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What Opportunities and Challenges do Athletic Sportswear Companies Face when Involving Elite Athletes in Innovation?

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ABSTRACT

Innovation is a key driver of competitive advantage in the sportswear industry, particularly with the rapid evolution of Advanced Footwear Technology (AFT). This research examines the pivotal role of *elite track and field athletes* as *lead users* and *opinion leaders* within the innovation processes of sportswear companies. Focusing on track and field events significantly impacted by AFT, the study gathers qualitative insights from both sponsored athletes and company representatives of sportswear companies. It examines how sportswear companies incorporate athlete feedback into product development to modify existing products or introduce new ones. The findings reveal that elite athletes offer valuable insights for product development and can drive innovation, aligning with *lead user* and *co-creation theory*. However, the study also highlights significant challenges for companies, including managing diverse feedback, balancing specialized athlete needs with broader market appeal, and addressing ethical concerns related to the use of performance-enhancing technology. The study concludes that while elite athlete involvement in innovation offers substantial opportunities for sportswear companies, they must strategically address the associated challenges to capture the benefits. Effective strategies include implementing robust feedback mechanisms, fostering genuine collaborative relationships, and establishing transparent communication to leverage athlete insights sustainably. This research contributes to a deeper understanding of the dynamic relationship between sportswear companies and their top-performing sponsored athletes, providing practical implications for product innovation and marketing strategies within the sportswear industry.

Keywords: innovation process, user innovation, sport innovation, advanced footwear technology, athlete feedback, track and field, lead user theory, open innovation, co-creation, new product development, sportswear industry, athletics.

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1. INTRODUCTION

1.1 Background

Innovation is a key driver of competitive advantage in the sportswear industry. The sport of *track and field* has seen many record-breaking performances in recent years, undeniably in parallel to the advancements of sports technology, particularly footwear innovations (van den Tillaar, 2024). These technological advancements have transformed the world of athletics and ignited a competitive race among rival sportswear companies to develop the fastest competition shoes (Germano et al., 2024). One of the most debated innovations has been the introduction of *carbon fiber plate* shoes, contributing to record-breaking performances in running and jumping events by significantly enhancing energy return and running efficiency (van den Tillaar, 2024; Bonata et al., 2024).

These innovations can be categorized under AFT, *Advanced Footwear Technology*, and were first introduced by Nike in 2016. Their Vapor Fly shoe model revolutionized the running shoe industry, initiating the so-called "super shoe war" among companies such as Adidas, Puma, and New Balance (Bonata et al., 2024; Ingle, 2023). To stay competitive, this forced all sportswear companies to design their own versions of AFT shoes, through innovations such as enhanced bending stiffness, high-energy return foams, and increased stack height (Bonata et al., 2024). World Athletics, the governing body for track and field, even banned some of the first AFT prototypes before setting new regulations on stack height and plate configuration (Germano et al., 2024). These technological advances created a new, more complex piece of footwear that would improve a runner's energetics and performance, ultimately changing the sport in its postmodern era (Burns & Joubert, 2024).

Due to the performance-enhancing effects of these *super shoes*, they quickly became subject to controversy. When Nike’s Vapor Fly was first created, concerns were raised about “technological doping,” as athletes not wearing this then-unreleased model at the 2016 Olympic Games in Rio de Janeiro were clearly at a disadvantage. Consequently, some athletes sponsored by rival sportswear companies even taped over the Nike logo and competed with them during the Olympics (Lewis, 2024). Even at the 2024 Olympic Games in Paris, these controversies persisted; The Financial Times referred to the competition as *the*

battle of the latest footwear technology, highlighting the impact of these technological innovations on track and field performance (Germano et al., 2024).

In today's dynamic and complex business environment, innovation is essential for staying competitive and, therefore, vital to a company's survival (von Hippel, 2007). Traditionally, manufacturers have been perceived as exclusively responsible for innovation through idea generation and the development of new products. However, users are often the source of ideas or products that later become commercially important products and processes for companies (Schreier & Prügl, 2008).

In extreme sports such as snowboarding, skateboarding, and windsurfing, the users of the equipment, or the *athletes* in these sports, have developed some of the most critical innovations (Shah, 2006). In the 1970s, some of the top windsurfers attempted to push the limits of the sport by experimenting with aerial tricks, while mainstream surfers practiced the sport as initially intended, surfing on the water. Ariel tricks eventually became the new market trend, and the athletes' inventive footstraps became commercialized and are today present in almost all windsurfing equipment (Shah, 2006). The first mountain bike was also created by sportsmen or athletes, pointing to another significant example of *lead-user innovation* (Kratzer et al., 2016).

Similarly, in the context of track and field and footwear technology, Nike developed its Alpha Fly 3 model by incorporating feedback from elite athletes and everyday runners, the *users* of its products (Germano et al., 2024). This suggests that athletic companies have involved *elite athletes* in their product development to create a competitive edge. These athletes, being at the forefront of their sport, embody the characteristics of *lead users* as theorized by von Hippel (1986), whose needs and insights anticipate future market trends.

According to the *lead user theory*, *lead users* are ahead of the mainstream market and tend to come up with commercially attractive user innovations, making them valuable to companies in their new product development (Schreier & Prügl, 2008). Not only do lead users create new, innovative ideas for companies, but they also adopt new commercial products faster than the average user. Hence, they are arguably not only crucial for idea-generation processes of radically new concepts but also relevant for the general marketing of new products (Schreier & Prügl, 2008). In convergence with the *innovation diffusion theory*, the roles of

lead users and so-called *opinion leaders*, individuals who influence consumer behavior, often intersect. Both play significant parts in influencing the adoption of new products by other consumers in the market, and may help improve innovation diffusion (Wang et al., 2023). In the context of this research study, elite athletes fit the description of characteristics of both *lead users* and *opinion leaders*.

Athlete sponsorship is the practice of an external party providing financial support to an athlete. The partnership is mutually beneficial, as the sponsor company can leverage the athletes' market influence to create brand awareness, enhance its brand image, and foster stronger engagement with brand communities (Mills, 2024). Sponsorship is an established method for corporate co-branding, and athletes can help companies effectively position new products and drive sales by extending awareness beyond the firm's original market (Abdolmaleki et al., 2023). These sponsored or elite athletes can be defined as lead users, as they are at the forefront of market trends and experience needs and challenges before the mainstream market. Besides marketing initiatives, elite athletes are also valuable in innovation, as the *lead user approach* recognizes them as one of the strongest drivers of new product ideas (Wang et al., 2021). This aligns with research highlighting significant contributions from stakeholders outside the company's internal structures (von Hippel, 2007; Shah, 2006).

Companies today increasingly leverage external innovation processes, such as brand communities, open innovation, and co-creation, to drive innovation and stay competitive (Schmid et al., 2022). Brand communities are crucial to a company's long-term success, as they foster positive word-of-mouth behavior, brand trust, and customer commitment. Customers often share innovative ideas without compensation (Mills et al., 2022; Wang et al., 2021). Open innovation further supports corporate growth and profitability by actively involving end-users in the creation and development of innovative new products (Venesz et al., 2022; Schmid et al., 2022).

Among the various approaches to external innovation, co-creation stands out as a specific design methodology that drives innovation and product development (Ertz, 2024). It can help the company see beyond its own perspectives by allowing external stakeholders to provide feedback, share experiences, and offer unique insights that can improve the functionality and design of products or generate entirely new ones (Ertz, 2024). Co-creation is becoming

increasingly popular among companies today, where users play a crucial role in the development of new products. They actively participate in idea and concept formulation, product development and testing, as well as market diffusion and post-launch activities (Venesz et al., 2022).

Despite these compelling examples of user-driven innovations and the established theoretical benefits of integrating lead users in innovation processes, the precise mechanisms of opportunities and challenges involved when sportswear companies engage elite athletes in their innovation processes remain unexplored. Therefore, understanding the complex environment of sports innovation and its practical implications is important for sportswear companies striving to maintain a competitive edge.

1.2 Purpose

This thesis aims to bridge a gap in existing literature by building upon the established importance of user-driven innovation and the unique position of elite athletes as lead users and opinion leaders. While existing research acknowledges the value of user-driven innovation, few studies have specifically examined how sponsored elite athletes contribute to this process within sportswear companies. The extent to which firms systematically integrate athletes' feedback into their innovation strategies remains unclear. This thesis aims to fill this gap by examining the role of *sponsored track and field athletes* in the innovation processes of *athletic sportswear companies*.

It aims to identify potential opportunities and challenges that these sportswear companies face when collaborating with their sponsored athletes, by applying theories of user innovation, co-creation, and lead user theory within *track and field*, a high-performance sport where athletes' needs and insights are particularly critical. Focusing on the athletes' role in the development of shoes and their influence on the mainstream market can offer sportswear companies opportunities for effective innovation strategies and marketing initiatives. Therefore, this thesis addresses the following research question:

What Opportunities and Challenges do Athletic Sportswear Companies Face when Involving Elite Athletes in Innovation?

2. LITERATURE REVIEW

This chapter provides a comprehensive review of existing literature relevant to understanding the many roles of elite athletes in the innovation processes of sportswear companies. Initially, it describes the *evolving landscape of innovation* in the sports industry, moving beyond traditional manufacturer-centric views to explore significant contributions of external stakeholders and innovation processes. It includes applying theories of *co-creation* and *open innovation*, as well as describing the crucial role of *brand communities* and *social identity theory* in strengthening consumer engagement and brand identity, particularly in the context of sports. The literature review chapter emphasizes the *lead user theory*, its core principles, and methods for integrating lead users into the new product development process. Lastly, *innovation diffusion theory* is introduced, highlighting the interplay between lead users and opinion leaders in influencing market adoption, thereby setting the theoretical foundation for the empirical investigation into athlete involvement in sportswear companies' innovation.

2.1 The Evolving Landscape of Innovation

In today's dynamic and complex business environment, innovation is a must to stay competitive and vital for a company's survival (von Hippel, 2007). Traditionally, manufacturers have been perceived as exclusively responsible for innovation through idea generation and the development of new products. However, users have often been discovered to be the source of ideas or products that later have become commercially important products and processes for companies (Schreier & Prügl, 2008). Users have developed some of the most significant innovations in extreme sports, such as snowboarding, skateboarding, and windsurfing (Shah, 2006). In the 1970s, some of the top windsurfers attempted to push the limits of the sport by experimenting with aerial tricks, while mainstream surfers practiced the sport as initially intended, surfing on the water. As these top windsurfers repeatedly got injured because the current equipment was not made for aerial tricks, they became innovators by inventing the footstraps. Later, this became commercialized, and aerial tricks became the new market trend, and footstraps are now present in almost all windsurfing equipment today (Shah, 2006).

2.2 External Sources of Innovation

2.2.1 Co-Creation & Value Co-Creation

A growing body of research highlights significant contributions from outside the company's internal structures. The external innovation processes, including *open innovation, co-creation, and crowdsourcing*, are influenced by *brand communities* and *social identity theory* (Schmid et al., 2022). Among the various approaches to external innovation, *co-creation* stands out as a specific design methodology centered on the collaborative contributions of multiple stakeholders (Ertz, 2024; Venesz et al., 2022). One key concept of co-creation is that it drives innovation and product development, where end-users are involved in the design process to fit their needs better. Co-creation can help the company see beyond its own perspectives by allowing external stakeholders to provide feedback, share experiences, and offer unique insights that can improve the functionality and design of existing products or lead to the creation of completely new ones (Ertz, 2024). Co-creation is becoming increasingly popular among companies today, where customers play a crucial role in the development of new products. They actively participate in idea and concept formulation, product development and testing, as well as market diffusion and post-launch activities (Venesz et al., 2022). The value co-creation model emphasizes the active role of end-users in generating value to both partners' brand equity and reducing the risk of brand transfer (Ertz, 2024; Abdolmaleki et al., 2023).

Co-creation in the context of sports includes mutually beneficial *athlete sponsorship*, as the sponsor company can leverage the athletes' market influence to create brand awareness, enhance its brand image, and foster stronger engagement with brand communities (Mills, 2024). Sponsorship is an established method for corporate co-branding, in which two or more independent brands jointly create a product or service. It effectively positions new products, drives sales, and enhances brand image while decreasing marketing and advertising costs. Company revenues increase by extending awareness beyond the firm's original geographical territory (Abdolmaleki et al., 2023). Co-creation between the company and athletes, coaches, or teams can enhance the sportswear company's meaning by collectively shaping the brand identity and overall perceptions (Abdolmaleki et al., 2023; Anderski et al., 2024). It can also develop innovative technologies through knowledge exchange (Abdolmaleki et al., 2023).

To create successful co-branded alliances, strong relationships must often be established and maintained. Sponsorships, classified as a lateral alliance, require appropriate relationship building to yield benefits such as mutual trust and commitment, product reliability, and innovative strategies (Abdolmaleki et al., 2023). Involving company partners in feedback and idea loops can create stronger ties between them (Ertz, 2024). Professional sports teams have proven to be attractive co-branding opportunities, enabling sportswear companies to acquire the heritage associated with powerful sports teams. Due to the intense competition among sportswear companies, these companies strive to associate themselves with specific sports teams or athletes through their apparel (Abdolmaleki et al., 2023). It is a powerful marketing strategy that can attract new customers, increase market share, and enhance brand image as they can leverage the sports teams' or athletes' heritage and fan bases (Abdolmaleki et al., 2023).

Regardless of the method used for co-creation, it can lead to increased innovation, better alignment with customer needs, enhanced customer engagement, and stronger brand loyalty (Ertz, 2024). It also allows for diverse input, leading to more creative and effective products. One issue, however, relates to ensuring effective participation of stakeholders and entails aligning diverse stakeholder interests (Abdolmaleki et al., 2023). Other challenges include a lack of flexibility, the risk of damaging the core brand, and unrealistic expectations from one or both sides of the co-branding partnership. Therefore, co-branding factors should be carefully examined (Abdolmaleki et al., 2023).

2.2.2 Open Innovation Theory

Another prominent external innovation strategy is *open innovation*, which involves end-users' active participation in new product development, including generating new ideas, elaborating on concepts, testing, and refining prototypes (Ertz, 2024). In open innovation, companies consult the opinions and suggestions of a crowd of people (Schmid et al., 2022). Crowdsourcing refers to gathering ideas and feedback from a large group, typically a community (Ertz, 2024). The strategy of crowdsourcing through open innovation has enabled companies to access vast numbers of users, capture customer feedback, improve market research, and facilitate innovation processes (Schmid et al., 2022). Opening the company boundaries and applying methods to identify lead users can support corporate growth and profitability (Venesz et al., 2022). Collaborating with users can benefit the company by generating ideas that lead to product variations, entirely new products, or modifications to

existing ones (Schmid et al., 2022). Users also benefit from involvement in the companies' innovation processes, as they have the opportunity to receive innovative products tailored to their specific needs (von Hippel, 1986). However, open innovation can lead to an overload of input and ideas, many of which are often futile or infeasible. Processing and evaluating all these ideas is time-consuming (Schmid et al., 2022). According to Schmid et al. (2022), a solution to the overload of ideas may be to focus on individuals with specific characteristics that support the company's innovation processes. These individuals are specifically referred to as "lead users" (Schmid et al., 2022).

2.2.3 Brand Communities and Social Identity in Innovation

The rise of online platforms and the growing importance of *brand communities* have created new opportunities for companies to harness user-driven innovation through crowdsourcing (Schmid et al., 2022). According to Mills et al. (2022), brand communities are critical to a company's long-term success. Members' participation in a brand community reinforces positive behaviors, such as word of mouth, brand trust, customer commitment, and resilience to negative information, ultimately leading to a stronger brand reputation (Mills et al., 2022). Venesz et al. (2022) also claim that community members are willing to share their innovative ideas with the focal company without compensation. *Social identity theory* builds upon individuals' conscious membership in groups to which they are committed, mirroring their self-concept. Customers who develop an identification with a brand will utilize it to display their self-concept, a process in which brand communities play a significant role (Mills et al., 2022). Consumers who are passionate about a specific brand tend to identify with it as part of their self-identity. Commitment to a brand community further leads to positive feelings of belongingness, where they treat the brand as part of their lifestyle (Wong & Hung, 2023).

In social identity theory, self-congruity refers to the matching of a consumer's self-concept to a celebrity's image. Individuals following a particular sports team or athlete can develop a group identity, and the congruity between the individual's self-image and the brand's image connects the two (Wong & Hung, 2023). These self-brand connections can lead to identification with certain athletes, and the celebrity status they hold through their public presence in media is commercially valuable (Wong & Hung, 2023). Supporters of certain athletes tend to develop attachment and loyalty toward the focal brand, which can later translate into enhanced brand meaning and co-creation (Wong & Hung, 2023; Anderski et al., 2024). Those athletes with strong global fan bases serve as *ambassadors* for sportswear

companies, creating culturally relevant connections with fans, media, and sponsors by aligning their sponsored sportswear company and its brand with their own identity. Celebrity athletes play an importance role, as their performance and personal branding foster emotional relationships that drive engagement and resonate with fans (Anderski et al., 2024). According to Anderski et al. (2024), these athletes are drivers of international marketing, leveraging their influence beyond the field and playing a crucial role in expanding their sportswear company's visibility. The fans' emotional connections with their athlete translate into a deeper loyalty for the sportswear company they represent (Anderski et al., 2024).

Athletes are particularly commercially valuable on online platforms, where they often serve as influential content creators, enabling them to communicate directly with their fan bases (Anderski et al., 2024). Füller et al. (2007) also demonstrate how online brand communities can serve as effective platforms for innovation creation. Their study of basketball-related online communities reveals that such environments enable users to share ideas, co-develop concepts, and articulate needs that may not be visible to sportswear companies through traditional market research. The collective intelligence of these communities, combined with intrinsic motivation and domain-specific knowledge, makes them particularly valuable for the early phases of innovation. Importantly, community members engage not only to influence product development but also to reinforce their self-identity and group affiliation, creating a synergistic relationship between brand engagement and innovation participation (Füller et al., 2007).

A study conducted by Mills et al. (2022) found that brand communities are influenced by sports fans wearing replica jerseys of players, including retired ones. This public display of brand loyalty is an opportunity for sports fans to showcase their membership in the brand community. By sending members of brand communities products to review and test, the community can be further enhanced, ultimately leading to a more public display of brand loyalty (Mills et al., 2022). Wang et al. (2021) found that when a user has trust in an online brand community, it further mediates the relationship between lead user behavior and innovative behavior. Strong trust therefore has a positive effect on the level of innovativeness in an online brand community (Wang et al., 2021).

