance with Hengst et al. (2020).

7. Conclusion

In conclusion, the results of the present study revealed how actors from sporting goods companies manage tensions when implementing a sustainability strategy alongside their existing strategy.

To date, there is a dearth of top management studies within the sports sector, and only a few studies address tensions that arise through the transition to sustainable practices. Referring to the management literature showed that there are limited studies addressing tension management when implementing a sustainability strategy alongside an existing strategy. Previous research highlighted that the paradoxical approach represents the predominant approach for addressing such complex topics. However, there is a gap within the research that explores the transition at the action level. The research question was answered on the example of tennis companies as sustainable sports equipment represents a recent trend within the sports industry and as tennis equipment significantly impacts the environment.

The results indicate that the following aspects assist actors from sporting goods companies to manage tensions when implementing a sustainability strategy alongside their existing strategy: First, the industry and product specificity should be considered as they present both opportunities and challenges for addressing sustainability. Second, creating a common understanding of business sustainability is crucial to avoid tensions when labeling a product as being sustainable. Third, when mutually adjusting both strategies within the physical product, actors can either reinterpret their trade-offs as beneficial for both strategies or split them into separate products. Fourth, actors should give priority to the values of the sustainability strategy when they are threatened by values from the existing strategy. Fifth, when experiencing tensions between strategic goals, actors should incorporate sustainability aspects into existing processes since it can lead to synergies. Sixth, actors need to acknowledge the system in which they operate in, as their actions at the individual level are influenced by higher organizational and systemic levels, and vice versa. As such, they need to continuously analyze the external environment and adapt to dynamic changes to manage tensions.

Limitations of the present research involve the choice of the framework and the method. First, the framework from Hengst et al. (2020) was suitable to answer my research question as it addressed to fill the gap of how actors implement a sustainability strategy on the action level. It is a comprehensive framework as it covers the tensions and its management. Although the tensions and action cycles

are conceptualized in categories, the framework still tries to show the interrelations between the tensions. However, the interrelation also represented difficulties when analyzing the data, as its interrelated and independent nature made it difficult to choose where to assign the different quotations. The precision could also be improved. Nevertheless, the framework serves as a starting point to understand the tensions and their management. Furthermore, the framework does not present the system in which the actors are embedded in. The reciprocal influence of the different levels, which are also mentioned by previous studies (Ameer & Khan, 2022; Hahn et al., 2015; Weiser et al., 2020), need to be considered as well, although the focus of the framework is on the action level. The complexity of the topic and the importance of the system is not apparent from the framework. Second, the choice of qualitative research allowed me to get a deep understanding of the tensions and management of the tensions that I would not have gained through quantitative research. However, conducting interviews accompanies common problem of bias and poor recall. Therefore, I used different types of data to triangulate biases. As my data collection period involved the period of 06/03/2023 to 05/05/2023 for primary data and 2017 to 2023 for secondary data, I could only capture a limited time frame. Since the research question addresses tension management on a task-by-task basis, I only captured a shot of what is happening and got a narrative of past experiences. Furthermore, the scope of tennis companies was also accompanied by limits as it only represents a small part of all sporting goods companies, creating limits of being representative.

Future research should investigate the implementation of a sustainability strategy alongside an existing strategy further within the sporting goods industry to find a common ground across different sporting goods, which will increase its representation. Besides that, as the environmental sustainability of sports equipment is only one piece of sustainability, further research should address social or environmental sustainability in light of, for example, the tournament calendar. Additionally, future research should explore the reciprocal influence of the different levels within a system in more detail to understand its interrelations and interdependencies when implementing a sustainability strategy. Applying the adapted framework that I created, based on the framework from Hengst et al. (2020), could be a starting point to address this issue. In addition, another consideration could be to create a closed-loop diagram to understand the causalities between actions on the different levels.

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Appendices

Appendix 1: Coding analysis: Quotation examples of tensions

Tensions between product features
- *"Creating high-performance products from recycled materials, for example, like a tennis racquet; they are made out of graphite and it's just difficult to replace this material with other material"* - *"Obviously this process takes up more time because alone now creating paper lids, we still need to see `OK we can create paperless but these can obviously be damaged much more easier`. For example, if a package gets wet, the paper lid gets wet, it might break or if you don't put them into the box correctly to send them to someone orders tennis balls if the DPD or DHL or whatever company transports these balls doesn't man-handle them properly they can also be damaged so that's all a bit difficult and you have much more aspects you need to think of "* - *"If we could not use plastic but maybe carton would be better but we can't because the balls are pressurized so there's some pressure inside and we need to keep the pressure with this type of packaging."* - *"It can take some months from the end of production until a consumer will actually open them and we need to make sure that during that whole process the pressure in the inside of the ball and not get lost and that's the first issue we are facing because these balls we cannot simply pack into a cardboard packaging as they would not keep anymore the pressure during the whole process."* - *"It is a bit difficult to create sustainable products in the tennis industry because you've got this dilemma between performance and sustainability "Yes everyone wants to be sustainable" but to which extent? Because tennis balls just aren't as good if they are made of recycled materials"* - *"For example a tennis racquet; they are made out of graphite and it's just difficult to replace this material with other material"* - *"So the problem here is to find always the same source […], to make sure that at least the material is always the same."* - *"The rubber at the moment, we can use a maximum […]% of recycled rubber and not any rubber, it is always the […] rubber. If you use more than that, you don't get the same performances at the moment, it's impossible."* - *"Performance is important and in tennis so far you always use the specific materials and it is difficult to switch to other materials that are more eco-friendly materials."* - *"In terms of performance, you don't make it over the ball yet, that it's totally recyclable."* - *"Tennis balls are tough because the materials that were used for tennis balls are inherently very unsustainable."* - *"We take steps like that to be more sustainable because it's just difficult to create a whole new product which is sustainable."* - *"It can take some months from the end of production until a consumer will actually open [tennis ball cans] and we need to make sure that during that whole process the pressure in the inside of the ball and not get lost. That's the first issue we are facing because these balls we cannot simply pack these into a cardboard packaging as they would not keep anymore the pressure during the whole process."*

- *"It all depends on how good the pressure will be hold inside the can for the transportation because we don't want to lose the performance of the product "*
- *"The ball is made out of a rubber core and around this is felt and also there we need to look into the possibility to use more recycled materials which is a bit tougher for these kinds of products as they are normally always produced out of virgin materials."*
- *„The problem we noticed now is when we talk about performance, how does it perform; if the ball would perform, I think then we could have written an incredible story."*
- *"You're not going to make a completely sustainable sport out of our sport. The racquets already don't bring that, all the other materials don't bring that; it's just a very wear-and-tear sport."*
- *"It stands and falls with the performance, if the performance is good then you will automatically be able to write the better story, if it is not good and you get bad feedback then it will be even more difficult".*
- *"More from a technical engineering point of view, for example, if we make a tennis racket from old carbon fibre, the chance of meeting the same performance if you make it from recycled carbon fibre, for example, is at the moment quite small, nearly impossible, but therefore there's a lot of work to be done to get to the point where we can match the performance"*
- *"The biggest challenge from a technical point of view is finding the recipe in terms of materials that we can use to obtain the same performance, at the same physical properties."*
- *"This balance between reaching a point where the performance of the product matches what it used to be when you used sort of 'normal' materials that are considered less sustainable. This is the biggest challenge."*
- *"All the tests that you could think of are super jeopardizing the performance of the ball which is already a high concern."*
- *"We're trying to do better by the materials we use, but again, very high-performance standards, so it's hard to try to reissue some of that material back into those sporting goods ."*
- *"It's the performance standards, because we've done a lot of testing […] and when we're testing, they just don't measure up to the quality or the standards that we use when we're selling product."*
- *"It's really hard just making a sustainable product that measures up to the same performance quality as not sustainable product."*
- *"That's one of the biggest tensions: Being sustainable but keeping the right level of performance. We are trying to use the wording inside the company and saying `sustainable performance`. It's not easy, it's not simple."*
- *"At the end of the day, you can make a sustainable product, but if it doesn't work, it's gonna get returned or it's gonna get thrown out, which is not sustainable either."*
- *„As [our brand] we're never going to give up performance for sustainability just because that's not for us, so when it comes to high-level performance equipment, I don't think there's gonna be any gives until we find a sustainable solution that lives up to that performance quality."*
- *"We're trying to do better by the materials we use but again very high-performance standards so it's hard to try to reissue some of that material back into those sporting goods."*