Another aspect of social identity theory refers to athlete attraction, in which the likability or attractiveness of an athlete facilitates the promotion of fan loyalty due to their prominent

personalities, performances, or glamorous appearance. Therefore, athlete attraction has a positive effect on the brand community. Athletes, as part of brand communities, create a spillover effect as their fans also become attached to the sportswear company they are sponsored by (Wong & Hung, 2023). Evidently, sports clubs and athletes significantly impact customers' perception and influence their involvement, loyalty, and behavior (Anderski et al., 2024).

2.3 Lead User Theory

Building upon the recognition of user innovation, the *lead user theory* provides a specific framework for understanding and identifying users who are at the forefront of market needs.

2.3.1 Core Principles of Lead User Innovation

Von Hippel (1986) introduced the lead user theory concept to understand what type of users trigger attractive user innovation. A lead user is "a user who identifies needs and trends in the market months or years before other people do and who benefits significantly by obtaining a solution to those needs according to the Lead User Theory" (Schmid et al., 2022, p.946). The primary aspect of the theory is that lead users are *ahead of the mainstream market* and *expect to benefit* from innovation, and are therefore most likely to develop attractive, innovative ideas (von Hippel, 1986). The rationale behind the "ahead of trend" aspect is that market needs tend to follow specific underlying trends. Hence, the users at the front of the market will experience needs today that the rest of the market will not experience until tomorrow (von Hippel, 1986). If these users, ahead of the trends, respond to their own needs, their solutions become commercially attractive to the mainstream market later (Schreier & Prügl, 2008).

Building upon von Hippel's theory (1968), Schreier and Prügl (2008) note that another component of lead user theory depends on whether an individual's involvement or investment in an activity is influenced by their expected benefit from performing the activity. As manufacturers indirectly benefit from innovation by selling products, the users experience the direct benefits as they use them. For instance, the expected benefits of a windsurfer may be related to unsolved problems that cause him injuries. If he perceives these problems as severe enough, it justifies an investment or serious involvement in innovation to solve them (Schreier & Prügl, 2008).

Extending on the lead user theory, Schreier and Prügl (2008) suggest that lead users tend to come up with innovations that are commercially valuable to companies in their new product development. Not only do lead users create new innovative ideas for companies, but they also adopt new commercial products faster than the average user. Hence, they are important for the idea-generation processes of radically new concepts and are relevant to the general marketing of new products (Schreier & Prügl, 2008).

2.3.2 Integrating Lead Users into New Product Development

Based on the lead user theory, lead users should be integrated into companies' new product development using the *lead user method*. It means learning from lead users about their needs, problems, and solutions they encounter at the leading edge of the market (von Hippel, 1986; Schreier & Prügl, 2008). Similarly, Wang et al. (2021) recognize the lead user approach as one of the strongest drivers of new product ideas, over other techniques such as benchmarking or user observation.

Venesz et al. (2022) suggest that consumers' contributions cannot be isolated from new product development and that lead users play a crucial role in innovation. They point out that companies must recognize this and engage them in research and development, while also incorporating them into the testing methods for new product concepts. Their professional knowledge, characteristics, and skills enable them to invest more in innovation than ordinary users, which means they can boost innovation in a company. Companies should therefore take advantage of lead users in the early stages of innovation and idea generation (Venesz et al, 2022).

Influence from lead users can also help other ordinary users improve their innovative behavior (Venesz et al., 2022). As they experience needs today that the mass market will not experience until months or years later, they can bring valuable insights to companies, enabling them to become leaders among their competitors (Schreier & Prügl, 2008). Lead users can provide high-quality information and design freedom, resulting in improved product development (Venesz et al., 2022). In contrast, the average consumer finds it difficult to evaluate the potential value of new products and drastically new concepts (Schreier & Prügl, 2008). Venesz et al (2022) further point out that average users are unsuitable for

developing new product attributes because they cannot accurately predict the future market trends and needs.

2.3.3 Critiques of the Lead User Theory

Despite the advantages of the lead user theory, it is essential to acknowledge its challenges and limitations, particularly in terms of its application and underlying assumptions. One major critique of the lead user theory is the difficulty in identifying lead users (Schreier & Prügl, 2008). Although lead users in open innovation processes are a promising concept, their success rate is low if they are not identified appropriately (Venesz et al., 2022). Venesz et al. (2022) emphasize that knowledge about the specific characteristics of lead users is crucial for selecting the right ones in the early stages of a company's new product development. Roberts and Darler (2017) also emphasize the importance of managers choosing the right users for their innovation process, noting that users lacking specific essential characteristics often lead to failed innovation.

Important lead user characteristics concern their knowledge, motivation, skills, behavior, and experience, which are crucial for successful co-creation (Venesz et al., 2022). Marchi et al. (2011) claim that an essential characteristic among lead users is their willingness to collaborate and strategic alignment with the brand identity. Schreier and Prügl (2008) also propose that personality will impact the leading-edge status. The personality traits include locus of control, which refers to the degree to which individuals believe desirable outcomes are controlled by their own actions, and innovativeness, which refers to a person's predisposition toward new and uncertain situations (Schreier & Prügl, 2008). Additional critique by Venesz et al. (2022) suggests that attracting lead users is insufficient to promote innovation. Companies also need to have a brand community that provides an environment of mutual trust, where lead users can effectively influence innovation behavior. Only in a trusting climate will they feel free to express themselves and fully contribute their knowledge resources, improving innovation performance (Venesz et al, 2022).

2.4 Innovation Diffusion Theory

While creating innovative products is crucial for companies, their success in the market is equally dependent on the diffusion of innovation, which describes how various consumer segments adopt new ideas and products over time (Singh, 2013). Innovators and designers are

key drivers of innovation, but even if they create sound innovations or inventions, they may still fail in the market. Therefore, innovation and its diffusion are linked to a hierarchical model that describes how an innovation is adopted in the market. Key actor categories include *innovators*, *early adopters*, the *early majority*, the *late majority,* and *laggards* (Singh, 2013).

2.4.1 The Mechanism of Influence in Innovation Adoption

Within the category of *early adopters* are lead users and opinion leaders, who serve as strong influencers for the mainstream market and the diffusion of innovative products. The roles of lead users and opinion leaders often intersect, with both playing significant parts in influencing the adoption decisions of other consumers. Lead users and opinion leaders are very similar. Both may help improve innovation diffusion, provided that lead userness promotes opinion leadership (Wang et al., 2023). Opinion leaders are defined as individuals who influence consumer behavior. Once they share their subjective user experience and express it, it is followed rapidly, influencing the adoption decisions of other consumers for new products. In contrast to opinion leaders, lead users anticipate upcoming market trends and find new solutions to existing problems. They often influence other consumers' purchasing decisions with their professional knowledge, personal experience and positive communication behavior (Wang et al., 2023). Both lead users and opinion leaders can influence others' adoption of new products, which comes from their knowledge, experience, and communication behaviors. Opinion leaders are important sources of advice for other consumers when adopting and diffusing new products. Sportswear companies can effectively use them to promote their sales and the diffusion of their new products (Wang et al., 2023).

Domain-specific innovativeness is a consumer's tendency to focus on new products within a specific product category. According to Wang et al. (2023), active product involvement can increase the likelihood that lead users become opinion leaders as it enables them to gain knowledge and use experience with new products instantly. More involved lead users also understand product attributes better, leading to a tendency to adopt new products earlier. Involvement of users in innovation processes therefore creates a more substantial commitment to the products (Wang et al., 2023). Lead users tend to possess more user experience and consumer knowledge, demonstrate a higher internal locus of control, and have innovative personalities than average consumers (Schreier & Prügl, 2008). They are crucial for new product development within companies and have significant implications for

practitioners in innovation management and marketing initiatives. As lead users are the first in a specific market to adopt innovations, concepts, or ideas, they could serve as opinion leaders who can accelerate the diffusion process when launching new products (Schreier & Prügl, 2008).

3. METHODOLOGY

The methodology chapter outlines the research method employed in this study. It details the choices made regarding the research approach, design, data collection, and analysis, providing transparency in how the research question was addressed (Ayre & McCaffery, 2022). This chapter aims to enhance the accuracy and trustworthiness of the findings, allowing for a thorough exploration of the opportunities and challenges faced by athletic sportswear companies when involving elite athletes in innovation.

3.1 Research Approach

3.1.1 Qualitative approach

The research was framed using an abductive approach, integrating elements of both inductive and deductive reasoning. While an inductive approach develops theories based on collected data and the deductive approach tests existing theories, the abductive approach enables a dynamic interplay between empirical observations and theoretical insights (Saunders et al., 2019). This approach was chosen to refine and adjust theories throughout the research process, ensuring a continuous comparison between empirical data and existing theories. The abductive approach enabled the study to generate new insights while building upon established theories of external innovation processes and the role of lead users, opinion leaders, and brand communities (Saunders et al., 2019).

Furthermore, the study employed a qualitative research approach, enabling a deeper understanding of individuals' subjective experiences and perspectives, and providing detailed insights into their thoughts, feelings, and actions (Bell et al., 2022). Qualitative research is particularly suitable when studying how individuals interpret their social world, which aligns with the study’s focus on how elite athletes contribute to sportswear companies’ innovation processes. Its aim to capture subjective and experiential insights from athletes made it suitable for qualitative research (Bell et al., 2022).

3.1.2 Case study design

The qualitative research included a *case study design* to examine how sportswear companies in the track and field involve their sponsored athletes in the innovation process for developing shoes. The case study design enabled the researchers to explore differences within and between the sportswear companies' approaches and strategies to athlete involvement in their innovation process (Bell et al., 2022). According to Yin (2003), case studies are appropriate when the research aims to answer *how* and *why* questions. It is relevant to the study because it examines *the role of* athletes in the innovation process of sportswear companies and *how* their role can contribute to the opportunities and challenges faced by these companies. Case studies are characterized as flexible, coping with real phenomena's complex and dynamic characteristics. Its conclusions are based on a transparent chain of evidence, collected from multiple sources consistently to build upon previously established theories (Perry et al., 2005). Overall, case studies are considered reliable, but they are also time-consuming (Yin, 2003).

3.2 Data Collection

To conduct a credible case study, Yin (2003) emphasizes that the research should utilize multiple data sources, referring to six primary data sources: documentation, archival records, interviews, physical artifacts, direct observations, and participant observation. Combining data from multiple sources contributes to a more holistic perspective, and data triangulation can be achieved. If the same conclusions can be drawn from various data sources through triangulation, it is considered a strong finding (Yin, 2003). There are different types of triangulation, according to Stake (1995), which this study will employ by combining data from various literature sources, as well as data from both qualitative interviews and surveys.

3.2.1 Literature collection

The initial collection of data came from theories and literature, obtained through a systematic search based on keywords such as *sports technology*, *athlete feedback*, *sport innovation*, *user innovation*, *lead user theory* and *advanced sportswear technology* that provided an overview of how athletes have been part of sportswear companies' innovation processes in the past, as well as the recent advancements of sports technology in track and field. This preliminary stage aimed to gain a basic understanding, identify existing research gaps in the literature, and then formulate the overarching research question, which guided the development of

relevant questions for the interviews and surveys (Webster & Watson, 2002). The literature search was conducted through Scopus and Google Scholar using specified keywords, and the results were filtered to include only literature published within the last 20 years (literature concerning methodology was allowed to be published earlier). After searching and exploring research articles, the most relevant theories and data were reported in the literature review. This allowed the researcher to determine what additional exploratory data methods were needed to fill the research gaps, which were collected through qualitative interviews and surveys (Webster & Watson, 2002).

3.2.2 Qualitative Interviews

Qualitative interviews were chosen as the primary data collection method, as they are advantageous in providing more detailed information than other data collection methods (Boyce & Neale, 2006). They also offer a more relaxed atmosphere in which interviewees feel more comfortable sharing their experiences and perceptions than completing a survey (Boyce & Neale, 2006). Interviews effectively gather detailed, nuanced insights into individual experiences and perspectives. They can help researchers uncover the underlying mechanisms and processes of phenomena, enabling a deeper understanding of complex social interactions (Patel & Davidsson, 2019). However, interviews are prone to biases, both from the interviewer's perspective and the interviewees', emphasizing the need for planning interviews correctly, for instance, not asking leading questions (Boyce & Neale, 2006). Qualitative interviews can also be time-consuming as they take time to conduct, transcribe, and analyze (Boyce & Neale, 2006).

Furthermore, the interviews were conducted in a semi-structured format, with predetermined key topics (or open questions), while allowing for flexibility in responses (see Appendix A and B). This approach was taken to ensure coverage of essential themes while also allowing for organic conversations and the emergence of unforeseen insights (Robson, 2002). Although the interview questions were planned, they were not necessarily asked in the same order as they were listed. This flexibility allowed for improvisation and exploration of the studied topics, capturing all relevant aspects of athlete involvement in innovation, while allowing respondents to share additional insights beyond the prepared questions (Bell et al., 2022). The interviewer was free to ask follow-up questions for clarification when needed and could modify the wording of the questions to explore new paths and enrich the research purpose (Taherdoost, 2022). This method, therefore, facilitated a deeper exploration and the

emergence of new concepts in topics such as athlete feedback mechanisms, the role of sponsored athletes in product innovation, and the challenges that sportswear companies face when incorporating athlete-driven insights (Robson, 2002).

3.2.3 Survey Design

Data was also collected through a *qualitative survey* to complement the primary data from interviews (see Appendix C). Qualitative surveys examine the diversity of a topic of interest within a given population, attempting to establish meaningful variations, whereas quantitative surveys focus on the numerical distribution of characteristics (Jansen, 2010). The qualitative survey in this study followed a pre-structured format that included a set of main topics defined in advance (Jansen, 2010). The survey followed the same questions as the athlete interview guide (Appendix A), with the primary difference being that some questions required only a "yes" or "no" answer, and there was no opportunity for the respondent to elaborate on their response. The survey consisted of a mix of qualitative, open-ended questions where participants could type their responses, and a few questions where participants selected from predetermined options (Braun et al., 2020). The data from the qualitative interviews was used to complement the qualitative data and to draw stronger conclusions.

The primary reason for choosing a qualitative online survey for this study is its openness and flexibility, which allow access to data that captures respondents' views, perceptions, or experiences. They also enable easy access to a large, geographically dispersed population (Braun et al., 2020). Braun et al. (2020) explain it as an exciting and flexible method with multiple applications and advantages. Jansen (2010) points out that one benefit is that participants are not influenced by the presence of a researcher, which gives them the freedom to decide when, where, and how they complete the survey. This flexibility often makes the method less demanding than in-person interviews, which require participants to show up at a specific time and place (Jansen, 2010). Another benefit is that surveys can be completed in one go or across multiple sittings, giving respondents the chance to pause and reflect on their answers, leading to more thoughtful and considered responses compared to live interviews (Jansen, 2010). Additionally, while insights from interview question design are helpful, precise wording is especially crucial in surveys to avoid misunderstandings, as there is no opportunity for follow-up clarification. Well-designed qualitative survey questions are typically open-ended, concise, and unambiguous (Jansen, 2010).

Braun et al. (2020) also emphasize that although surveys can be beneficial for people who experience anxiety in social settings, they may not provide the same richness of interaction or opportunity for clarification as face-to-face methods (Braun et al., 2020). This has contributed to their underuse and limited methodological discussion within qualitative research, where interviews still dominate (Braun et al., 2020). However, the researcher was aware of this limitation and acknowledged that, while qualitative surveys may lack nuance, they can still provide rich data on respondents' subjective experiences, language, and terminology (Braun et al., 2020). The surveys were intentionally structured to follow the same thematic lines as the interviews. Although the answers from the survey were not as extensive as those from the interviews, it did include some open-ended optional questions that allowed respondents to answer in their own words, thereby increasing flexibility (Jansen, 2010; Braun et al., 2020). This ensured that they supported the broader findings from the interviews, thereby making the overall research more robust and strengthening its conclusions.

3.2.4 Selection of Participants

According to Taherdoost (2022), researchers must select the most appropriate people as target samples for their study to achieve the most complete and practical answers. The process of sampling should be conducted purposefully (Taherdoost, 2022). A qualitative sample should represent the full range of diversity within the target population concerning the phenomenon being studied (Jansen, 2010). This purposive sampling technique was employed to select relevant participants, targeting *elite track and field athletes* and *company representatives* from *sportswear companies* with relevant experience in elite athletics (Patel & Davidsson, 2019). The study chose to capture both the company's and the athlete's perspectives, as it was anticipated that athletes' experiences of challenges and opportunities often translate into those faced by the companies. This dual selection was crucial for comprehensively addressing the research question about the opportunities and challenges *faced by sportswear companies.* By studying both sides, the aim was to provide a more comprehensive and in-depth understanding of the dynamic relationship, making the research findings more robust and valuable for sportswear companies.

The selection criteria for track and field athletes were as follows: they must be actively competing at an international elite level, must be currently sponsored by a sportswear

company, and must have been sponsored for a minimum of one year. The selection criteria for company representatives included the following: they must work in product innovation, athlete relations, or related departments at the sportswear companies in track and field and have experience interacting with athletes as part of the product development process. The study's geographical scope was international, with no specific country limitations imposed on the participants. Regarding the specific track and field events included, the study deliberately focused on sprints (100m, 200m, 400m), the long jump, and middle to long-distance events (800m, 1500m, 5,000m, 10,000m, half-marathon, and marathon). Throwing events, high jump, pole vault, and other technical field events were excluded. This specific delimitation was chosen because the selected running and jumping events have witnessed the most significant and debated changes in *advanced footwear technology* (AFT) and performance enhancements in recent years, unlike events such as throwing events or high jump, where the impact of footwear innovations is less pronounced. See Table 1 below for an overview of participants relevant to the recruitment.

Table 1. Overview of Research Participants and Selection Criteria

Category	Description	Criteria	Relevance	Data Collection
Athlete	Track and field athletes from different disciplines	-Sponsored by an athletic sportswear company -Sponsored for at least one year -Competing on an international elite level -Competing in at least one of the following events: 100m, 200m, 400m, long jump, 800m, 1500m, 5,000m, 10,000m, half marathon, marathon	Understand how athletes are currently involved in sportswear companies' innovation processes, their attitudes, and perception of involvement in innovation	Qualitative Interviews or Qualitative Survey
Company Representative	Employees of an athletic sportswear company	-Knowledgeable in elite athletics -Must work in product innovation, athlete relations or related departments -Interacting with sponsored athletes	Understand how sportswear companies listen to athlete feedback, incorporate it and use it for innovation strategies.	Qualitative Interviews

Furthermore, recruitment of participants followed a combination of direct outreach and network-based referrals. Initially, the researcher contacted participants through personal networks to determine who was willing to participate in the study and the times they were

available (Taherdoost, 2002). Potential company representatives were approached through professional channels, including LinkedIn, email inquiries, and referrals from industry contacts. Athletes were contacted through the researcher's personal networks, leveraging existing connections in the track and field community. When reaching out to potential participating athletes, they were given the choice to either participate in the study through an interview or by responding to a survey, depending on their preference. The survey was offered as an option due to its ease of completion and because it takes less time than participating in an interview (Jansen, 2010). In this way, the researcher could collect data from more athletes than would be possible through solely qualitative interviews.

The recruitment of participants was concluded when the researcher identified strong themes and no further relevant information emerged from the interviews or survey responses (Jansen, 2010). Saturation is reached based on the amount and type of variation considered relevant to the research. The aim is not to theoretically explore every possible aspect of a concept, but to capture the meaningful variation within a specific, real-world population, even if that population is relatively small (Jansen, 2010). Although no generalized results from interviews are typically obtained, a general rule is that a sufficient sample size is reached when the same stories, themes, issues, and topics emerge from the interviews (Boyce & Neale, 2006). The researcher contacted a total of 65 relevant participants from six different sportswear companies. Out of these, 18 interviews (15 athletes and 3 company representatives) were conducted, and 28 survey responses were collected, as deemed sufficient to exhaust all further themes or topics.

In initial contact with the participants, the researcher provided them with information on the research topic and aim, as well as how their answers would be used and the length of the interview or survey, all in accordance with Taherdoost's (2002) interview design. The interviews were conducted over encrypted online meetings (Zoom, Microsoft Teams) or in person. Depending on the interviewee's native language, the interviews were conducted in either Swedish or English. The interviews were recorded and transcribed for efficient use (Taherdoost, 2002). The survey questions were written in English, and the responses were stored on Microsoft Forms, a secure platform. Furthermore, the researcher ensured the anonymity of all participants, as well as the anonymity of the included athletic apparel companies (Taherdoost, 2002). Numbers therefore denote the participants, while the sportswear companies are denoted by letters; see Tables 2 and 3 below.

Table 2. Overview of Interview Participants

Sportswear Company	Interviewee	Role	Discipline	Date	Duration (mins)
X	1	Elite Athlete	Middle distance	19th of March	19:40
	2	Elite Athlete	Long distance	26th of March	20:33
	3	Elite Athlete	Sprints	4th of April	14:05
	4	Company representative	N/A	11th of April	21:57
Y	5	Elite Athlete	Long Jump	5th of April	19:44
	6	Elite Athlete	Long Jump	28th of March	14:28
	7	Elite Athlete	Sprints	1st of April	24:12
	8	Elite Athlete	Long Jump	3rd of April	15:39
	9	Company Representative	N/A	1st of April	23:45
Z	10	Elite Athlete	Sprints, middle distance & long jump	3rd of April	13:32
	11	Elite Athlete	Sprints, middle distance & long jump	4th of May	15:53
	12	Elite Athlete	Sprints, middle distance & long jump	11 of April	21:35
	13	Company Representative	N/A	16th of April	15:07
A	14	Elite Athlete	Sprints	16th of April	12:00
	15	Elite Athlete	Sprints	1st of April	18:49
	16	Elite Athlete	Sprints	11th of April	13:20
B	17	Elite Athlete	Long distance	27th of March	19:04
C	18	Elite Athlete	Middle distance	9th of May	16:44

Table 3. Overview of Survey Participants

Sportswear Company	Survey Respondent	Discipline	Date

X	19	Sprints	18th of March
	20	Sprints	18th of March
	21	Sprints	3rd of April
	22	Long distance	9th of April
	23	Long Jump	11th of April
	24	Long distance	14th of April
	25	Long Jump	15th of April
Y	26	Sprints	19th of March
	27	Sprints	21st of March
	28	Sprints	21st of March
	29	Sprint	4th of April
	30	Long Jump	11th of April
	31	Long Jump	13th of April
	32	Middle distance	19th of April
Z	33	Sprints	22nd of March
	34	Long Jump	27th of March
	35	Sprints	29th of March
	36	Sprints, middle distance & long jump	1st of April
	37	Sprints	9th of April
	38	Sprints	10th of April
	39	Middle Distance	16th of April
A	40	Sprints	14th of April
	41	Sprints	15th of April
B	42	Long distance	1st of April
	43	Sprints	7th of April
	44	Sprints	9th of April
	45	Long Jump	28th of April
C	46	Middle Distance	3rd of April

3.3 Data Analysis

During the data analysis phase, insights are both generated and analyzed. Hence, it is essential to maintain a chain of evidence from the findings to the original data; therefore, the report includes data and examples that enable the reader to understand the chain of evidence (Yin, 2003). In terms of reporting the results from case studies, Yin (2003) suggests structures such as linear, comparative, chronological, theory-building, suspense, and consequences for effective reporting. A linear structure was deemed the most suitable for this study, referring to the standard research report structure, which includes problem, related work, methods, analysis, and conclusions, as followed by this study (Yin, 2003).

Additionally, the study employed a thematic analysis, which is a widely used qualitative research method that helps researchers identify, analyze, and report patterns or themes within a dataset. This approach is flexible, allowing the researcher to interpret data systematically and gain a more in-depth understanding of the experiences and perspectives of the interviewed participants (Ayre & McCaffery, 2022). The study used thematic analysis to identify patterns in athlete and company representative responses, following Braun & Clarke's (2006) six-phase framework:

1. **Data Familiarization:** The first step was to familiarize oneself with the data to comprehend its depth, which involved reading and re-reading transcripts to identify key insights. Codes were reviewed multiple times to ensure consistency, and themes were refined iteratively to accurately represent the data.

2. **Generation of Initial Codes:** The next step was systematically coding data features across all interviews by assigning short labels or codes to phrases relevant to the research question. Transcripts were used to generate initial labels (e.g., “I tested a prototype” to the label “athlete involvement”). These codes were then grouped into broader themes such as “Current Athlete Involvement in Innovation” and “Potential Challenges with Athlete Involvement”.

3. **Search for themes:** The third step involved searching for themes by grouping similar codes into broader categories and identifying patterns in the responses. For instance,

codes such as product testing, feedback, co-creation, and customization were grouped under the same theme.

4. **Review Themes:** The fourth step involved reviewing and refining themes to ensure coherence within the identified themes and an accurate representation of the data. This step involved merging similar themes, if necessary, and verifying whether they could be combined.

5. **Define and Name Themes:** The next step was to assign meaningful labels to each theme and write clear descriptions of each theme. The theme "Current Athlete Involvement in Innovation" demonstrated how athletes contribute to sportswear companies' new product development, which was necessary to answer the research question.

6. **Produce the Report:** The final step was to integrate the themes into the report, supported by quotes from participants.

Ayre and McCaffery (2022) further emphasize the need for transparency in reporting the analytical process to enhance the credibility and trustworthiness of the findings, as well as how the researchers' biases may influence the analysis. The themes were determined before data collection, using the literature framework to guide the development of the survey questions and interview guide. Some themes were guaranteed to be addressed in the interviews and surveys, while others emerged during data collection, thanks to the open-ended structure of the interview and survey formats (Ayre & McCaffery, 2022; Braun & Clarke, 2006). This, therefore, combined deductive coding based on the research question and theoretical frameworks, as well as inductive coding, to let them emerge naturally from the interviews and survey data. The main themes, along with their connecting codes and subcodes, for the thematic analysis are listed in Table 4, representing the outcome of the iterative thematic process.

Table 4. Thematic Analysis Framework

Themes	Code and Subcodes

1. Athlete Involvement in Innovation Processes	Athlete Involvement: - Product Development, - Testing, Feedback, - Co-creation, - Customization Relationship with Company Representatives: - Communication Frequency, - Communication Channel, - Level of Closeness, - Desire for Stronger Relationships
2. Attitudes of Athlete Involvement	Perceived Impact of Athletes: - Value of Athlete Feedback, - Athlete Knowledge, - Athlete Experience, - Desire for Involvement Athletes as Lead Users: - Involvement in Design vs. Testing, - Belief in Own Innovation, - Level of Expertise Desire for Greater Involvement: - Preference for Involvement in Various Stages Skepticism in Feedback Utilization: - Doubt in Implementation, - Feeling of Being Heard, - Impact of Athlete Status
3. Perceived Value and Use of Athlete Feedback	Impact on Performance and Training: - Effects of Advanced Footwear Technology, - Faster Recovery, - Injury Prevention, - Wear and Tear Trust and Relationship Building: - Feeling of Belonging, - Value of Athlete Input, - Brand Advocacy Impact on Mainstream Market: - Influence on Consumer Behavior, - Role Model Effect, - Brand Visibility
4. Potential Challenges with Athlete Involvement	Potential for Overwhelming Feedback: - Managing Large Amounts of Feedback, - Need for Efficient Systems, - Scalability Risk of Over-Specialization: - Balancing Athlete Needs vs. Mass Market, - Avoiding Niche Products Time Constraints: - Demands on Athlete Schedules, - Balancing Training - Innovation Activities Overemphasis on Materials and Unfair Competition: - Cost of Customization,

	- Ethical Concerns, - Unequal Access to Technology

3.4 Ethical Considerations

Generally, ethical considerations prioritize privacy and confidentiality concerns in a manner that ensures participants are not harmed in any way (Taherdoost, 2022). Ethical factors must be considered, including informed consent, anonymity, and the handling of sensitive results. Taherdoost (2022) notes that participants should be informed of the risks and benefits associated with their participation, and they must be notified of their right to retract any data they wish to have removed. Furthermore, the participant's anonymity should also be respected when the study aims to gather sensitive information, and participants who consent to this should sign a written or verbal consent form (Taherdoost, 2022). These ethical factors were carefully considered throughout this study by following the guidelines of Gothenburg University.

According to GU's guidelines, the study adhered to the principles outlined in the Swedish Data Protection Regulation, *Dataskyddsförordningen* (GDPR), which requires that participants receive clear information about how their personal data will be processed (Gothenburg University, n.d.). Accordingly, all participants were provided with comprehensive information about the topic and aim of the research, how their answers would be used, and the period during which the data would be stored. They were also explicitly informed of the risks and benefits associated with their participation, as well as their right to retract any data they wished to have removed or to withdraw from the research at any time (Gothenburg University, n.d.). Participants were informed orally of their right to request information about the personal data processed, to request correction or deletion of data, to object to the processing, and to file a complaint with the Swedish Privacy Protection Authority, *Integritetsskyddsmyndigheten* (IMY), if they believed their data was processed unlawfully (Gothenburg University, n.d.). Oral informed consent was obtained from all participants prior to their involvement, ensuring they were fully aware of the terms and conditions. The survey or interview would only commence if explicit agreement to these terms were given (Taherdoost, 2002; Gothenburg University, n.d.).

Following GDPR, all participants and the sportswear companies involved remained anonymous in the study. This measure was taken to prevent the disclosure of sensitive information and to encourage more open and honest responses (Taherdoost, 2002; Gothenburg University, n.d). Participants agreed that their *gender* and *track and field discipline* could be disclosed if necessary for the purpose of writing the report. However, no direct identifiers were included in the final thesis document, and participants were informed that, although their data might become part of public records if submitted to the university, measures were taken to minimize the risk of identification by disclosing only their gender and track and field discipline. The collected interviews were stored only for the duration of the researcher's work and deleted after completion, unless specifically requested by the University for educational purposes (Gothenburg University, n.d.).

3.5 Validity and Trustworthiness

To enhance the overall quality and trustworthiness of a study, key elements can be integrated to ensure that sufficient detail is provided to assess the *validity* and *credibility* of the research (Russell et al., 2005). These refer to the truthfulness and trustworthiness of the research findings, and Yin (2003) employs a scheme to distinguish between four aspects of validity: construct validity, internal validity, external validity, and statistical validity. *Construct validity* refers to the extent to which the operational measures used in a study truly represent what the researcher intended and are relevant to the research question (Yin, 2003). This study strengthened construct validity by grounding the interview questions in existing literature and tailoring them specifically to athletes' experiences, ensuring alignment with the research aim. Next, purposeful sampling strategies were employed to ensure that the case study design was suitable for the research question. Lastly, data were collected and managed systematically to ensure the results were analyzed correctly (Russell et al., 2005). *Internal validity* concerns the risk of incorrectly identifying causal relationships due to unrecognized influencing factors (Yin, 2003). The study therefore employed triangulation by combining interview data and survey data, along with contextual knowledge of the sports environment, which helped identify and consider alternative explanations.

External validity refers to the extent to which the findings can be generalized beyond the specific case (Yin, 2003). While the goal of this qualitative case study is not statistical generalization, it aims for analytical generalization, where the results can be applied to other cases with similar characteristics, thereby contributing to the development of broader

theoretical insights. *Statistical validity* is primarily relevant to quantitative research and concerns the extent to which conclusions about the relationship between variables are accurate and reliable (Yin, 2003). However, as the study is qualitative it does not employ statistical analysis, and the concept of statistical validity is therefore not directly applicable. However, as the study identifies strong themes and patterns in the responses of athletes and company representatives, it indirectly supports the *potential* for statistical validity in future quantitative research with larger, statistically representative samples.

The study carefully addressed these aspects to pass the limitations typically associated with qualitative research. The validity of a study further refers to the trustworthiness of the results, indicating the extent to which they are accurate and unbiased, free from the researcher's subjective influence (Russell et al., 2005). There was a potential risk of bias in this study, as the researcher is an active track and field athlete and may share similar views or experiences with the interviewees (Boyce & Neale, 2006). To minimize this bias, the researcher maintained a reflective and critical approach throughout the study by regularly questioning assumptions and ensuring the analysis was grounded in the data rather than personal opinions (Boyce & Neale, 2006). By further critically examining the data from a neutral perspective and seeking patterns across interviews, rather than relying on isolated statements, the researcher could also counter individual biases (Taherdoost, 2006). At the same time, the researcher's background was an advantage, as familiarity with the athletic context enabled effective communication with participants, using the correct terminology and tone. This helped reduce the risk of misunderstandings and added to the study's overall validity (Russell et al., 2005).

A limitation the researcher encountered involved significant difficulties in obtaining responses from both athletes and companies, especially company representatives, which could have restricted the range of perspectives included. To overcome this, personal networks were actively used to reach out to potential participants, flexible scheduling was ensured to accommodate busy calendars, and clear information about anonymity and the study's purpose was provided to encourage participation. This proactive recruitment strategy ensured a broader and more representative sample was attained despite initial difficulties (Taherdoost, 2002). The recruitment of participants was also a continuous process to ensure enough material was collected before the researcher started writing the conclusions (Yin, 2003). Despite the relatively small sample of three company representatives, it is essential to note

that qualitative research, particularly case study design, prioritizes depth and richness of data over numerical generalizability (Jansen, 2010). The aim was to gather insights into complex phenomena rather than to establish statistical representativeness. Therefore, the insights from the company representatives, combined with the larger athlete sample, provided a dual perspective that was valuable for understanding the interlinked opportunities and challenges faced by both groups within the sports innovation industry. While these limitations were acknowledged, measures were taken to enhance the consistency and replicability of the research process, thereby increasing the overall reliability of the study (Yin, 2003). This was addressed by clearly documenting the interview guide, data coding process, and analytical steps, allowing other researchers to trace the study's methodology. Efforts were also made to formulate clear, open-ended interview questions to reduce ambiguity and ensure consistent interpretation (Taherdoost, 2002).

4. FINDINGS

The fourth chapter presents the core findings derived from the thematic analysis of interviews with 18 elite track and field athletes and 3 company representatives, as well as survey responses from 28 additional elite athletes. The findings provide detailed insights into the multifaceted ways in which athletes interact with, contribute to, and perceive their role in the innovation of sportswear companies. It highlights both convergent and divergent viewpoints expressed by participants, with emphasis placed on the athletes' experiences and insights. The chapter includes direct quotations from participants to reflect their perspectives accurately. The qualitative survey data serves as supplementary information, reinforcing and supporting the findings and themes identified in the interviews. The findings are structured around four main themes, beginning with an examination of *current athlete involvement in innovation processes,* then describing the various *attitudes of athlete involvement,* and finally identifying the *perceived benefits* and *challenges* of athletes in innovation.

4.1 Current Athlete Involvement in Innovation Processes

The first theme examines the extent to which sponsored athletes are involved in sportswear companies' innovation processes, specifically in product development, testing, and athlete feedback. It highlights how innovative *ideas*, *co-creation*, and *customization* occur collaboratively between athletes and sportswear companies. This theme also explores the

nature of communication between athletes and company representatives, as well as the dynamics of their relationships.

4.1.1 Relationship Between Athletes and Company Representatives

The relationships between elite athletes and their sponsored sportswear company varied significantly, ranging from little to no personal contact with company representatives to deeper, more meaningful connections. Most interviewees reported that communication usually occurred through their managers. For those directly contacting company representatives, it was often limited to rare cases, stated by one athlete: "*I don't have much personal contact. It's always through my manager, except rare cases before championships*" (Interview 1).

However, a few interviewees reported more frequent contact with their company representatives. While day-to-day communication was limited, some athletes reported stronger relationships and better access to their sportswear company. *I have known [sportswear company X] for over ten years. When I run well, [they] call me personally to congratulate me*" (Interview 2). Interviewee 3 and 8 expressed appreciation for the enthusiasm and responsiveness of their company representatives. "*It feels like I am at least a little important, even if I am just one athlete among a big pool of athletes. [...] I appreciate that*" (Interview 8). This close connection was rare among the interviewees, and it depended on the athlete's performance. Athletes with longer-standing sponsorships or those on a higher ranking, such as those with record-breaking results, reported having better access and stronger ties with their sponsored sportswear company. Among the varying degrees of closeness with their sponsored company, most athletes expressed a desire for a more personal relationship.

The views of company representatives on their relationships with athletes differed significantly. The company representative from sportswear company X confirmed that most communication goes through the athletes' managers, but described their relationship with athletes as close, while also acknowledging that the relationship correlates with the athlete's prominence. The company representative from sportswear company Y also claimed to foster one of the closest relationships with athletes in the sports industry. "*In every country, every market, there is a specific team taking care of their athletes. And we are taking care of all our athletes with a global approach to communicate better*" (Interview 9). The interviewee

further explained that every athlete knows who to contact if they encounter product issues, are injured, or need general advice. "*I would say all of our sponsored athletes know their [*sportswear company Y*] contact person personally, and that is something we are very proud of and do differently than other companies*" (Interview 9). This view was not identified by the athletes sponsored by sportswear company Y.

While most athletes reported limited direct contact with their sponsor company, describing their relationship as superficial, the overall perception of the relationship was positive. Notably, 13 out of 15 interviewed athletes and 26 out of 28 surveyed athletes indicated a willingness to share their innovative ideas with their company if they had any. This suggests that most athletes trust their company enough to voice their ideas, despite limited communication.