- *"I think it's obviously difficult because you open up a whole new chapter of having to create products a different way to how it has been done up until now and I think that it's just difficult to figure out a way of to creating high-performance products from recycled materials, for example."*
- *"Of course, there are huge tensions between performance, sustainability and price."*

Tensions between values

- *"We had a lot of examples being sent to us "This is recycled paper, this is a bit more brownish paper" things like that. And then we have to decide „OK this is 100% recycled paper, which is more in line with our mission of being more sustainable, but it just doesn't look sustainable. So that's a bit of a difficult because often you have packaging, which looks sustainable, looks brown, but it's just painted because real recycled paper is actually grey."*
- *"I mean if it would be that easy, all brands would be doing it, but that's the little race at the moment, who's gonna manage what first. And everyone takes their little few steps."*
- *"It is interesting to see how everyone has their own approach to sustainability and how everyone is trying to implement their own few ways."*
- *„Let's say about us, we're leading in tennis balls and if another brand comes and creates the first fully sustainable tennis ball, people are gonna start buying that ball."*
- *"the way in which I sort of hear it mentioned the most is that it's a bit like a race at the moment to put a product out on the market that is the most sustainable tennis racket and so on. Whoever is able to do that wins the race."*
- *"If we're only gonna rely on circular balls now, I think performance could lack a bit and that's not the standard, which we want in regards to tennis balls."*
- *"[…] That's for us very important, that also the brand and product image will stay on the right level because otherwise, the changes with the sustainability approach will ultimately not work out if the product performance will drop and nobody will buy it anymore."*
- *"If they maybe don't understand our concept or if we need to raise prices due to that concept and the fact that sustainable materials are maybe more expensive for the production, they could buy products from our competitors."*
- *"If the performance doesn't work, of course, we're at a competitive disadvantage, no question about it."*
- *"Because everyone has their own idea, every brand has a different approach and a different idea about sustainability."*
- *"I would say everything is related to the performance. You want to keep the image of the brand because [our brand] is perceived as a very high-level performance brand."*
- *"[We] want to deliver, to be authentic, so not to say `yes, we have the first, but it doesn't work actually`. So, we are not communicating anything if this doesn't work actually well, so if the performance is not super good."*
- *"We choose this approach, yes, we are working on sustainable products, starting from the packaging. We are working on products. But the products will be ready when they are performing at a level that [our brand] wants to show."*
- *"The issue is that I think the sustainable approach yes but if this is against the performance it's always tough to organize."*

- *"[…] competition. And that will always create some tension which makes it a challenging approach for all brands to reach that sustainability goals, looking on the packaging and the product itself."*
- *"It's a bit of a trade-off because as a brand who wants to sell products you want to sell products, so in some ways, you want people to buy a new tennis racket with the newest technology, with the new material, so that's the challenge, to find that balance between you know, creating a product that is more sustainable, but at the same time keeps the brand moving forward and keeps them competitive."*
- *"from the point of view of a brand that sort of makes products for high-performance purposes you know at this stage is always a little bit of a trade-off between sort of sustainability and performance."*