4.1.2 Current Athlete Involvement in NPD and Testing

The interviewed and surveyed athletes described varying involvement in their sponsor companies' innovation processes, ranging from limited engagement to more proactive testing and feedback opportunities. The majority of athletes reported being passive recipients of products, while only a few were active testers of prototypes. 19 out of 28 surveyed athletes reported having been asked by their company to test shoes and other prototypes or provide feedback to their companies. In contrast, only 4 out of 15 interviewed athletes had been formally involved in official product testing activities, indicating that most athletes experienced limited formal participation.

Most of the athletes who had been involved in innovation by their sportswear company indicated they were approached late in the development cycle, often receiving near-final products for feedback rather than being involved in early ideation stages. However, some athletes reported receiving testing and feedback in earlier stages of product development that suggests a more moderate involvement: "*When I am given new shoes to test, I will casually tell them what I think. But it is nothing formal - no forms, no official input*" (Interview 2). A handful of athletes reported higher involvement in the sportswear companies' innovation processes, sometimes invited to prototype test events: "*I was flown to an event where we saw prototypes months before launch. Everything was secret. We even had to tape over the logos*" (Interview 1). The interviewee expressed enthusiasm for the involvement initiative, as they were invited to meetings with the innovation team to provide feedback on the prototype.

Interviewee 18 was one of the athletes most involved in the product development of spike shoes. He described that his sponsored company initially had shoes that were so undeveloped that he had to compete and train with shoes from a competitor company. "*But since then, they have invested a lot in shoe development. They work closely with many athletes [...], working with individual athletes and traveling worldwide for shoe testing [...]. We are in continuous contact with them to give feedback about the shoe, they are very reactive*" (Interview 18). He continued to describe how, after requesting a training shoe without carbon fiber plates, they created it within two months, and it reached the mainstream market around a year later.

Interviewee 17 also mentioned greater involvement in the sportswear company's innovation process, proudly mentioning wearing prototype shoes unavailable on the market. Interviewee 6 expressed a similar statement, saying that the shoes become more exclusive when only a few elite athletes are given access to prototype shoes not available in the mainstream market.

Although no sportswear company exhibited a formal feedback system, interviewees 6 and 8 (sponsored by company Y) expressed that after complaining about their spikes breaking in the same place, the issue improved over time. Interviewee 11 also expressed that, in some instances, it was apparent that the shoe changed based on complaints from sponsored athletes. "*On earlier models, I heard [from other athletes] that the shoe was too stiff and too high. And after many expressed this, it became clear that the newer models were wider and softer. It feels like they listened*" (Interview 11). She further highlighted that her sportswear company was very open and positive towards ideas from athletes.

However, the perspective of the companies' representatives differed slightly from what the athletes were experiencing. Representatives at the sportswear company Y said that every athlete can decide if they want to be part of their innovation process. She also explained that it depends very much on how much the athlete wants to be involved. "*When we need specific feedback in a shoe, we set up regular calls, or we invite the athlete to our testing laboratory, and then it is a full day of testing with the athlete*" (Interview 9). This quote suggests that some elite athletes are heavily involved and that the choice is ultimately theirs. Representatives at sportswear company X also indicated that they involve their athletes, but emphasized that they put the most attention on their top athletes. He further explained that they sometimes want to focus on specific athletes and therefore release specific shoe collaborations, mentioning that they are the only company to include their athletes in this way.

In summary, most athletes are involved reactively in testing products, not creating them. Testing often occurs under strict confidentiality, particularly for groundbreaking products. Those athletes with stronger relationships with their company representatives had even turned some of their innovative ideas into actual products, which were sent to them but remained unavailable to the mainstream market. Despite these differences in the athletes' current involvement, most agreed that their formal participation in product development was relatively modest.

4.1.3 Customization or Personalization of Shoes

Regarding the personalization of products, a few athletes occasionally received custom adaptations based on their specific needs: "*I got a special [model name] version with spikes, for wet track training at altitude. It was not a mass-market thing*" (Interview 2). Interviewee 14 mentioned how she has access to the test lab to get specialized shoes for her feet. These two athletes suggest that some professional athletes receive customized models specifically designed for their needs or preferences. However, most of the interviewed athletes had no experience customizing their own shoes.

The representative at sportswear company Y said that they customize the shoe design for their top athletes, the international medal winners. She explained the reason behind the small group of athletes' customization opportunities: their entire production facility is currently paused, resulting in the creation of only one or two pairs of specialized shoes. She also explained that customization is challenging due to the cost aspects and the need to comply with regulations. "*Smaller changes, such as giving the spike more arch support and making it a bit harder, we can do easily. It costs a lot of money because the production line has to stop for us to produce four pairs for athlete XYZ. It requires a significant amount of time and financial investment for our factories. Then there are some changes we cannot do because it is simply not possible, because it is not within the rules, we would need to develop a completely new spike*" (Interview 9). This quote suggests that there are complexities in customized products that extend beyond the substantial financial investment required.

In terms of co-creation initiatives, a representative from the sportswear company X highlighted that they utilized one of the most prominent marathon runners in the world to develop one of their most popular models. "*He has been a large factor in contributing to the new shoes. He was involved in developing it*" (Interview 4). He continued, stating that the

particular runner has been fronting the company for several years and has had a significant impact on the brand image. Despite this clear example of a successful co-creation model, no other interviewees expressed any type of collaboration between athletes and companies, indicating that it is a rare phenomenon, even among elite athletes and their sponsored sportswear companies.

4.2 Attitudes of Athlete Involvement

The second theme examines the *attitudes* towards elite athletes' involvement in sportswear companies' innovation processes, drawing on the perspectives of both company representatives and athletes who were interviewed and surveyed. The theme focuses specifically on the perception that athletes provide sportswear companies with valuable feedback and insight, the notion of athletes as innovators, desires for greater participation, and skepticism surrounding the utilization of their feedback.

4.2.1 Athletes Providing Valuable Feedback and Insight

Among both interviewed and surveyed athletes, there was consensus that they strongly perceived their feedback and insight as valuable to the sportswear companies' innovation. Furthermore, the majority of the interviewed athletes (8/15) believed they possessed unique insights that the company itself might not have conceived. This was mirrored by the survey results, where 28 out of 28 respondents agreed they had valuable insights for product improvement or new development, while 23 out of 28 believed they could offer perspectives on specialized training conditions, race-day performance, and product ergonomics that companies might overlook.

Several athletes mentioned that their direct experience with the shoes during training and competition makes their insights particularly valuable and deserving of greater consideration. They emphasized that their real-world experiences, gained during intense training and competition, offer insights that are unattainable in laboratory settings. One athlete stated, "*You can design whatever you want in a lab, but if it does not feel right after a 20 km tempo run, it will not succeed*" (Interview 17). Another highlighted the similarity in experience: "*Yes, they can test the shoes in the lab. But actually to perform the sports is something completely different*" (Interview 6). The statements strongly indicate that athletes perceive

their insights as invaluable contributions to innovation among their sponsored sportswear companies.

Furthermore, several interviewees also highlighted the value of their insights, not only for optimizing performance advancements in shoes but also for injury prevention. Interview 5 expressed, "*[Athletes] are the ones that will use the products. You can sit in the lab how much you want and contemplate, but you will never figure out how much the body physically will manage*" (Interview 5). Similarly, interviewee 12 advocated greater incorporation of athlete feedback: "*We athletes have been out on the track—we feel the soles, the plastic, the materials against the boards and the track surface. So if the people designing the shoes do not actually do the sport themselves, it will never be fully tailored to us athletes*" (Interview 12). These athletes expressed complaints and frustrations about their perceived inability to provide feedback on how to make the shoes less injury-prone, as some had experienced increased injuries with the AFT shoes.

In contrast, an athlete significantly involved in the innovation processes of his sponsored sportswear company noted, "*I think it is often underestimated from other companies, but with [sportswear company C] I would say they are really appreciating the athletes and they are aware of how athletes can help improve in developing products*" (Interview 18). This highlights that some athletes are aware that their sportswear companies value their feedback and input, which aligns with the responses from the company representatives interviewed.

From the company's perspective, athletes were recognized as the most important source of feedback. Representative from sportswear company Y stated, "*The athletes are our main product development source. [...] The super shoes we develop are not for daily runners, but for high-performance athletes, and the athlete's knowledge is the most valuable data. All of our supershoes are somehow developed with athletes*" (Interview 9). The company representative from X concurred, emphasizing the invaluable feedback from athletes on shoes. "*The people developing the shoes in the lab have no idea what it takes to run a marathon under 2 hours. So, of course, their feedback is necessary*" (Interview 4). These statements indicate that company representatives share the athletes' belief that they are a valuable source of input.

However, company representatives also highlighted that elite athletes represent only a small segment of their target customers, and even within this elite group, preferences can vary. The

company representative from Y emphasized the need to balance athlete feedback with broader consumer needs: "*You have a marathon runner, and the shoe he wants differs from the shoe you want to build for the daily runner. [...] There are two approaches, A: having the best shoe for performance, and then B: covering as many people as possible because at the end of the day, you want to sell shoes" (Interview 9).* Another added, "*We listen carefully, but sometimes athlete feedback conflicts—one sprinter wants a softer plate, another wants it stiffer*" (Interview 4). Representative from sportswear company Y also acknowledged the varying levels of desired involvement among athletes and the company's reliance on those who provide feedback: "*They have to be open to do a call every one or two weeks, and some athletes want to be involved [...] Then other athletes [...] do not want to be involved or have that time. It is really up to them if they want to be involved in product testing and product development*" (Interview 9). Some athletes echoed this understanding, acknowledging that sportswear companies cannot always accommodate their individual preferences. This dynamic underscores a critical tension: while companies value athlete insights, commercial realities, and the need for broad market appeal, this can limit the extent to which individualized feedback can drive product changes.

4.2.2 Athletes Not Necessarily Innovators

When asked about involving athletes in product development, interviewee 18 responded positively, noting, "*I know that most of the people who develop these shoes are runners too, and some of them have even been professional runners before. So they created a team of actual runners that developed the shoes, and I still think that because we are communicating so much with them, we athletes have had a big impact on the shoes that are now available on the market*" (Interview 18). This quote underlines the importance of athlete feedback and their role as innovators in the sportswear companies' innovation processes.

While most athletes were willing to test prototypes and provide feedback, few considered themselves innovators. Notably, interviewees 6, 7, 8, 10, 12, and 15 explicitly stated that they did not see themselves as innovators or possessing insights that the sportswear companies couldn't conceive. Furthermore, only 4 out of 15 interviewed athletes had specific innovative ideas in mind, and some suggested they preferred to leave that to the expertise of the sponsor companies. One athlete stated, "*I do not have ideas for new models. But I know what feels wrong — and that is important too*." (Interview 2). Interviewees 1 and 17 mentioned that

while minor adjustments are crucial and best identified by professional athletes, their value might be less significant when considering the bigger picture of innovation.

Interviewee 6 preferred involvement in less complex processes, such as comparing and evaluating different shoe models. Although interviewee 12 did not feel knowledgeable enough to provide specific insight on the improvement of shoes, he highlighted that shoe developers had yet to address persistent injury issues faced by long jump and triple jump athletes related to new shoe designs. Several other athletes also expressed similar concerns about injuries associated with the shoes.

In contrast, data from the survey reveals higher levels of confidence among the athletes' contribution to innovation, with more the majority of the surveyed athletes (23/28) believed they could offer unique insight that the sportswear companies itself could not, and more than half of them (15/28) had specific innovative ideas in mind. Some of these ideas were shared in the survey, shown in Table 5 below:

Table 5. Innovative Ideas Proposed by Surveyed Athletes

Participant from the Survey	Idea
20	Wearable resistance to microload muscles and general tissue during training. Companies need to develop competition and training spikes that are similar in their feel but differ in the amount of torque they exert on the body. Too many athletes have been injured after implementing super spikes.
24	Reinforcement of the heel area in a particular spike.
26	Better jumping shoes utilize features more suited for sprints and distance. Also, incorporating more features from other companies
27	Changing the back of the shoe in the heel of the [sprint shoe model]
35	Typically, the colours do not match, and most athletes and fans dislike them. Athletes should have more say in the colours of the kits.
40	Fix their poor shoe design. Hurts everywhere.
45	Adding pockets to products or adding a hole for the running watch in the sleeve

4.2.3 Attitudes Toward Greater Athlete Involvement

Despite varying degrees of current involvement, an overwhelming majority of both interviewed and surveyed athletes expressed a desire for greater participation in their sportswear company's innovation processes. Some envisioned involvement from the initial design and production stages, including lab testing and thorough research. In contrast, others preferred less complex forms of engagement, such as simply comparing shoe models or having shoes customized to their specific needs. The desire for more involvement was strong, with 24/28 of survey respondents and all of the interviewees (15/15) indicating this preference. Many athletes viewed their practical expertise as an underutilized resource and expressed enthusiasm about contributing more meaningfully if given the opportunity. For example, one athlete commented, "*I would have liked to be more involved. I know with [*sportswear company *Y] you can personalize more — I never had that opportunity [with* sportswear company *X]*" (Interview 1). Others echoed this sentiment, wishing for more structured avenues to provide input beyond initial product testing.

The representative from sportswear company Y highlighted the mutual benefits of the athlete-company relationship: "*We have the resources financially. We also have the knowledge and the people with certain needs. We have the expertise to develop products tailored to the needs of athletes. And we definitely benefit from the knowledge of top athletes*" (Interview 9). This quote suggests that company representatives recognize the value in incorporating more of their sponsored athletes into their innovation processes. The representative from sportswear company X echoed this sentiment, emphasizing that greater athlete involvement could lead to more novel ideas, but also acknowledged the challenge of accommodating diverse athlete preferences. While recognizing the value of athlete feedback, he could not definitively state the extent to which it was currently utilized, indicating it was an area the company was actively working on.

4.2.4 Scepticism of Feedback Utilization

Despite the consensus on the value of athlete insights, skepticism was prevalent among athletes regarding how their feedback was actually handled. Several expressed uncertainty about whether their suggestions were taken seriously or if their input was merely a symbolic gesture. One athlete voiced this doubt, saying, "*I gave my feedback, but I honestly do not know if it changed anything*" (Interview 1). Others suggested that feedback collection

sometimes felt like a formality rather than an integral part of the development process: "*It sometimes feels like feedback is collected just to say they did it, not actually to implement it*" (Interview 8). Some athletes speculated that the influence of their feedback depended on their status, with one noting, "*If [world record holder athlete] says something, they probably listen. I am not sure my input changes much*" (Interview 1). Interviewee 14 shared a frustrating experience of repeatedly reporting an issue with her spikes to her sportswear company without receiving any response, despite having access to a testing lab through an international sponsorship contract.

Interviewee 11 also expressed sportswear company Z's openness to new ideas but expressed uncertainty about their actual implementation in products: "*If I come with a project idea today, they are very open to taking it in. But when it comes to products, I do not know how much you can influence*" (Interview 11). Similarly, interviewee 7 expressed dissatisfaction with how the sportswear company Y handled feedback on sprint shoes. Despite repeatedly communicating that the spikes were too stiff for his mid-foot running style, he continued to receive stiff models: "*The majority of the spikes were created for [world record holder athlete], who is a front-foot runner and likes the stiffness. While I am a mid-foot runner, I would tell them I prefer a much softer spike, but three months down the line, they would still send me a stiff spike again*" (Interview 7). This quote confirms the perception among athletes that some sportswear companies tend to listen more actively to their higher-performing elite athletes.

The representative from sportswear company X highlighted the importance of effectively storing and utilizing collected feedback, stating that otherwise, it is "*completely useless*". However, he was unsure if their sportswear companies actually employed such a system. In contrast, interviewee 11 acknowledged that implementing her feedback could take years. In line with this, a representative from sportswear company Y explained that they use feedback to strive for the best shoe, emphasizing that it is a lengthy trial-and-error process. She explained that product changes require significant time: "*If you develop a super shoe and you develop a completely new foam, a new model, a new carbon plate, it takes tears. [...] We are actually working on products for 2028 and 2029 already because the production takes too long*" (Interview 9). She also mentioned the influence of World Athletics regulations, which necessitate continuous monitoring to ensure compliance, potentially impeding current shoe development plans.

These results suggest a discrepancy between athletes' perceptions and sportswear companies' practices regarding the evaluation and utilization of athlete input, potentially creating a rift between them. While a majority of athletes indicated a willingness to share innovative ideas, interviewee 15 expressed reluctance due to a perceived lack of impact: "*How the situation looks at the moment, it would not feel worth sharing my ideas because it feels like it would not make any difference*" (Interview 15). Similarly, another athlete stated, "*I have literally been speaking with the people creating the spike and being on the same page with improvements. Then nothing ever comes from it. So I will probably just take my ideas elsewhere where they are appreciated*" (Interview 7). Despite these skeptical statements about trust between athletes and sportswear companies and whether their feedback was actually utilized, 12 out of 15 interviewed athletes expressed that they would offer their input, insight, and innovative ideas to their sponsored companies if asked. Similarly, 27 out of 28 surveyed athletes shared this opinion.

4.3 Perceived Value and Use of Athlete Feedback

This theme explores athletes' perceptions of technological innovation, particularly in footwear, and its impact on their performance and training. It also examines the value and use of athlete feedback, the potential for stronger athlete-company relationships, and the influence of elite athletes on the mainstream market.

4.3.1 Impact on Performance and Training

All participants acknowledged a fundamental shift in the sport due to Advanced Footwear Technology (AFT). A key finding was the transformative impact of AFT, specifically carbon-plated shoes and high-energy-return foams, on athletes' performance and recovery. All participants reported noticeable benefits, including faster race times, reduced post-training soreness, and the ability to handle higher training volumes. One athlete illustrated this change: "*After hard track sessions in the old spikes, I would need 2-3 days to recover. Now, with the carbon spikes, I can be ready again after one day*" (Interview 17). The benefits appeared even more significant in longer distance events, with one marathoner observing, "*For marathoners, the effect is insane. You do not break down musculoskeletally in the last 10k anymore*" (Interview 2). Company representatives corroborated the transformative effect of technology, with one commenting that it has significantly altered training capacity due to faster recovery and improved running speeds. In summary, there was near-unanimous

agreement among the interviewed athletes, company representatives, and surveyed athletes that innovations such as carbon plates and advanced foams had substantially improved performance and recovery, particularly for longer distances.

Despite acknowledging these advantages, some athletes cautioned against solely relying on AFT shoes for success and emphasized the continued importance of hard work and preparation. They warned against overestimating the impact of technology. One athlete noted, "*I have run personal records in the old shoes too. It is not just about the technology, but the new ones definitely raise your floor*" (Interview 1). Another added, "*They help, but you still have to be fit. It is not a shortcut*" (Interview 8). Furthermore, some athletes reported issues with the supershoes, including injuries and premature wear and tear. Especially in sprints and jumps, the opinions on the benefits of AFT shoes were divided.