Tensions between strategic goals

- *„Everybody wants to be sustainable, but consumers don't like normally to change looking on the products they are using or looking on the performance of the products, so that's always kind of a conflict we are facing."*
- *"Basically, with tennis players, our consumers, it's like: Performance is at the top."*
- *"I think as much as consumers want to be sustainable, they also want a good performing product."*
- *"Because firstly, [sustainable solutions] do cost more. And as I said, by us now, we have to figure out a way to [make the process work] and these [sustainable features] obviously cost money. So, in the end, you pay more, but you don't even know if this sustainable packaging will be viewed as what it is in the end, so I guess that's only something we can see once it's in the market."*
- *"More costly to use these [sustainable] materials. The investment is quite high looking on the R&D side for the research and the design of these products and it's also I think a heavy investment later into the whole process because you need to find companies who will be able to do the recycling and will provide you again the recycled materials"*
- *"All kinds of ideas to invest a lot in resources. And at the end, maybe we develop something somebody else already had also developed and it failed for us."*
- *"You always need to compare to the sales and I mean, in the end, everyone wants money and how much money you're making, and if you should not focus more on sustainability or rather generate your sales."*
- *"Big influence on how we plan our ranges and our products is that ultimately consumers also will buy them at the end because that's the core goal of the business to create a turnover and margin, which will finance the business."*
- *"The question is if you should not focus more on sustainability or rather generate your sales."*
- *"They take a lot of time and a lot of resources to investigate all the potential effects a product or packaging change could have to the product looking on the performance side."*
- *„We really invest a lot, invest a lot in research, invest a lot in the product, in product research upfront before we launch something, and then we just rely a little bit on customer openness as well."*
- *"We can't only focus on [sustainability], because then of course that would just mean an extremely large loss of profit for us."*
- *"We would not now replace our bestsellers with sustainable products if these sustainable products simply do not yet fit in terms of performance. From that point of view, I think this has to take place step by step so that it is profitable and sustainable".*

- *"Sometimes it is simply complex. You don't know exactly whether the benefit is really that big and whether it really brings a marketable benefit on the one hand and an actual benefit on the other. That is also sometimes difficult to evaluate, because of course the suppliers of sustainable materials, products, etc., they also do marketing, so sometimes it is difficult for us as a brand to determine whether it is now really beneficial or not."*
- *"[...] because at the beginning, we took it a bit too far with the sustainability, it just didn't look good at the beginning unfortunately and that has to play into it."*
- *"So maybe it's just this issue that the consumer is very conservative and sustainability is not yet a top priority, but in the end price and performance of the product are much more important than how sustainable the product is. That is certainly an obstacle."*
- *"Then, the question is how much compromise the tennis player is willing to make in order to have a sustainable ball."*
- *"The problem is that such a bat is simply not yet feasible for mass production, because it costs too much money."*
- *"Of course, there are huge tension in between performance, sustainability and price."*
- *"and since the tennis players do not want to do without it, one offers such a ball so we have such a pressureless ball in a box, which is actually a hundred percent recyclable ball, but buy honestly hardly tennis players. It's available, but they don't buy it. It's no more expensive than the others, but of course, they don't want to sacrifice playability or performance."*
- *"Of course, for a company that works economically and is of course looking to make a profit, like any other company, there is always a dichotomy. When do I do it, how do I do it, especially if you have functioning products, then to change something there."*
- *"To produce things that are recyclable or biodegradable as far as possible, but of course, the costs are higher at first."*
- *"The bottom line is, of course, it's always an issue, the balls have to be sold, of course."*
- *"Then personnel resources, the costs. But then also the feasibility, whether the factory can handle it at all or whether you then have to sacrifice costs, which you don't really like to do because these are products that have actually become established."*
- *"Every change brings a certain risk and you have to weigh up in advance whether the risk in terms of costs, in terms of follow-up costs, is worth doing."*
- *"So far, it's only created costs."*
- *"The will is there, of course, but the bottom line is that you can't do it at any price."*
- *"In everyday life in production, in development, there is always this tension. And then having to make these decisions as to whether it is profitable for the company and whether it is also worthwhile in the long term. Because switching to a product for a short time doesn't really make sense. Optimally, the strategy must also be pursued in the long term."*
- *"We would look at some recycled nylons, recycled polyester and the price difference was astounding to the point where like our product line managers our business people would say like we just can't afford it."*
- *"You're always trying to shoot for that margin, you're trying to make a certain amount of money and there's always a little bit of give especially for sustainability like people are willing to do it willing to try it but*