Many athletes raised concerns about stiffness and an increased incidence of Achilles tendon injuries. Interviewee 6, a long jumper, described the new spikes as very responsive but so rigid that she had to remove them between jumps due to a lack of foot sensation. When asked if supershoes prevented injuries, she responded, "*It is the opposite. I think that the supershoes make you work less with your foot muscles. You forget to use your feet, contributing to many injuries around the Achilles' tendon and stress fractures*" (Interview 6). Interestingly, interviewee 5, competing in the same event and sponsored by the same sportswear brand, preferred older shoe models: "*You can sit in the lab how much you want and think 'This is good' but you also need to include how much the body physically can take*" (Interview 5). Interviewee 12, recovering from an Achilles injury partly caused by new long jump spikes, stressed the importance of sportswear companies listening to athletes to prevent similar injuries: "*I have opinions about how the long jump shoes are built, specifically around the heel. It should not be plastic on the bottom of the heel because it makes you slide more easily*" (Interview 12). The representative from sportswear company Y also acknowledged the challenge balancing optimizing performance vs safe AFT shoes, stating, "*Because the shoes nowadays are so lightweight and the carbon plate has to be so stiff and responsive, it is not always super healthy to run every day in a shoe like this*" (Interview 9). Interviewee 18 also mentioned the prevalence of Achilles injuries linked to carbon shoes, leading athletes to request non-carbon fiber alternatives to mitigate these issues. These quotes suggest that athletes possess a profound understanding of how the body responds to AFT shoes, an insight that may be difficult for sportswear companies to predict in advance.

In regards to performance of supershoes, one athlete expressed confidence in their ability to provide valuable feedback for further advancements: "*I really think I can give feedback that can lead to them developing even faster shoes. It is very valuable for them to receive feedback from someone on such a high level*" (Interview 17). A company representative emphasized the mutual benefits of collaboration and knowledge exchange with athletes, stating, "*We both definitely benefit from working together and exchanging knowledge*" (Interview 9).

Further emphasizing the value of athlete input, the survey's open-ended questions revealed specific and creative ideas for product innovation from elite athletes. These suggestions demonstrate their capacity to identify problems and propose solutions, solidifying their role as valuable innovation partners. Examples of these ideas included wearable resistance for micro-muscle loading, heel reinforcement in specific spikes, and adding practical features like pockets or watch holes to apparel. This highlights the potential for athletes' innovative ideas to *both* enhance performance and contribute to injury prevention, ultimately benefiting both athlete health and the company's visibility through healthier, more consistently performing athletes.

4.3.2 Better Trust & Relationship with Athletes

Several athletes also emphasized that involving them in innovation processes could cultivate a stronger sense of belonging and mutual trust. Interviewee 17 expressed enjoyment in being part of the innovation process, feeling like a valued member of the company. Interviewee 5 echoed this, stating the importance of feeling involved and cared for by the company: "*The feeling of being involved is fundamental. To feel like the company cares about us and not treat us like a brand*" (Interview 5). Interviewee 6 highlighted the reciprocal benefits of providing suitable footwear: "*If I receive a shoe that suits me and I can optimize my performance, I become happy. And if I'm happy, they are happy because they want us to speak positively about the company*" (Interview 6). These quotes suggest that a mutually beneficial relationship exists between athletes and sportswear companies.

Further, interviewee 3 emphasized the significant impact of support from major sportswear companies on athletes and suggested that incorporating athlete insights could enhance the company's reputation: "*It would strengthen their brand name if they incorporated athletes that are actually out there and doing the sport. I think that would increase people's perception about the company*"" (Interview 3). Both interviewees, 15 and 11, also recognized

their athlete role as powerful brand advocates: "*If the athletes like their products, they become the best advertisements*" (Interview 15). Similarly, "*I am a person who speaks very positively about [sportswear company Z] because I genuinely enjoy their products. Then I talk a lot about the company naturally*" (Interview 11). Representative from sportswear company X also noted that involving athletes and collaborating with them could foster closer and more productive relationships, leading to a greater sense of inclusion: "*More people would feel included and a part of the process, instead of only people at the headquarters giving their opinions about products they are never going to use*" (Interview 4). This quote further supports the claim that stronger relationships with sponsored athletes can enhance brand perception, as they foster trustworthiness when elite athletes collaborate closely with their sportswear company on innovation.

4.3.3 Impact on Mainstream Market

This sub-theme examines how elite athletes influence company perception and shape consumer behavior through their visibility and influence. The majority of interviewed athletes recognized that they had an impact on consumers and company strategies, particularly through their participation in competitions and social media presence. Interviewees 1, 6, 8, and 15 all mentioned how wearing sponsored gear influences the mainstream market, leading to brand recognition. Several interviewees believed they significantly influence younger athletes who often emulate their role models' gear: "*I have been sponsored for such a long time that I am over this point to watch other people's products. But I remember when I was 16 or 17, I looked at and followed what the pros were wearing. Therefore, I think I actually have a bigger influence than I might think*" (Interview 18). Interviewee 10 added, "*If you have a specific role model who wears a specific sportswear company, it becomes natural that that sportswear company is what you will want*" (Interview 10). These quotes highlight the direct impact that elite athletes have on non-professional track and field athletes by wearing specific sportswear company shoes and gear during training, competition, and everyday life.

The direct impact on the mainstream market was further illustrated by interviewee 17, who reported a surge in sales of his shoe model after breaking a national record. Furthermore, interviewee 2 also observed the increasing public interest in athletic footwear, which has become a frequent topic in press conferences, thereby generating brand awareness through athlete representation. Interviewee 15 also noted the buzz generated by wearing unreleased shoes, with many inquiries about the model, availability, and purchase locations. Interviewee

3 also stated the public's growing "obsession" with shoes. Several athletes mentioned frequently receiving gear-related questions from fans and amateur runners, with one commenting, "*People notice. Especially serious amateurs—they want what the pros have*" (Interview 2). Interviewee 1 added, "*I walk around in [*sportswear company X*] sneakers, so it becomes a natural conversation topic when I meet people. When talking about track and field and running, someone always asks me questions about the shoes I am wearing*" (Interview 1). Interviewee 11 also recognized her role as a marketing tool, believing that using a particular sportswear company in media influences consumer trust and preference. Similarly, the representative from sportswear company X emphasized the effectiveness of personal and genuine collaborations with prominent athletes in strengthening their sportswear company.

The collective impact of athletes wearing the same sportswear company was also highlighted: "*When four guys in a final all have the swoosh, it makes an impression. It's brand dominance without needing individual campaigns*" (Interview 1). Company representatives confirmed this trend, with interviewee nine stating that showcasing multiple athletes wearing the same product reinforces its association with champions. She highlighted the significant impact of their top athletes on the mainstream market, noting that in one specific event, the success of their sponsored athlete had led to 80% of all competitors wearing their sportswear company's products, even without a sponsorship agreement. In summary, both company representatives and elite athletes recognized the impact of athletes, both individually and collectively, on brand awareness and recognition among non-professional athletes, as well as average runners in the mainstream market.

4.4 Potential Challenges with Athlete Involvement

The last theme explores the potential challenges associated with involving athletes in innovation processes, drawing insights from both interviews and survey data. While the data strongly support the benefits of deeper athlete involvement, several potential pitfalls have been identified.

4.4.1 Potential for Overwhelming Feedback and Over-Specialization

Despite the widespread desire for deeper athlete involvement, some athletes acknowledged the risk of sportswear companies becoming overwhelmed by excessive feedback. They also pointed out that if companies fail to act on the feedback received, it could erode trust among their athletes. Several athletes who had previously provided feedback without seeing any

tangible results expressed skepticism about future contributions. One athlete stated, "*It is almost worse to ask for feedback and then not use it. Then they are just burning my faith in them*" (interview 15). Interestingly, the representative from sportswear company Y held a different perspective, expressing confidence in their ability to manage athlete feedback effectively: "*We can definitely process the feedback. When I receive feedback, I work closely with our innovation team; they specialize in exactly processing this feedback and translating it into a shoe*" (Interview 9). These results present contrasting perspectives on whether there is a potential challenge of an overload of feedback to companies. There is therefore no strong indication that this can be perceived as a definite challenge. However, it is raised as a *potential* challenge.

Furthermore, both athletes and companies cautioned against the risk of over-specializing products to cater solely to elite needs. They argued that designing too narrowly for a small market segment could compromise broader market appeal. Company representatives were quick to highlight the inherent challenge of balancing the specific needs of elite athletes with the wider demands of the average consumer: "*We must be careful not to design something perfect for elites but unsuitable for the mass market*" (Interview 13). An athlete echoed this opinion, "*If they design a shoe that is perfect for me but useless for others, that is a ris*k" (Interview 2). These quotes highlight the concerns about creating overly personalized shoes that might only suit the unique biomechanics of individual athletes. Emphasis was placed on the fact that professional athletes have different needs than average runners, and creating shoes that only benefit a small percentage of the market would not be economically viable for companies.

Interviewee 17 noted that their competition shoes only work for athletes with excellent running technique, already at a very high level. Similarly, interviewee ten stated that the shoes "*only help if you are above a certain level. You need to run at a specific speed to benefit from them*" (Interview 10). The diversity of preferences even among elite athletes was also highlighted: "*Everyone has different opinions about what a great shoe is. If you would incorporate all [those] opinions, it would not become perfect for everyone*" (Interview 3). Similarly, interviewee 12 highlighted the risk of creating a shoe that appeals to an individual athlete but not to the broader market. Interviewee 7 expressed frustration with this issue, explaining that shoe designs often prioritize the preferences of top athletes with different running styles. These results suggest that, from the company's perspective, there is a risk in

designing and manufacturing super shoes that only fit a small segment of the market, namely, high-performing athletes. There is also a risk from the elite athletes' perspective that if sportswear companies design shoes specifically for their top athletes, these shoes may not be suitable for the rest of the elite athletes, as even among the elite athletes, there are divergent preferences and needs that need to be accommodated.

Moreover, interviewee 11 suggested that an over-reliance on athlete feedback could stifle true innovation, potentially leading to incremental improvements rather than groundbreaking advancements. Interviewee two drew a parallel with Henry Ford's development of the Model T, suggesting that asking athletes what they wanted might not lead to genuine progress, just as Ford's customers might have asked for a faster horse. "*Athletes are no actual experts on shoes. [...] It might result in developing a shoe that is actually worse*" (Interview 2). This raises concern that athlete feedback may not lead to advancements in AFT shoes, but could merely be a perception of increased innovation, while the reality is entirely different.

4.4.2 Time Constraints

A significant concern raised by many athletes was the potential time burden associated with extensive involvement in innovation processes. Interviewees 1, 2, 5, 8, 15, 16, and 17 all emphasized the challenge of such involvement becoming too time-consuming, potentially conflicting with their primary responsibilities as professional athletes. As one athlete clearly stated, "T*he company does not employ me to develop shoes. I am happy to give my feedback a few times up to the point where it gets overwhelming*" (Interview 1). Another athlete highlighted the conflict between peak performance goals and the need for rest and recovery: "*When you aim towards the Olympics, you want to be concerned with camps and recovery rather than testing shoes*" (Interview 17). Interviewee 16 even suggested that compensation, preferably outlined in their written agreement, would be appropriate for significant time spent testing shoes in a lab. These findings suggest that elite athletes' involvement in sportswear companies' innovation processes may pose a challenge, as it could divert valuable time away from their busy schedules as top-performing athletes. From the company's perspective, this is a significant challenge, as they need to balance the benefits of athlete feedback against the disadvantages of their sponsored athletes investing too much energy and time in contributing to innovation, which could potentially hinder their athletic performance.

Interestingly, none of the company representatives mentioned time commitment as a potential issue from their perspective. The time and energy commitment to integrating elite athletes into their innovation processes was only expressed as a valid resource use, as there is a strong perception that involving athletes in innovation will benefit the company. However, the contrasting perspectives suggest a possible disconnect in awareness or prioritization between athletes and sportswear companies regarding the time demands of athlete involvement.

4.4.3 Overemphasis on Materials and Unfair Competition

Another concern related to customizing shoes for individual athletes was the potential for increased costs and an excessive focus on materials. Due to the expense of personalizing shoes, which can disrupt standard production processes, this opportunity is often limited to a select few top athletes. Interviewee 6 highlighted the economic challenges faced by sportswear companies in accommodating diverse individual preferences: "*We all want different things. It might be difficult for the company to economically gain if they took input from all different athletes who want to have it their way*" (Interview 6). The cost implications of personalized shoes were also raised by interviewees 1, 5, 8 and 9 as well as company representatives X and Y, with one explicitly pointing out the downside of developing costly products primarily for elite marathoners (Interview 9).

Further, the overemphasis on materials was raised by several of the interviewed athletes. According to them, the recent prominence of "super shoes" and the extensive discussion surrounding them in athletic circles has created a perception that track and field is becoming increasingly defined by equipment rather than pure athletic ability. This focus on equipment can also detract from the athlete's mental preparation and performance. Interviewee 5 explained, "*If you start thinking too much about the shoes[..] you start to focus less on what you are actually supposed to do - perform*" (Interview 5). Interviewee 7, having tested numerous spike models, emphasized the potential for overthinking equipment choices to impact performance negatively: "*During our pre-camp before World Champs in Oregon, I would be so busy during our training sessions, constantly switching spikes. I felt at a disadvantage because there were so many options available. [...] At some point, my coach told me to pick a pair and go with them*" (Interview 7). This poses a challenge from both the company and athlete's perspective, as a shift in the fundamentals of the sport of track and field could diminish the significance of athletic physical performance and place more emphasis on the materials.

Besides the potential risk that track and field is becoming increasingly a sport reliant on AFT and materials, ethical issues also arose during the interviews. The moral concern also lies in the fairness of the sport, as only a select group of top athletes has access to customized shoes optimized for their performance. Several athletes raised these concerns, and interviewee 12 argued that while advancements are welcome, personalized shoes should be available to the broader market to maintain a level playing field: "*I like the idea of advancements and that athletes want to become the best and create the best for themselves when it comes to products. But it can lead to an adverse market if a few athletes run around in specialized shoes that no one else can access*" (Interview 12). Interviewee 16 expressed skepticism about prototype super shoes used by professionals, which are not available to the general public, arguing that the debate about fairness and "cheating" intensifies when such exclusive gear exists. Interviewee 14 echoed this sentiment, emphasizing that average athletes should also be able to train and compete in the same high-performance shoes as top athletes. These quotes suggest that there is an unfair distribution of AFT shoes among elite athletes, resulting in the very top athletes having access to the best shoes and thereby further enhancing their performance. Interviewee 14 added that this unequal distribution would only lead to a greater gap between the top elite athletes and the rest of the elite athletes in terms of performance.

4.5 Summary of Results

The interviews and survey findings demonstrate a clear perception among athletes that they possess significant, underutilized potential to contribute to sportswear companies' innovation processes, particularly advancements in AFT. The summary of results is distinct between the perspectives of the athletes and the company representatives. The key findings are summarized in Table 6 below.

Table 6. Summary of Key Findings on Athlete Involvement in Innovation

Key Findings	Description
Athlete Potential	Athletes possess significant potential to contribute to sportswear companies' innovation processes, particularly in the area of athletic footwear technology (AFT).
Desire for Greater Engagement	Athletes express a strong willingness to engage more actively in innovation through testing, feedback, and idea-sharing, from initial design to final testing.
Impact on Product Development	Athletes' knowledge and experience are recognized

	as valuable for enhancing product performance and preventing injuries.
Limited Direct Involvement	Direct athlete involvement in product development is often limited, as communication is frequently conducted through agents.
Factors Influencing Involvement	Involvement levels are influenced by the strength of the relationship between athletes and companies, as well as the athletes' prominence.
Varied Levels of Participation	Some athletes are asked for feedback, while others are not involved in the product development process.
Feedback Complexity	Sportswear companies face challenges in managing the volume and diversity of athletes
Risk of Over-Personalization	There is a tension between catering to the specialized needs of athletes and broader market demands. Products risk becoming too specialized, limiting their appeal to a broader audience.
Inefficient Feedback Handling	Sportswear companies may struggle to gather and effectively utilize feedback from athletes. Athletes express uncertainty about whether their feedback is truly utilized.
Athlete Time Constraints	Their training and competition schedules limit athletes' availability for innovation activities.
Ethical Concerns	Concerns exist regarding fairness and access to specialized equipment.
Impact of Technology	AFT is recognized for its transformative effect on athletic performance.
Stronger Athlete-Company Relationships	Athlete involvement can strengthen the relationship between athletes and companies.
Influence on Mainstream Market	Athletes are recognized as influencing consumer behavior and market trends.

4.5.1 Athlete Perspectives and Findings

The interviewed and surveyed athletes believe that they hold unique and valuable insights that internal processes within sportswear companies cannot fully generate. They are convinced that their first-hand experiences and specialized knowledge, gained through rigorous training and competition can lead to substantial improvements in product performance and effectively mitigate the risk of injuries. Athletes recognize the transformative impact of technological innovations, particularly in AFT, on their performance. This understanding further emphasizes the importance of their input in future

innovation cycles, as they are the direct beneficiaries and testers of these advancements. The survey results quantitatively reinforce this, showing near-universal agreement (28/28) that athlete involvement adds significant value to sportswear companies' innovation processes.

The desire for active involvement is evident across both survey and interview participants. A striking majority of surveyed athletes (25/28) found co-creation beneficial, and all 28 believed that testing through athletes was an excellent idea. Similarly, all interview participants (15/15) expressed a strong desire to be involved in innovation, underscoring their conviction that they possess valuable insights (15/15). They also believe they can offer insights companies cannot generate internally (8/15 of interviewees, 23/28 of survey participants). While only 15 out of 28 surveyed athletes and 4 out of 15 interviewed athletes had fully formed innovative product ideas when directly asked, this did not diminish their willingness to contribute to the process. A significant majority (27/28 of survey participants, 12/15 of interview participants) expressed a strong inclination to share any innovative ideas or observations with representatives of sportswear companies. This suggests that while formal ideation might not be their primary role, they are open to providing raw input.

Athletes are convinced that their deep understanding of product performance under various conditions, coupled with their awareness of injury mechanisms, makes their input invaluable. They believe their experiences can directly lead to significant improvements in product endurance, responsiveness, and overall protective qualities, ultimately benefiting both elite and everyday consumers. Despite their strong willingness to engage, athletes express a clear preference for manageable levels of involvement. They desire participation that does not interfere with their primary focus on training, competition, and recovery. This highlights a need for flexible and efficient engagement models from companies.