	again when they're starting KPI's and goals from the business level to hit you know that that number we just don't have the support from the business to make those decisions and it's also not a sustainable business model so we want to stay around you know what I mean so that's also a challenge to make a product that's affordable still to the consumer and that we don't you know end up going broke and losing business " - *"A lot of companies end up eating the cost."* - *"It's probably materials but it's also going to be an investment in time."* - *"I'd say that tension is always there because you're going to be spending more money to be sustainable always at least until technology advances or until you know single use plastics and be more expensive."* - *"How much of that is going to be on the consumer to pay a premium? How much of that is just going to be absorbed for the company?"* - *„At the end of the day, most of sustainability does include a cost increase. We talked about the one piece of sustainability that doesn't which is reduction which is usually a cost savings."*

Appendix 2: Coding analysis: Quotation examples of action cycles

Compromising–Reinterpreting or Splitting Action Cycles	
Compromising	- *"The performance of the ball is very important for the consumer. We must now at least design the packaging sustainably and in the second step we will try to produce the tennis ball sustainably in the long term."* - *"For example, like a tennis racket. They are made out of graphite and it's just difficult to replace this material with other material. But things you can do is instead of printing plastic you can print [sustainable solution]."* - *"What we are you doing right now is basically to not change the product itself, but the packaging."* - *"We're trying to find a solution around the packaging now and then go to the bigger project which is changing the product and I believe that will be much more difficult."* - *"Balls which we launched new, they are still in PET made of virgin material, but [added sustainable elements]."* - *"Looking for packaging which can be as sustainable as possible but you also still want to keep the performance."* - *"We worked specially for balls and strings on the packaging so that's the easiest part."* - *"That you say, you may not make the balls sustainably, but you then produce everything around it sustainably, for example."* - *„We sell huge amounts of dampers every year and if you have them in paper packaging instead of plastic packaging, you can make a big contribution."* - *"We started reducing plastic in the classic ball cans."* - *"In every possible product that we launch, we always look at where we can [...] become more sustainable. So with every product launch or every new campaign that is planned, over the next 4.5 years, the sustainability idea is always included."*

	- *"[...] so the machine more or less recognizes the raw plastic material when it scans it and as a result, our cans go into the recycling process, which was not the case before."* - *"By changing the design of the packaging, the cans are now recycled instead of incinerated."* - *"So working on packaging is really is the first step that we have taken in tennis balls."* - *"Packaging was simply a low hanging fruit. That was a topic that could be solved mega quickly and easily. There was a pretty simple solution for that, where you didn't have to change anything in the product."* - *"You look at every single component, so of a tennis racket you can take apart all the possible individual parts and turn all and every individual adjusting screw and we just try to find out what has more influence on the performance, what has less influence and then gradually try to make the product as sustainable as possible."* - *"[...] it will always be a trade-off a balanced [between sustainability and performance]. I think the way will probably continue."* - *"For tennis balls is more about the packaging at the moment."* - *"The packaging should at least be sustainable, because with the products it is always difficult that they are always sustainable because they usually have a function."* - *"In the short term, to produce the packaging as sustainably as possible, which is relatively easy to do."* - *"This is an example where the desire was bought to make the can easier to recycle so it's more sustainable because at the end you can recycle it easier."* - *"In the short term is trying to use less and less plastic in my opinion in the packaging."* - *"At the moment our recipe is to do optimization on the the product so making sure that we keep the right performance but adding as much as we can sustainable components and so that's how let's say daily life to optimize and find new consensus and so on and so on."* - *"We just cut the middle out of it so that was a reduction in like 50% of the plastic."* - *"I would say second to that is recycle `where can we recycle?` So in our cans, we also use […]% [sustainable features]."* - *"Again trying to get those marginal steps forward and that's sort of the goal there. We're not gonna get zero to 100 overnight so we gotta sort of piece it together from there."* - *"A process where more and more products come in that are sustainable, but then also establish themselves in this area accordingly."*
Reinterpreting	- *"We stripped it of all of the packaging, it comes in a cardboard box, it's recyclable, it's gradable, all of that, so it's great packaging the ball actually has extended life as well they're durable so it's really great for teaching baskets in my opinion "* - *"the ball lasts like three or four times as long so in teaching baskets in terms of the amount of times you can hit the ball it's about the same, but in terms of how long it will last just in a basket it's significantly longer."*
Splitting	- *"That's why the [sustainable tennis ball] is for a certain type of player."*

	- *"You might be able to use that as a coach's ball for practice, but they don't want that for the game, so for point games."* - *"We realized it's not the ball for everybody, for example, high-level players cannot play with recycled ball, because it is not the same performance, so we decided we communicated this ball is for coaches, for players that don't play so often maybe once a week or for older players that don't need hit the ball so hard, so they are not so tough on the ball; we said this ball is more sustainable, but it's not for everybody"* - *"[…] and we only do those with the trainer balls because a coach anywhere just puts the balls into his coaching basket, so he's not going to collect all 50 balls after coaching practice, put them back into the can and then open 50 cans the next training session."* - *"We have two types of tennis balls and pressureless tennis balls they are already packed in more environmental granted packages."* - *"For some of the balls, our trainer balls, we also skipped [unsustainable features]."* - *"So in the short term, there will be individual products that are really marked as green products and where the topic of sustainability is specifically advertised."* - *„I think there will be two types of products. I know [our company] will do its best to create a product which is sustainable and this will be aimed at a particular group of consumers, they will always be a different group of consumers who maybe don't consider sustainability as important as performance and we also need to look after the needs of those."* - *"On one side, we can go on with this [sustainable type] of products, on the other side we have the not eco-friendly rackets, which are super performing […], but there's nothing eco-friendly."* - *"I think that a part of products will deliver a huge shift and at the same time we will have continuous improvement in each year and each year."*
Sacrificing–Valorizing Action Cycles	
Sacrificing	- *„Right now, in the sports space, I think the business case has been more than proven out and now I think it's actually inspired a lot of people get on board and make innovation […] It would be better if we pooled our resources if we were collaborating to find these solutions […].* - *„[…] trying to be the first mover and take advantage of the first mover advantage and be the sustainable player in sports."* - *"We don't want to do some greenwashing, so lie to our clients, but this paper might not really look sustainable and it might not come across as sustainable because I think people just want a brown looking paper or something in that direction."* - *"I think in the end if one company can bring out a fully sustainable tennis ball they will generate much more sales than others and you don't share your secret ingredients with other brands."* - *"I think performance could lack a bit and that's not the standard which we want in regards to tennisballs because that's the only aspect in which we're leading and we basically rely on that."*

	- *"It's important for us to maintain the lead so to say and that's where we focus more on the tennis ball than on the tennis racquet without even looking at `OK how easy would it be to make a sustainable tennis racquet and a sustainable tennis ball`."* - *"We're not really changing the strategy of how we create tennis balls for example because the materials are staying the same."* - *"We wouldn't collaborate with another tennis brand because you know we want to keep it for ourselves and be the first and I guess most industries that you all these product in this in the product industry most companies you talk to they wanna see off their competitors, that is only natural."* - *„The very first brand that will come out with the ball which is 100% recycled maybe it's not the best performing ball but that trend will be the first, so the image will be very very good."* - *"Because I think sustainability is a competitive advantage in of itself."* - *"Historically [our company] is a performance brand okay we make it some shifts down to the side to consider sustainability but yeah there will always be that element of high performance pushing the boundaries of engineering and technology."* - *„It's not our core business, so we are not equipped to do this, we have our network to sell the balls, not to collect them and it is different, it's a different thing."* - *"I think [our company] is a performance brand and so we do keep performance as are sort of north star, so as we look to make to integrate sustainability, we understand that it has to come not at a fault to the to the product."* - *"I do think that how we innovate, how we operate sort of holds performance as the main player and then we're looking at sustainability and how it can fit into there."*
Valorizing	- *"There's always a little bit of give, especially for sustainability [...] but when [sustainability efforts] start to get in the way of meeting KPIs and goals at the corporate level, then we simply don't have the corporate support."* - *"It's even more difficult for us because we need this aspect of the game but on the other hand we obviously wanna do something good for the planet."* - *"You're not going to make a completely sustainable sport out of our sport, it's just a very wear and tear type of sport."* - *"With us, there is simply cost-technically also in the broad mass not yet differently to regulate, but one makes at least thoughts about it, that there is consciousness for it".* - *"The packaging you can also not omit because the ball is pressure-filled with a bar. So, you can't sell the pressure-filled ball in a cardboard package."* - *„It's just not possible yet in some cases. But if it was roughly the same in terms of cost, then of course we would always go for the more sustainable option."*
	Procedural Embracing–Synergizing Action Cycles
Procedural Embracing	- *"Our primary focus is like reduction so that's from the get go what can we not use in the first place and that is obviously a great sustainability case it's a great business case people love that because I'm giving you cost savings right I'm telling you don't have to use as*