Athletes understand their role as influential figures, recognizing that their authentic endorsements and use of products have a direct impact on consumer behavior and market trends. They view their involvement in innovation as a means to create more effective products that resonate with everyday consumers, who often aspire to imitate their favorite sports figures. Table 7 below provides an overview of the participating athletes' attitudes towards involvement.

Table 7. Athletes' Attitudes Towards Involvement in Innovation Processes

Question	Yes (Survey Participants)	Yes (Interview Participants)
Believe they have valuable insights	28/28	15/15
Believe they can offer insights that companies cannot	23/28	8/15
Want to be involved in innovation	24/28	15/15
Have their own ideas for new products	15/28	4/15
Willing to share ideas?	27/28	12/15

4.5.2 Company Representative Perspectives and Findings

While sportswear companies acknowledge the importance of athlete input, the actual degree of athlete involvement varies significantly and can be limited. Sportswear companies generally recognize the potential of athletes. However, direct athlete involvement in product development is usually limited. Communication frequently occurs through agents, which can restrict the directness and degree of the athletes' input, potentially leading to misinterpretations or diluted feedback that could hinder a successful athlete sponsorship collaboration.

A significant finding is the inconsistency in how companies engage athletes. Some athletes report being frequently asked for feedback on shoes, while others, even within the same brand's roster, have never been involved in product development. This suggests a lack of standardized or comprehensive involvement strategies. The level of athlete involvement is profoundly influenced by external factors, including the strength and longevity of the relationship between athletes and companies, as well as the athlete's prominence and marketability. More prominent athletes often receive more attention and opportunities for involvement. Companies recognize that involving athletes more deeply can cultivate stronger, more trust-based relationships. Enhanced collaboration can lead to the creation of more effective products, thereby improving company credibility through authentic endorsements from prominent athletes. This positive feedback loop benefits both parties.

Increasing athlete involvement, although beneficial, presents considerable challenges for companies. An influx of diverse feedback can become overwhelming to manage and synthesize effectively. This can lead to a risk that products become overly specialized, catering only to a small, elite market and potentially alienating the broader consumer base.

There is also a risk of over-personalization even within the sponsored athlete segment, as individual preferences for footwear can vary widely, making it challenging to scale solutions for mass production. Sportswear companies often face challenges in collecting and effectively utilizing athlete feedback. They face the critical task of finding a delicate balance between the specific, frequently niche, demands and expectations of elite athletes and the broader needs and preferences of everyday consumers. This constant tension can lead some athletes to feel that their detailed insights are not genuinely appreciated or valued, fostering a lack of trust in their companies and making them feel less appreciated.

From a company's perspective, athlete time constraints pose a significant operational challenge. Beyond logistics, there are also ethical concerns, particularly regarding the distribution of specialized shoes, which some feel is disproportionately directed towards top athletes, raising questions of fairness and access. Lastly, there is a concern within the industry that an overemphasis on advanced technology, often driven by the needs of elite athletes, may overshadow fundamental performance attributes that should remain the core focus of athletics for the general public.

5. DISCUSSION

This chapter discusses the study's findings in relation to established theoretical frameworks of innovation. It provides an analytical perspective on the interplay between elite athletes and sportswear companies in the realm of sports innovation. It examines the relationship between company representatives and sponsored athletes, the athletes' current involvement, and their attitudes towards collaborating on innovation. The thematic analysis in the findings chapter presents perspectives from 43 elite athletes and 3 company representatives, offering insights from both sides. This dual perspective is crucial, as the opportunities and challenges *experienced by elite athletes* are directly or indirectly linked to the opportunities and challenges *faced by sportswear companies* themselves. Due to their sponsorship agreements and role as brand ambassadors, athletes are an extension of the company's brand image, credibility, and product success. Therefore, understanding the perspectives and insights of the athletes is necessary to answer the research question. By integrating insights from *lead user theory*, *co-creation*, *open innovation*, *social identity theory,* and *innovation diffusion theory*, the discussion chapter aims to illuminate the opportunities and challenges faced by sportswear companies when involving elite athletes in their innovation processes. The first

section of the chapter discusses the opportunities, while the last section discusses the challenges.

5.1 Opportunities for Athletes' Involvement in Innovation

5.1.1 External Sources of Innovation

The external innovation processes, including open innovation, co-creation, and crowdsourcing, are influenced by brand communities and social identity theory (Schmid et al., 2022). These theories provide a framework for understanding the opportunities associated with the involvement of external stakeholders in companies' innovation processes. Schreier and Prügl (2008) point out that not only manufacturers, but also users, have often been discovered to be the source of innovation through idea generation and the development of new products, which later have become commercially important for companies (Schreier & Prügl, 2008). This has been the case in extreme sports such as snowboarding, skateboarding, and windsurfing, where the users of these sports, or the athletes, have developed some of the most significant innovations in their fields (Shah, 2006).

This also seems applicable to the sport of track and field, as the findings suggest that sportswear companies can strategically leverage opportunities by actively involving athletes, *the users*, in their innovation processes. The findings strongly suggest that elite track and field athletes offer innovative ideas and feedback that contribute to sportswear companies' product development, aligning with the notion that external stakeholders provide unique insights, allowing companies to tap into a broader pool of creativity and user-driven innovation (Ertz, 2024). The primary benefit identified is the potential for enhanced product development, as elite athletes possess specialized knowledge and experience (Venesz et al., 2022). This expertise enables them to provide invaluable feedback on product design, functionality, and performance, identifying areas for improvement that might be overlooked by the shoe developers in the labs of the sportswear companies.

5.1.2 Improving and Developing Products

User expertise is particularly valuable in advanced footwear technology, where subtle design variations can significantly impact athletic performance and injury prevention, given the extreme physical conditions that athletes face. Insights from top track and field athletes are even more crucial since the innovation of carbon fiber plates, which significantly enhanced

energy return and running efficiency, transforming the world of athletics (van den Tillaar, 2024; Bonata et al., 2024). The advancements in AFT sparked a competitive race among rival sportswear companies in 2016 to develop the fastest running shoes, and this pressure continues to prompt them to continually develop their own and new versions of AFT shoes to stay competitive (Germano et al., 2024; Bonata et al., 2024). The majority of participating athletes in the study reported that they had personally experienced performance boosts from AFT shoes, most likely differences that the average consumer or runner would not recognize, but only an athlete at a very high level would. Hence, their opinions are crucial for sportswear companies.

When Nike designed their shoe model Alpha Fly 3, they incorporated feedback from their elite athletes and everyday runners, the users of their products (Germano et al., 2024). This recognition of the value of athletes involved in new product development among sportswear companies is also identified in the findings. The representative from sportswear company Y stated, "*The athletes are our main product development source. [...] The super shoes we develop are not for daily runners, but for high-performance athletes, and the athlete's knowledge is the most valuable data.*" (Interview 9). This example suggests that sportswear companies involve elite athletes in their product development to create a competitive edge. Due to the specialized needs of elite athletes and their early adoption of AFT's cutting-edge equipment, they are likely to embody the characteristics of *lead users*. They experience the future needs of the broader market today and are motivated to innovate to meet those needs, as their professional level is measured by performance on the track (Schreier & Prügl, 2008).

This dependence on athlete feedback can be explained by von Hippel's (1986) core principles of *lead user theory*, and is recognized as one of the strongest drivers of new product ideas (Wang et al., 2021). The primary aspect of the theory is that lead users are ahead of the mainstream market and expect to benefit from innovation, and are therefore most likely to develop attractive, innovative ideas (Schmid et al., 2022). Lead users can provide quality information and design freedom, resulting in better product development, which aligns with the findings, as all participants strongly believed that their expertise as athletes can create enhanced products (Venesz et al., 2022). For example, the surveyed athletes provided innovative ideas, such as wearable resistance for micro-muscle loading, reinforcements on the heel of the sprint shoe, and adding pockets for equipment to clothing. These are examples of athlete ideas could potentially lead to a competitive advantage, as companies can offer

superior products that meet the evolving needs of their broader target market as well (Bonata et al., 2024; Schreier & Prügl, 2008). Venesz et al.'s (2022) claim that companies should take advantage of lead users in the early stages of innovation and idea generation is supported by the findings of the study, as both company representatives and athletes emphasized the value and the desire to be involved in the sportswear companies' innovation processes, from early idea creation to final prototype testing and feedback.

Besides offering an opportunity to improve product performance, elite athletes may also mitigate the *negative effects* of innovation. As some athletes pointed out that super shoes can lead to Achilles injuries, insights from high-performance athletes can provide companies with direct feedback on how the shoes are harming them, which can lead to the prevention of injuries by developing safer products for athletes. This proactive approach can protect both the athletes and the company's reputation. For instance, one athlete expressed, "*[Athletes] are the ones that will use the products. You can sit in the lab how much you want and contemplate, but you will never figure out how much the body physically will manage*" (Interview 5). Feedback from athletes can therefore help sportswear companies create high-performance products that prioritize athlete health. This is consistent with the idea that users experience direct benefits from products and will invest in innovation to address severe problems, such as injuries (Schreier & Prügl, 2008). For instance, the expected benefits of a windsurfer might be related to unsolved problems that cause him injuries. If he perceives these problems as severe enough, it justifies an investment or serious involvement in innovation to solve them (Schreier & Prügl, 2008). This dual benefit of performance enhancement and injury prevention highlights a critical value proposition for involving athletes in product development. The continuous evolution of AFT further underscores the importance of direct athlete input in maintaining a competitive advantage in the dynamic environment of track and field.

5.1.3 Strengthening Athlete-Company Relationships

The concept of open innovation, which encompasses collaboration with external stakeholders, may also present sportswear companies with opportunities for increased profitability and corporate growth through strengthened relationships between athletes and companies (Venesz et al., 2022). The strategy of crowdsourcing through open innovation enables companies to access vast numbers of users, capture customer feedback, improve market research, and facilitate innovation processes (Schmid et al., 2022). Collaborating with

users through idea creation can generate product varieties, entirely new products, or modifications to existing ones (Schmid et al., 2022). On the other side of things, users also benefit from involvement in the companies' innovation processes as they receive innovative products tailored to their specific needs (von Hippel, 1986). This benefit was explicitly mentioned by interviewees 2 and 14, who both had received customized products that enhanced their training conditions and performance. Interviewee 2 received a special model for wet training at altitude upon request, and interviewee 14 received specialized spike shoes for her feet to enhance performance. This highlights the direct benefits of customization for athletes. This aligns with Venesz et al.'s (2022) notion that users are drivers of product development when they are involved in the design process, enabling a better fit for their needs. Hence, sportswear companies can actively engage their sponsored athletes in customization from open innovation and co-creation to develop products that are better suited for elite athletes, thereby boosting their performance. This reciprocal benefit creates a win-win scenario for both the company and its sponsored athletes, driving both innovation and athlete satisfaction.

The findings also suggest that collaborating with elite athletes can enhance athletes' perceptions of the company. In turn, this can enhance the company's credibility because the athletes' expertise in their field holds significant weight in their endorsements, resulting in more authentic and enthusiastic endorsements. This finding is consistent with research on co-creation and value co-creation, which emphasizes the importance of building strong relationships with end-users to enhance brand equity and mitigate the risk of brand transfer (Ertz, 2024; Abdolmaleki et al., 2023). Involving product users in feedback and idea loops can also create stronger ties between them (Ertz, 2024). By actively involving athletes in innovation, sportswear companies move beyond a simple sponsorship agreement and engage in a value co-creation partnership, where the athlete's expertise and the company's resources combine to create mutual benefit. Interviewee 3 pointed out this benefit: "*It would strengthen their brand name if they incorporated athletes that are actually out there doing the sport. I think that would increase people's perception about the company, like 'Here we have a company that actually listens and takes in knowledge*'" (Interview 3). Similarly, interviewee 5 expressed, "*The feeling of being involved is fundamental. To feel like the company cares about us and not treat us like a brand*" (Interview 5). This suggests that when athletes feel their input is valued, it fosters a sense of belonging, trust, and mutual respect between them and their sponsored sportswear company.

This enhanced relationship can lead to more open and effective communication, a deeper understanding of the athlete's needs and preferences, and increased loyalty and commitment from the athlete to the company (Ertz, 2024). From the findings, interviewees 6 and 8 mentioned that after complaining about issues with their jumping spikes, the problems improved over time, providing an example of how a sportswear company actively incorporated athlete feedback to address their concerns. Failing to do so may lead to athletes expressing dissatisfaction with the products, which can damage the company's image (Abdolmaleki et al., 2023). This finding is consistent with the idea proposed by Abdolmaleki et al. (2023) that strong relationships are often necessary to create successful co-branded alliances, resulting in benefits such as mutual trust and commitment, product reliability, and innovative strategies.

Successful sponsorships can also effectively position new products, drive sales, and enhance brand image while decreasing marketing and advertising costs (Abdolmaleki et al., 2023). Company revenues increase by extending awareness beyond the firm's original geographical territory (Abdolmaleki et al., 2023). Professional sports teams have proven to be attractive co-branding opportunities, enabling sportswear companies to acquire the heritage associated with powerful sports teams. It is a powerful marketing strategy that can attract new customers, increase market share, and enhance brand image as they can leverage the sports teams' or athletes' heritage and fan base (Abdolmaleki et al., 2023). Co-creation between the company and athletes, coaches, or teams can enhance the sportswear company's meaning by collectively shaping the brand identity and overall perceptions (Abdolmaleki et al., 2023; Anderski et al., 2024). Therefore, sportswear companies can foster stronger relationships by actively involving their sponsored athletes in their innovation processes, transforming their transactional sponsorship into a truly collaborative partnership that enhances the company’s image, reputation, and credibility.

This strengthened relationship between athletes and companies can also extend to enhanced brand communities, where active brand members often share innovative ideas without compensation (Wang et al, 2021). Trust within the brand community is crucial, as strong it mediates the relationship between lead userness and innovative behavior, leading to a positive

effect on the level of innovativeness in an online brand community (Wang et al., 2021). Thereby, as the findings suggest that enhanced trust between athletes and companies may lead to more mutually beneficial sponsorships, sportswear companies can leverage these enhanced sponsorships to create stronger engagement with brand communities (Mills et al., 2022).

5.1.4 Influencing the Market

Another potential opportunity for sportswear companies to leverage their athletes is through their role as effective ambassadors and advocates. The athletes' visibility in competitions, media, and social media enables them to influence consumer perceptions and shape market trends significantly (Anderski et al., 2024). This directly ties into the innovation diffusion theory, which describes how various consumer segments adopt new ideas and products over time. While creating innovative products is crucial for companies, their success in the market is equally dependent on the diffusion of innovation (Singh, 2013). Innovators and designers are key drivers of innovation, but even if they create sound innovations or inventions, they may still fail in the market (Singh, 2013).

Elite athletes, as *early adopters* or *opinion leaders,* play a crucial role in this diffusion process. Within the category of early adopters are lead users and opinion leaders, who serve as strong influencers for the mainstream market and the diffusion of innovative products. The roles of lead users and opinion leaders often intersect, with both playing significant parts in influencing the adoption decisions of other consumers (Wang et al., 2023). Once opinion leaders share their subjective user experiences and express them, they are rapidly followed, influencing the adoption decisions of other consumers for new products (Wang et al., 2023). In contrast to opinion leaders, lead users anticipate upcoming market trends and find new solutions to existing problems. They often influence other consumers' purchasing decisions with their professional knowledge, personal experience and positive communication behavior. Both lead users and opinion leaders can affect others' adoption of new products, stemming from their knowledge, experience, and communication behaviors (Wang et al., 2023).

Elite athletes can be categorized as *opinion leaders*, as they are individuals who influence the behaviors of fans and sports enthusiasts within their sport (Wang et al., 2023). This influence is particularly powerful among aspiring athletes and sports enthusiasts who often mimic their

role models. As interviewee 18 noted, "*I have been sponsored for such a long time that I am over this point to watch other people's products. But I remember when I was 16 or 17, I looked at and followed what the pros were wearing. Therefore, I think I actually have a bigger influence than I might think*" (Interview 18). Interviewee 7 also noted a significant increase in brand visibility after their team's sponsorship, stating: "*No one was really wearing [sportswear company] up until we got sponsored, then we saw all the kids at nationals wearing it, not just shoes but even clothes. [...] I'm pretty sure we had a huge influence on the international level as well because we started getting global models, so we surely had many eyes on us and influenced many people towards the company*" (Interview 7). These direct accounts from athletes strongly resonate with the core principles of opinion leadership, where their public actions and expressed preferences directly shape the purchasing decisions of their fans and the broader market.

Furthermore, more involved lead users also understand product attributes better, leading to a tendency to adopt new products earlier (Wang et al., 2023). As lead users are the first in a specific market to adopt innovations, concepts, or ideas, they could serve as opinion leaders who can accelerate the diffusion process when launching new products (Schreier & Prügl, 2008). This reinforces the findings that involving elite athletes in innovation processes fosters a stronger commitment to the products, which leads to them becoming opinion leaders and influencing consumer purchasing decisions, in turn facilitating the diffusion of new products (Wang et al., 2023).

These observations also align with social identity theory, suggesting that individuals often derive part of their self-concept from associating with aspirational figures or groups (Mills et al., 2022). By strategically leveraging this influence, sportswear companies can enhance their brand image, increase product visibility, retain loyal customers, and drive sales growth (Wang et al., 2023). The results align with the statement made by interviewee 1, "*When four guys in a final all have the swoosh, it makes an impression. It's brand dominance without needing individual campaigns*" (Interview 1). This statement is supported by the idea that athlete attraction, due to their personalities, performances, or glamorous appearance, promotes fan loyalty, positively impacting the brand community (Wong & Hung, 2023). This athlete attraction has a positive effect on the brand community. Athletes, as an integral part of brand communities, create a creative spillover effect as their fans also become attached to the sportswear company they are sponsored by (Wong & Hung, 2023). The commercial value of

celebrity athletes on online platforms, as influential content creators, also plays a significant role in market influence. Online brand communities can serve as effective platforms for innovation creation (Wong & Hung, 2023; Anderski et al., 2024). These communities enable users to share ideas, co-develop concepts, and articulate needs, combining collective intelligence with intrinsic motivation and domain-specific knowledge, making them valuable for early phases of innovation (Füller et al., 2007). In turn, active members' participation reinforces positive behaviors such as word-of-mouth, brand trust, and customer commitment (Mills et al., 2022). Evidently, athletes can significantly impact customers' perception and influence their involvement, loyalty, and behavior, as supported by the findings (Anderski et al., 2024). This powerful marketing approach makes athletes not just product testers, but living advertisements and brand ambassadors. These observed phenomena, as described by several interviewed athletes, directly illustrate the self-congruity aspect of social identity theory, where consumers use brands to display their self-concept and identity with their role models, as evidenced by fans emulating the gear of elite athletes. In conclusion, the findings highlight how the athletes' deep engagement with products driven by their competitive needs naturally positions them as credible sources of information and influence, fulfilling the dual roles of lead users and opinion leaders in accelerating market adoption.