	much plastic you don't have to use as much material so you're not spending as much money right so when you if you want to talk about the business case of sustainability reduce is always a slam dunk because it really doesn't even matter how much you're reducing because, at the end of the day, you are reducing, therefore, it is cheaper right it is less expensive for them to manufacture."
Synergizing	- *"Of course, another issue is that sometimes sustainable products bring new benefits, so they may not be exactly the same as the non-sustainable alternative, but maybe, maybe it's different even in terms of performance, which can of course be a big advantage, which makes it easier for us to bring new products to market."* - *"We are saying this is for coaches or for people that plays not too much and you get a package at this more sustainable you can use the ball longer in the end you save money because you can use the ball longer and you do something good for the environment, so this is more aligned and this works."* - *"At the end of the day, most of sustainability does include a cost increase right we talked about the one piece of sustainability that doesn't which is reduction, which is usually a cost savings."* - *"Sometimes it's actually the case that the sustainable materials are actually cheaper because those might even come from a certain recycling process where there's just an oversupply of leftover materials if you can access those leftover materials and thereby lower the price with a more sustainable solution."*
	Analyzing-Adapting Action Cycles
Analyzing	- *"We cannot move on like for the last 100 years as the whole world is changing and that's one big influence why we are doing that and we also see changes given by the governments in a lot of countries."* - *„People are free, so they can buy balls from our competitors or from us and if they maybe don't understand our concept or if we need to raise prices due to that concept and the fact that sustainable materials are maybe more expensive for the production, they could buy the competitor‘s products because they are `like always` in some cases and maybe the price is cheaper, so that's always something we are feeling the tension that we also need to bear in mind what is the competition doing."* - *"[…] ball project, because I did some market research for it and we asked consumers what they thought of the packaging and whether we had to make some adjustments to make it look really attractive."* - *"[…] rather than in the past, developing tennis rackets purely for performance. Because now we spend way more time doing market research, talking to tennis players, talking to various different groups of tennis players to really understand what their pains are and what they want from a tennis racket."* - *"When we introduced these the first time, this packaging, then I saw a comment on Facebook that said `OK now you give me two cans with one lid, but it costs more`. Yes, but you*

have a different type of materials and yes sustainability sometimes is more expensive at the moment so it's all the process that needs to be rethought "