5.2 Challenges of Athlete Involvement in Innovation

5.2.1 Managing Feedback

The main challenge sportswear companies face when involving elite athletes in their innovation processes is the complexity of managing the feedback**.** Gathering input from a diverse group of athletes, each with their own unique needs and preferences, can create a complex and potentially overwhelming inflow of information for companies to process. As the representative from company X noted, "*We would love to involve more athletes earlier, but it is not scalable. Managing feedback from a few hundred athletes globally would be chaotic*" (Interview 13). This inflow of data can strain a company's resources, particularly in terms of time and analytical capabilities. Furthermore, the representative from company X highlighted the importance of effectively storing and utilizing collected feedback, stating that otherwise, it is "completely useless" (Interview 4). This aligns with Schmid et al.'s (2022) critiques of open innovation, where an overload of input and ideas, many of which may be futile or infeasible, can be time-consuming to process and evaluate. A solution to the

overload of ideas might be to focus on lead users who support the company's innovation processes (Schmid et al., 2022).

This challenge suggests that companies need to develop methods to identify the most valuable and actionable insights among the vast amount of feedback received, which is a key aspect of effectively applying the open innovation strategy (Venesz et al., 2022). However, it is necessary to note that the company representatives had varying perspectives on their ability to handle the feedback. Unlike company representative from sportswear company X, one from company Y expressed confidence in their company's capacity to process athlete feedback efficiently: "*We can definitely process the feedback. When I receive feedback, I work closely with our innovation team; they specialize in exactly processing this feedback and translating it into a shoe*" (Interview 9). This highlights a potential disconnect in perception and actual operational capacity regarding feedback management. The discrepancy suggests conflicting perspectives on whether or not sportswear companies have robust internal systems to process all the feedback from athletes.

Another challenge relating to managing feedback is the skepticism prevalent among athletes regarding how their feedback is actually handled. Athletes expressed uncertainty about whether their suggestions were taken seriously or if their input was merely a symbolic gesture. This aligns with the assumption within *lead user theory* that lead users are motivated to innovate because they expect to benefit from obtaining a solution to their needs (Schreier & Prügl, 2008). If athletes perceive their contributions are not valued or utilized, their willingness to contribute may diminish, as demonstrated by interviewee 15: *"It is almost worse to ask for feedback and then not use it. Then they are just burning my faith in them"* (interview 15). However, the company representatives did express that they used athlete feedback, but that the development of new shoes takes years. One company representative explicitly stated that the company is already working on shoes for 2028/2029 and emphasized that new regulations from World Athletics also frequently disrupt the development process. It is therefore a lengthy and complex process, which is likely the reason why athletes feel that their feedback is not utilized. This issue could be addressed through enhanced communication, which would help address the challenges of co-creation related to unrealistic expectations from one party in the co-branded alliance. Furthermore, improved communication could lead to more realistic expectations among athletes (Abdolmaleki et al., 2023).

Interviewee 16 further expressed that he would expect some kind of compensation for his contributions of ideas. These findings contradict the assumption of Venesz et al. (2022) that leads users to be always willing to contribute their ideas freely without compensation. However, Marchi et al. (2011) claim that an essential characteristic among lead users is their willingness to contribute, which is linked to the degree to which they believe desirable outcomes are under their control and their innovativeness. Hence, if athletes do not believe that their contributions will be valued and used, they will most likely not be motivated to participate in their sportswear companies' innovation processes. This highlights a critical condition for successful lead user integration, where companies must, in addition to identifying lead users, also foster an environment where their efforts are demonstrably valued and lead to tangible outcomes (Venesz et al., 2022). Similarly, the co-creation framework suggests that if athletes perceive their input is not valued, it can lead to disengagement and limit valuable co-created innovation (Venesz et al., 2022). The perspectives of the athletes who perceived that their feedback was not valued could lead to a breakdown in trust and a reduced willingness to engage in innovation. Therefore, sportswear companies must create an environment of mutual trust where athletes can effectively influence innovative behavior. Only in a trusting climate will they feel free to express themselves and fully contribute their knowledge resources, improving innovation performance (Venesz et al, 2022).

5.2.2 Balancing Needs of Elite Athletes and Average Consumers

Another critical challenge involves balancing diverse needs and avoiding over-specialization**.** Sportswear companies typically serve a diverse consumer base, ranging from professional athletes to amateur runners. While adapting to the specific requirements of elite athletes can drive the development of high-performance products, there is a significant risk of over-specializing products to the point where they lose broader market appeal. This relates to the concept of personal needs in user innovation (Schreier & Prügl, 2008), where solutions developed by individual users may not be readily transferable to the broader market. As athlete 3 pointed out, "*Everyone has different opinions about what a great shoe is. If you would incorporate all [those] opinions, it would not become perfect for everyone*" (Interview 3). Another warned, "*If they design a shoe that's perfect for me but useless for others, that's a risk*" (Interview 2). This contradicts the lead user theory that suggests that while average consumers find it difficult to evaluate the potential value of drastically new concepts, lead users are effective pillars for evaluation (Schreier & Prügl, 2008). Some of the athletes'

opinions implied that they may not be suitable for developing new product attributes, even if they embody characteristics of lead users. The findings here demonstrate that even within the lead user category of elite athletes, there can be such a divergence in needs and preferences that relying solely on their input could result in products that are too niche for broader commercial success.

It is also important to note that although sponsored athletes are experts in executing their sport, most are not innovators or knowledgeable in the biomechanics of the shoes and how to design and develop them from scratch. This challenge highlights the tension between user-centered innovation and market success. Sportswear companies must find a balance between meeting the specialized needs of their top athletes and ensuring that their products appeal to a broader consumer base to achieve commercial success. Over-specialization can lead to niche products with limited commercial potential, undermining profitability and hindering company growth. The subjectivity of athlete feedback further complicates this challenge, as companies also need to balance diverse needs even among the elite athletes, as individual factors often influence their preferences, making it difficult to generalize findings to suit all elite athletes. Sportswear companies must, therefore, distinguish between universally applicable insights for the average runner and individual preferences for pro athletes, as well as avoid over-specialization for specific individual athletes that are not catered to the rest. This requires careful analysis to avoid creating products that are perfect for a very small, specialized segment but fail to capture the larger market.

Furthermore, interviewee 11 suggested that an over-reliance on athlete feedback could stifle true innovation, potentially leading to incremental improvements rather than groundbreaking advancements. Interviewee two drew a parallel with Henry Ford's development of the Model T, suggesting that asking athletes what they wanted might not lead to genuine progress, just as Ford's customers might have asked for a faster horse. "*Athletes are no actual experts on shoes. [...] It might result in developing a shoe that is actually worse*" (Interview 2). This raises concern that athlete feedback may not actually lead to advancements in AFT shoes, but rather only create a perception of increased innovation, while the reality is different. This challenges the idea of open innovation, which proposes that access to a broader pool of ideas will automatically lead to improved products (Ertz, 2024), as it depends on the company's ability to manage the flow of information effectively. Although lead users in open innovation processes are a promising concept, their success rate is low if they are not identified

appropriately (Venesz et al., 2022). Venesz et al. (2022) emphasize that knowledge about the specific characteristics of lead users is crucial for selecting the right ones in the early stages of a company's new product development. Roberts and Darler (2017) also emphasize the importance of managers choosing the right users for their innovation process, noting that users lacking specific essential characteristics often lead to failed innovation. These theoretical insights are directly supported by the athletes' self-assessment, as interviewee two, for instance, admitted that they are not necessarily innovators themselves but rather identifiers of problems. Therefore, it is essential for sportswear companies to carefully select which athletes to include in their innovation processes, as not all athletes may be suitable for innovation. This challenge is related to the issue of properly identifying lead users as mentioned by Venesz et al. (2022) and Roberts and Darler (2017).

5.2.3 Ethical Concerns with Customization

Beyond the practical issues sportswear companies face in customizing products for individual athletes, it also raises important ethical considerations and questions of fairness within the sport. While personalized shoes can undoubtedly enhance athlete performance and provide a competitive edge, they also create a potential for unequal access to technological advantages, particularly if these customized products are not readily available to all athletes. Interviewee 16 voiced this concern, stating that exclusive prototype super shoes "intensify" the debate about fairness and the perception of "cheating" within the sport. This belief was shared by several of the interviewed athletes and highlighted a direct ethical dilemma for sportswear companies: the pursuit of top performance through customization can accidentally undermine the perceived fairness of competition, a core value in sports. This raises ethical dilemmas for sportswear companies, who must balance their desire to innovate and support their sponsored athletes with their responsibility to promote fair competition and maintain the integrity of the sport. This issue is connected to the discussion of "technological doping" and the need for regulations to ensure fair competition (Germano et al., 2024). The prevalence of Achilles injuries linked to carbon shoes, which leads athletes to request non-carbon fiber alternatives, also raises ethical concerns regarding the health and safety of athletes. These findings suggest that companies, in addition to adhering to official regulations, must also consider the broader impact of their innovations on athlete well-being and equal competition.

5.2.4 Time Constraints

A significant concern raised by many athletes was also the potential time burden associated with extensive involvement in innovation processes. Interviewees 1, 2, 5, 8, 15, 16 and 17 all emphasized the challenge of such involvement becoming too time-consuming, potentially conflicting with their primary responsibilities as professional athletes. As one athlete clearly stated, *"The company does not employ me to develop shoes. I am happy to give my feedback a few times up to the point where it gets overwhelming*" (Interview 1). Another athlete highlighted the conflict between peak performance goals and the need for rest and recovery: "*When you aim towards the Olympics, you want to be concerned with camps and recovery rather than testing shoes*" (Interview 17). These findings from the athletes directly identify the limitations imposed by their demanding schedules on their capacity to be involved in innovation.

Company representatives from the sportswear company Y also acknowledged that they are dependent on frequent communication with involved athletes, which requires them to take calls and offer feedback. "*When we need specific feedback in a shoe, we set up regular calls, or we invite the athlete to our testing laboratory, and then it is a full day of testing with the athlete"* (Interview 9). This shows that coordinating athlete availability for testing or feedback sessions, scheduling communication, and managing the logistics of involving athletes in the development process can be significant for sportswear companies. This presents a challenge for open innovation, where an overload of input and ideas can occur, and processing and evaluating all these ideas can be time-consuming (Schmid et al., 2022). The time required for processing and evaluating a high volume of input becomes particularly challenging when dealing with individuals whose primary job is athletic performance, and not innovation.

Interestingly, none of the company representatives mentioned time commitment as a potential issue from their perspective. The time and energy commitment to integrating elite athletes into their innovation processes was only expressed as a valid resource use, as there is a strong perception that involving athletes in innovation will benefit the company. However, the contrasting perspectives suggest a possible disconnect in awareness or prioritization between athletes and sportswear companies regarding the time demands of athlete involvement. This issue relates to Abdolmaleki et al's (2023) notion that effective participation in co-creation

entails aligning diverse stakeholder interests. It is also associated with coping with unrealistic expectations from one or both sides of the co-branding partnership (Abdolmaleki et al., 2023). The findings illustrate these challenges, as it appears that elite athletes and company representatives have slightly different interests. Athletes want to focus on their training, recovery, and performance. At the same time, companies aim to drive innovation by incorporating elite athletes into their innovation process, which may be too time-consuming for individual athletes to manage. This highlights a communication gap that companies need to address to ensure athlete engagement remains sustainable, acknowledging the athlete's limited time resources to avoid disengagement or overburdening.

5.2.5 Substantial Financial Investment

Beyond the demands on athletes' time, another significant challenge for sportswear companies is the substantial financial investment required to integrate athletes into the innovation process. This issue relates to cost and the time commitment; both athletes and sportswear companies have limited time for athlete involvement in innovation. Therefore, it can be perceived as a cost. It is a financial investment for sportswear companies to design and develop shoes based on athlete feedback, as there is a risk they might flop on the market, both on the average consumer market and among sponsored athletes. Further, customizing shoes for individual athletes means they must stop production to make only a few pairs of spikes. *"It costs a lot of money because the production line has to stop for us to produce four pairs for athlete XYZ. It requires a significant amount of time and financial investment for our factories. Then there are some changes we cannot do because it is simply not possible, because it is not within the rules, we would need to develop an entirely new spike*" (Interview 9). This aligns with challenges in co-creation, which entails aligning diverse stakeholder interests and managing unrealistic expectations (Abdolmaleki et al., 2023). The findings highlight these challenges, as elite athletes and company representatives have slightly different interests; athletes seek to enhance their athletic performance, while companies aim to create a show that appeals to a broader market to increase sales and profitability. There are also uneven expectations regarding financial investments, as companies strive to keep costs down, while athletes seek customized shoes to optimize their performance, often without considering the associated price. These contrasting views on the financial implications underscore the complexity of balancing user-driven innovation with the realities of production and market potential.

However, according to Abdolmaleki et al. (2023), sponsorship co-branding can also decrease marketing and advertising costs, as increased athlete visibility enhances brand awareness. This aligns with interviewee 11, who mentioned that her presence on social media and in traditional TV provided her sportswear company with free advertising. Thus, while involving athletes in innovation and customization may be costly, the satisfaction of athletes, their positive product endorsements, and the resulting free marketing can offset these expenses by driving down actual marketing and advertising costs. This highlights a strategic trade-off where investment in athlete-driven innovation can generate long-term marketing abilities through authentic brand advocacy and market influence.

6. CONCLUSION

This final chapter presents the key findings of the study, synthesizing insights from the preceding chapters to provide a comprehensive understanding of the opportunities and challenges faced by athletic sportswear companies when involving elite athletes in their innovation processes. The research question centers on the opportunities and challenges *faced by sportswear companies*; however, it becomes apparent in the discussion that the challenges and opportunities faced by athletes will directly or indirectly influence the company, as their close sponsorship agreements make them a part of the company. Therefore, gathering data through interviews with *both* company representatives and athletes is necessary to draw accurate conclusions. The conclusion chapter begins with a summary of the main findings, highlighting key consistencies and differences to answer the research question. It then discusses the theoretical and managerial implications, and finally examines the study's limitations and proposes ideas for future research.

6.1 Main Conclusions

The discussion highlights the vital, yet often underutilized, role of elite track and field athletes in innovation processes within sportswear companies. They grant sportswear companies significant opportunities to enhance product design, improve performance, and strengthen their market position. A primary conclusion is that elite athletes can take on the role of *lead users*, who possess unique and invaluable insights from their advanced needs and extensive product usage of advanced footwear technology (AFT) in the high-performance environment of athletics. The main point of convergence is the recognition that athletes

possess valuable insights grounded in their knowledge and experience as professional athletes. Interviewed athletes emphasized that their real-world experiences during intense training and competition offer insights unattainable in laboratory settings. Elite athletes are at the forefront of market trends and experience needs and challenges that precede the mainstream market, positioning them as one of the strongest drivers of new product ideas, particularly evident in the rapid advancements of AFT. This direct engagement in product development, which often involves modifying existing products or introducing new ones, is essential for staying competitive in the highly innovative sportswear industry. Despite this recognized value and their unique position, a crucial finding from the discussion is that elite athletes are often not fully utilized or engaged in innovation processes to their potential, with many expressing a strong desire to be more involved and believing their unique insights are currently underleveraged by sportswear companies.

Building on the athletes' role, the discussion further highlighted that elite athletes also serve as powerful *opinion leaders*, significantly influencing consumer behavior. Beyond their technical input, their market influence can be leveraged to create brand awareness, enhance brand image and foster stronger engagement with brand communities. Their deep and active involvement in the innovation process, which provides them with instant knowledge and experience of new products, strengthens their credibility and increases their likelihood of becoming influential opinion leaders, thereby accelerating the market diffusion of new products. This strong engagement of athletes also created enhanced brand communities that can be a source of user-driven innovation, where members, encouraged by their connection to the brand and its athletes, are willing to contribute new ideas and feedback.. This influence is amplified by athlete attraction, where fans' loyalty to athletes spills over into attachment to their sponsored companies, making athletes living advertisements and brand ambassadors. As a form of corporate co-branding, athlete sponsorship can effectively position new products and drive sales by extending awareness beyond the firm's original market. Co-creation with athletes enhances the sportswear company's meaning by collectively shaping brand identity and overall perceptions, while also developing innovative technologies through critical knowledge exchange. This collaboration leads to increased innovation, better alignment with customer needs, enhanced customer engagement, and stronger brand loyalty, allowing for diverse input that results in more creative and effective products.

However, the discussion also highlights the difficulties in navigating the challenges associated with athlete involvement in innovation. To successfully utilize their potential and ensure successful innovation, companies must proactively address these challenges. One challenge that sportswear companies encounter is overvaluing the opinions and expertise of elite athletes in terms of new product development, as several athletes expressed reservations about considering themselves innovators or having the ability to provide insights beyond the expertise of shoe developers. This indicates that while athletes recognize the value of their feedback on product performance, some are less confident in contributing to the conceptualization of entirely new products. Furthermore, the athletes' opinions may be too diverse and individual to contribute effectively to positive innovation if their voices are incorporated too extensively into the innovation process. Conversely, company representatives expressed concerns about the practical complexities of managing and scaling athlete involvement, particularly when dealing with large numbers of athletes and synthesizing diverse and sometimes conflicting feedback. It also emphasized the extensive time commitment and financial investment required to involve elite athletes more in the innovation processes of sportswear companies.

These challenges extend to balancing various athlete needs and addressing significant ethical concerns, such as the controversies surrounding "technological doping" with AFT shoes that can create competitive disadvantages. Ensuring the effective participation of all stakeholders and aligning their diverse interests poses considerable difficulties. Additionally, potential pitfalls like a lack of flexibility, the risk of damaging the core brand, and managing unrealistic expectations from either the company or the athletes must be carefully examined to avoid jeopardizing the co-branding partnership. Ultimately, the discussion concludes that while athlete involvement is indispensable for maintaining a competitive advantage in the highly competitive market of athletic gear, they need to address the challenges that come with it proactively.

6.2 Answer to the Research Question

The preceding summary of the conclusions leads to answering the research question, "*What opportunities and challenges do athletic sportswear companies face when involving elite athletes in innovation*?"

Opportunities include the potential for:

- **Enhanced Product Development:** Elite track and field athletes, as lead users, offer unique, firsthand insights from their expertise in intense training and competition, which can lead to significant improvements in product performance and injury prevention in advanced footwear technology. Their expertise helps sportswear companies identify issues and areas for improvement that a laboratory setting and company employees cannot foresee.