- *„If it's something new, it's always first looked at very critically, and yes, that doesn't make it easy for us to really initiate changes, because there's little need to really pull out performance in the end, even though the product is actually super good.“*
- *"We did our customer research and it showed that customers are willing to pay more if they can get something that they perceive is more eco-friendly."*
- *„What is the expectation for the consumer to absorb a piece of that in a price increase or a price premium.“*
- *"It really depends on the importance that the consumer puts on this."*
- *„We are in conversation with a lot of tournaments.“*
- *"I think the last piece is this idea of like innovation and specifically because there are no regulatory requirements. I think that's an interesting conversation as to like what could we accomplish if we pooled resources.”*
- *“[customer] who just does not get along at all with the [sustainable option] but just scream extremely loudly.”*
- *“It has to be consumer focused.”*
- *“Tennis products are usually quite emotionally charged because it's a hobby; tennis players are quite enthusiastic mostly about their sport and quite proud of their sport and the products are highly emotional there.”*
- *“Something new is simply very difficult for tennis players to accept.“*
- *„There was an enormous shitstorm, the Bild reported about us, we had petitions that were written against us 'put the ball down again, we want a new ball', so a whole association really stood in front of us and said 'OK, not like that'.“*
- *"We used the tools and the knowledge that we have we probably create a sustainable product that maybe it's not the performance product but now we start to sort of bring them together once we get that technology."*
- *"I think a more efficient approaches to really involved the customer during the development process, so for example, you create some prototypes and you let people test them and say ‘Is this what you're looking for?’ ´does this racket meet your expectations?` ´how would you change it?´“*
- *"for a lot of industries when you do get that regulatory aspect you get more collaboration between brands."*
- *"Hopefully sooner or later it will also come from the organizations, i.e. from the IFT, international tennis federation, or ATP, or from the national tennis federations, I would also like to see more support, that perhaps more will come from them, more regulations will come, that the brands will be challenged a bit and perhaps even forced to think more sustainably and become more sustainable, and that they will also do more education.“*

	- *"I hope it maintains momentum and people continue or brands like us continue researching it and consumers continue to be interested and want it. I think people have to be patient but I think we have to be."* - *"because there's no regulation I would say a lot of the work in this space is done individually right so you have individual brands driving sort of innovation."* - *"This design works if the can is disposed properly if the consumer is taking the can and throw this in the garden it doesn't work."* - *"It is an ongoing process and there will also be new possibilities to produce sustainability products at all, so there is also the technology, there are always new things here every day and we will also create new possibilities."* - *"Very important at the moment to do a lot of competitive research and to see what's out there, what are they trying to achieve looking on the performance of a product and the packaging."* - *"I think the last piece to it is this idea of like innovation and specifically because there are no regulatory requirements."* - *"I think if there are regulations then I think there's more maybe brand collaboration."* - *"consumer sort of journey that we have to go on where that becomes second nature so I think businesses do it all the time industries do it all the time where they completely evolve how consumers think and work and what they believe."* - *"I think there's a shift when there's regulatory elements to it versus whether not."* - *"When you start doing these type of things people are afraid that something is changing on the product and they made the products are different because they see a different packaging yeah and this is also important to make people aware that even if you use different materials we can achieve the same performance."* - *"At the moment the only thing you can do is research. Making prototypes, testing them. but also going out into the public, into the speaking with consumers, letting them try, asking them to try your products."*
Adapting	- *"The customers but also just not at any price."* - *"In effect, through pretty strong innovation management, so we try in the end to adapt the sustainable products to the current products and to benchmark so that you just approximate them from the performance."* - *"But then let's always just constantly be seeking out sort of what that marginal improvement can be."* - *"Then you take that feedback and sort of continue developing based on the feedback of the consumer and hopefully at the end of the project when you have the final thing, it is exactly what the market said it wanted."* - *"What we've been trying to explore through like different product offerings if the consumer really wants it because of course you see in the news and all the trend articles that yes consumers want sustainable products but I think there is a little bit of disconnect between they want it versus they'll buy it."*

	- *“Tennis rackets or graphite tennis rackets but all industry then one would have to join forces with the bicycle industry and say what do we actually do with our product; how could we recycle it other than throwing it into the household waste?“* - *“Use that feedback and I think that is at least what we're doing to make this next steps.”* - *“[…] and also to take their our conclusions, what could work and what not, so that we are also efficient looking on the investigation from our R&D side"* - *"How we can optimize the product together with the consumer and that we create added value there."* - *"This was copied from the beverage industry. [...] and we have now made it so that the can is recognized before this recycling machine."* - *"We have partnerships with associations. Then, in the partnership, there is also always the issue of 'what does [our company] do for sustainability?' So, because, of course, in the external presentation, they also have to say again 'yes, our partner is sustainable'."*