- **Strengthened Company-Athlete Relationships:** Actively involving athletes in innovation fosters a sense of belonging and mutual trust, making them feel valued as members of the company rather than just a brand. This engagement goes beyond a simple sponsorship agreement to a value co-creation partnership, where the athlete's expertise and the company's resources combine for mutual benefit. Such collaboration enhances company credibility and reputation, as authentic endorsements from prominent athletes carry significant weight with consumers.

- **Fostering Brand Communities:** Elite athletes, through their influential roles and direct engagement, can significantly enhance brand communities. Strong communities can become dynamic platforms for user-driven innovation. Community members, motivated by their connection to the brand and its athletes, are more willing to share innovative ideas and valuable feedback, allowing companies to tap into a broader pool of creativity and accelerate new product development. This collaborative environment ensures products remain aligned with evolving user needs and anticipate future market trends.

- **Effective Brand Advocacy:** Elite athletes can serve as powerful opinion leaders who significantly influence consumer behavior and market trends through their visibility in competitions, media and social media. Their public actions and expressed preferences directly shape purchasing decisions, particularly among aspiring athletes and fans who often emulate their role models, as well as the average consumer. This powerful marketing approach makes athletes not just product testers, but living advertisements and brand ambassadors, contributing to brand awareness and sales growth without the need for extensive individual campaigns.

Challenges include:

- **The Complexity of Managing Feedback:** Gathering input from a diverse group of athletes, each with unique needs, running styles, and preferences, can create an overwhelming and sometimes contradictory inflow of information. This overload of input and ideas can strain a company's resources, particularly in terms of time and analytical capabilities for processing and evaluating all suggestions. Furthermore, the complexity of managing all the feedback leads to skepticism among athletes about whether their feedback is genuinely utilized, resulting in diminished trust and a reduced willingness to contribute if their suggestions are not taken seriously or implemented.

- **The Difficulty of Balancing Athlete Needs with Broader Market:** There is a significant risk of over-specializing products to cater solely to elite athletes, which can result in niche products that lose their broader market appeal and may not be economically viable for mass production. Even among elite athletes, preferences can diverge, making it difficult to create a "perfect" shoe for everyone. Over-reliance on athlete feedback could also stifle true innovation, as not all elite athletes are necessarily design experts or innovators. Overrelying on athletes may therefore distort a truly effective and successful innovation process among sportswear companies.

- **Time Constraints and Coordination Challenges:** Elite athletes have demanding training, competition, and recovery schedules, making extensive involvement in innovation processes a potential time burden. Coordinating athlete availability for testing or feedback sessions (full-day laboratory testing or regular calls) can be logistically challenging for sportswear companies. This disconnect in awareness or prioritization between athletes and companies regarding time demands can lead to athlete disengagement if not managed effectively.

- **Ethical Concerns:** Customization and exclusive access to advanced prototypes for a select group of top athletes can create a perception of "technological doping" and competitive disadvantage for those without access. This raises ethical dilemmas for sportswear companies, as pursuing top performance through customization can undermine the perceived fairness and integrity of the sport. Additionally, the prevalence of injuries associated with advanced footwear technology raises concerns

about athlete health and safety, forcing companies to find a balance between performance optimization and product safety. If sponsored athletes lose faith in their sportswear company or the broader market perceives them as unfair to the sport, it can substantially damage their reputation and brand image.

- **Substantial Financial Investment.** Designing and developing shoes based on individual athlete feedback, especially custom adaptations, can be very costly. This involves stopping production lines for small quantities of specialized shoes, resulting in significant factory time and financial investment. There is also a financial risk if these costly products, developed primarily for elite athletes, do not succeed in the broader market.

The strategic approach that sportswear companies can take to seize these opportunities, mitigate the adversities, and overcome the challenges associated with athletes' involvement in innovation is described in Section *6.3. Managerial Implications.*

6.3 Managerial Implications

This research offers valuable insights into the roles of sponsored athletes in innovation, as well as the opportunities and challenges that sportswear companies encounter when incorporating their sponsored athletes into their innovation processes. Therefore, the study can provide sportswear companies with ways to leverage their sponsored athletes to capitalize on these identified opportunities and overcome the challenges associated with athlete involvement in innovation. It is essential to acknowledge that the challenges faced by elite athletes are directly or indirectly reflected in the difficulties faced by sportswear companies.

6.3.1 Enhancing Feedback Mechanisms

The first managerial approach is for sportswear companies to develop and implement a clear, efficient, and structured system for collecting, analyzing, and utilizing athlete feedback. This means not only seeking opinions but also establishing formal processes for collecting and documenting feedback, analyzing the data accurately and effectively. This can be achieved through the use of digital platforms or formalized feedback forums, ensuring that athlete input is systematically captured and integrated into the product development process. One suggestion is through structured yet lightweight feedback loops that are easy for athletes to

use and do not add to their already demanding schedules. Failing to manage feedback effectively can lead to athletes' skepticism and a perceived lack of impact, burning their faith in the company and hindering future valuable contributions.

6.3.2 Foster Collaborative Development

To effectively utilize and maximize the value of athlete feedback, athletes must be engaged in product development at an earlier stage. Sportswear companies should view their sponsorship agreements with athletes as more than just transactional and instead recognize them as valuable partners in innovation. This shift from viewing them as only endorsers to involving them in the innovation cycle, from product conceptualization and design to later prototyping and testing, allows all athletes to contribute their expertise from the initial stages of product creation, ensuring that their insights have a greater impact on the outcome. It will cultivate genuine and collaborative relationships with the athletes. This early and genuine collaboration helps mitigate the risk of developing products that do not meet real-world performance needs or contribute to athlete injuries, which can damage the company's reputation and lead to product dissatisfaction.

6.3.3 Improving Communication Strategies

It is also important that sportswear companies maintain open, transparent, and consistent communication with their sponsored athletes. Due to the lack of formal communication systems for athlete feedback, many feel neglected and skeptical about whether their feedback is actually used. Therefore, bands must better communicate that they receive their feedback, and how it is used. There therefore needs to be clear lines of communication between athletes and the company, in which they should be provided with regular updates on the progress of product development. Because the development of shoes takes years, a fact most athletes are unaware of, better communicating the time aspect to them and following regulations will inform athletes that their feedback is valued, but it is a lengthy process. This builds trust, fosters engagement, and ensures athletes feel valued and heard. This proactive communication strategy can help to prevent misunderstandings, manage expectations, and strengthen the athlete-company relationship. Sportswear companies should reward meaningful contributions to enhance these relationships and motivate athlete participation**.** This could involve public recognition, financial incentives, or other forms of acknowledgment that demonstrate the company’s appreciation for the athlete's time and expertise. Poor communication can lead to athlete dissatisfaction and a perceived lack of

appreciation, undermining the mutually beneficial nature of sponsorships and potentially leading to negative public attitudes.

6.3.4 Developing Brand Communities

By further enhancing communication, collaboration, and knowledge sharing, sportswear companies should explore the potential of establishing a brand community with their sponsored athletes. This could be done by collaborating between the athletes' accounts and the companies' on social media platforms. Additionally, by collaborating with more specific athletes when designing models, the fans of the athlete could become more engaged in a brand community where they may all want that particular model of shoes. Additionally, if athletes were more integrated into innovation and transparent about their involvement in shoe development. In that case, it may signal to the rest of the customers that the shoes are actually designed for sports performance, thereby enhancing the company's credibility. A strong brand community, fostered through athlete involvement and transparency, enhances brand trust and customer commitment, serving as a powerful marketing tool. Conversely, a lack of athlete engagement or transparency can weaken these communities and reduce positive word-of-mouth behavior.

6.3.5 Addressing Ethical Concerns

Finally, regarding ethical concerns related to fairness, accessibility, and the potential for unequal access to technology, sportswear companies must be more transparent in their operations. To prevent dissatisfaction among their sponsored athletes and average consumers, they should engage in open dialogue with athletes, governing bodies, and the public to establish guidelines and policies for product customization, actively participating in industry discussions on ethical standards. This may ensure greater transparency in product development processes, allowing them to find an appropriate balance between their pursuit of innovation and their responsibility to promote fair play and maintain the integrity of the sport. Unaddressed ethical concerns, such as "technological doping" or unequal access to specialized gear, can severely damage a company's reputation, lead to public criticism, and potentially impact regulatory compliance within the sport.

6.4 Theoretical Implications

The research study identifies the opportunities and challenges of involving athletes in the innovation processes of sportswear companies. The analysis and discussion contribute to the existing literature on user innovation, lead user theory, open innovation and co-creation, particularly within the sports industry. This study provides empirical evidence from the innovation environment of elite track and field, thereby enriching the application of these theories in a context that is often overlooked in broader innovation studies.

6.4.1 Implications for Lead User Theory

Firstly, the findings reinforce the validity of the lead user theory and its applicability in a real-world setting, such as sports product development. It confirms that elite athletes represent the key characteristics of lead users, as defined by Von Hippel (1986): they are at the forefront of market trends, experiencing needs and challenges before the mainstream market, and they expect to derive significant benefits from innovative solutions (Von Hippel, 1986). Their intense training, competitions, and pursuit of peak performance drive them to seek and often develop creative solutions to enhance their athletic capabilities, leading to improved performance and recovery. This study highlights that athletes are not just users but proactive innovators, aligning perfectly with the lead user profile (Schreier & Prügl, 2008).

The results further mirror the benefits of the lead user theory. The sponsored athletes, in their role as lead users, occupy a unique position to contribute to sports innovation, leveraging their specialized knowledge, experiences, and skills (Venesz et al., 2022; Schmid). They are particularly valuable sources of innovation, and their "hyper-lead user" status emphasizes the potential for athletes to drive incremental improvements and radical innovations that can transform the sporting landscape (Venesz et al., 2022; Ertz, 2024). However, the research presents a nuanced perspective by showing that while athletes possess these lead user characteristics, their willingness to contribute ideas is not unconditional. Although most of the interviewed athletes expressed their desire to contribute their ideas freely, some were reluctant to do so because of a perceived lack of impact. This contradicts Venesz et al.’s (2022) assumption that lead users are *always* willing to contribute their ideas freely, highlighting a critical conditional factor that affects lead user motivation in real-world applications.

6.4.2 Implications for Co-Creation Theory

Regarding co-creation, the research study strengthens the framework by providing insight and understanding of the collaborative relationship between companies and athletes. Co-creation theory emphasizes that value is created through the active participation of various stakeholders, including end-users, in the innovation process (Ertz, 2024; Abdolmaleki et al., 2023). The findings of this study demonstrate that when companies and athletes engage in genuine co-creation, it can lead to products that are more closely aligned with user needs, enhance company relationships, and ultimately drive market success (Ertz, 2024). Beyond their role as lead users, athletes also become key partners in the co-creation process. This collaboration fosters a sense of shared ownership, leading to more user-centric innovations that benefit both the company and the athlete (Mills et al., 2022). The study thus provides a concrete application of co-creation principles within the athletic industry. If athletes perceive that their input is not valued, they are less willing to actively participate in the community and share their ideas, limiting the potential for valuable co-created innovation. This reinforced the notion that the innovativeness of lead users depends on whether they perceive that the desirable outcomes are controlled by their own control (Schreier & Prügl, 2008). This finding underscores the crucial role of perceived value and reciprocal benefits in sustaining co-creative engagement.

6.4.3 Implications for Social Identity Theory

According to social identity theory, brand communities are important because individuals' self-concepts, shaped by group members, can significantly impact their connections to specific companies (Wong & Hung, 2023; Anderski et al., 2024). In the context of sportswear companies, athletes and fans often develop a strong sense of identity associated with the company (Füller et al., 2007). As Mills et al. (2022) argue, members' participation in a brand community reinforces positive behaviors, such as word of mouth, brand trust, commitment, and resilience to negative information, which subsequently leads to brand recognition. The study's findings support this theory, as several athletes noted their strong social media presence and how it resonated with their fans, ultimately affecting brand recognition and awareness. This research extends social identity theory by empirically demonstrating the specific mechanisms through which elite athletes, as aspirational figures, reinforce brand identification within their fan communities, translating into commercial value for sportswear companies.

The findings also suggest a potential contradiction to some aspects of social identity theory. The findings reveal that athletes sometimes disagree about whether companies value their feedback. In that case, it can weaken their identification with the company and the community, leading to disengagement and dissatisfaction, and failing to reinforce social identity and brand loyalty despite the initial strong connection (Füller et al., 2007; Anderski et al., 2024). This implies that simply having influential figures is not enough; their perceived engagement and validation by the brand are crucial for achieving and sustaining positive social identity outcomes. This finding, however, is supported by Wang et al.'s (2021) notion that trust is important in brand communities, as it has a positive effect on innovativeness. As the findings suggest a potential disconnect in trust between athletes and companies, this could explain why they contradict certain aspects of social identity theory.

6.4.4 Implications for Open Innovation

The concept of open innovation is also addressed in the study, which emphasizes the importance of external sources of innovation (Ertz, 2024). Theory suggests that through open innovation, companies open their innovation processes to a wider network of stakeholders, fostering a collaborative environment where ideas and knowledge can be exchanged (Abdolmaleki et al., 2023; Venesz et al., 2022). The theory of open innovation suggests that it can lead to increased innovation and better alignment with user needs (Ertz, 2024). This study contributes to open innovation literature by examining its application in a specialized user group (elite athletes) who are intrinsically motivated but also have complex demands.

Despite this, open innovation theory also assumes that access to a broader pool of ideas will lead to improved products, as emphasized by Schmid et al. (2022); however, the results demonstrate that this may not be the case. It depends on the company's ability to manage the flow of information effectively, engage with community members, and translate user input into actionable product development strategies. Also, the findings present a critical contradiction to the simplified view of open innovation, indicating that merely gathering ideas from external sources, even from lead users, does not guarantee success (Ertz, 2024; Schmid et al., 2022). This highlights the necessity for companies to employ strategic filtering to discern valuable insights from an overload of diverse feedback, rather than blindly implementing all user suggestions. This, however, reinforced the innovation diffusion theory, which explains that the success of innovative products in the market is equally dependent on

the diffusion of innovation (Singh, 2013). This nuance emphasizes the complexity of integrating external knowledge, especially from highly specialized users whose needs may not align with broader market viability or optimal product design.

6.5 Limitations of the Research

Despite the study's valuable insight into both theoretical and managerial implications, weaknesses affect the scope and generalizability of the findings. The most obvious limitation is that the sample size was relatively small. While the 46 participants (28 survey respondents and 18 interviewees) provided rich and detailed data, particularly through the in-depth interviews, a larger sample could offer greater statistical power and potentially reveal a broader range of perspectives. Furthermore, only three company representatives were included in the study. This was primarily due to a low response rate from many brand representatives during the outreach phase, which limited the perspectives captured from the company side and may not fully represent the range of opinions and practices within the sports industry.

Regarding the selected sample, the study's narrow focus on elite *track and field* athletes and *AFT competition shoes* is highly specific within the broader context of sports innovation. While this allowed the survey to be more in-depth and created a nuanced understanding of the dynamics between sponsored athletes and their companies at the highest level of competition, it simultaneously limited the direct transferability of the findings to other segments, such as athletes in different sports or recreational users.

Furthermore, another limitation was the risk of self-selection bias. As the study participants were already familiar with the topic and aim of the research, those who chose to participate might have had a preexisting interest or positive attitude towards innovation and collaboration with sportswear companies. This self-selection could have skewed the findings, as they may represent only the view of innovation-minded athletes and not capture the perspective of those athletes less interested in innovation and co-creation. The last limitation is connected to the potential influence of researcher bias. The researcher's background as an active elite athlete provided valuable insider knowledge, facilitated effective communication with participants, and made the focus of the study easier to understand due to familiarity with specific terminology and established connections within the athletic community. However, it also introduced the possibility of unconscious bias in data interpretation.

6.6 Future Research

Suggestions for future research that address these limitations will contribute to stronger conclusions. To address the sample size limitation, future research should involve a larger and more diverse sample of sportswear company representatives, as well as a broader pool of athletes. Researching athletes from various track and field events across multiple countries and with diverse sponsorship contracts would yield a richer and more balanced view of how sportswear companies approach and manage athlete involvement in innovation. It would also further emphasize whether and how the opinions of company representatives and athletes align and differ, thereby enhancing the generalizability of the findings. Broader research including other sports might also provide a more comprehensive understanding of user involvement in sports innovation.

Additionally, future research could conduct a deeper analysis of the innovation structures of sportswear companies to understand precisely how those that successfully utilize athlete feedback manage it. This would involve examining their specific internal processes, technologies, and organizational cultures related to the integration of feedback. Further, to mitigate researcher bias in future research, involving multiple researchers with diverse backgrounds and perspectives in the data analysis process would be beneficial. Finally, exploring why some athletes choose not to participate in the study may also offer a more nuanced picture of the innovative landscape of athletics.

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7. APPENDICES

7.1 Appendix A: Interview Guide with Athletes

- What sportswear company are you sponsored by?
- What event do you compete in?
- What channel do you use to communicate with your company? Email, phone, Instagram?
- Do you have a close relationship with your company representative?

- What do you know about the recent developments in running and spike shoes?
- How do you think wearing certain sportswear companies' products, such as models of shoes, affects the mainstream market as an athlete?
    - Do you think amateur runners look to you (sponsored athletes) as models for improving themselves? (for instance, buying the same shoes as you to run faster)

- What do you think about sportswear companies involving athletes in the process of developing shoes?
- Do you think athletes can help companies innovate or not?
- What do you think about co-creation and collaboration between sportwear companies and their sponsored athletes in terms of designing new products or the athletes' version of already existing products?

- Have you ever been asked to test shoes or products or provide feedback on a company's products?

- If asked, do you think you would have valuable insight to offer the companies? (about improving their products or developing new ones)
- Points that they themselves could not come up with? (such as feedback on spikes or other innovative ideas)

- Would you want to be part of the sportswear company's innovation process?
    - If yes, in terms of:
        - Your ideas for new products?
        - Provide feedback for already existing products for improvement?
        - Design and co-create products?
        - Test out products during training and offer feedback?
        - Test put products in a lab under controlled circumstances?

- Do you have ideas for innovative products or improvements of existing products?
- If asked, would you be willing to share the ideas with your company? Do you trust your company enough?
- If you are involved in the innovation process, can you identify the risks and benefits for yourself and your company?

7.2 Appendix B: Interview Guide with Company Representatives

- What sportswear company do you work for?
- How does your company communicate with your sponsored athletes? Email, phone, Instagram?
    - Do you have a close relationship with your sponsored athletes?
    -
- How involved and aware are you of recent technological developments in running and spike shoes?
- Do you know that athletes have been involved in the development of these innovative shoes?
- If yes, how have the athletes been involved?

- Are you aware that your company involves athletes in your innovation process?
- What do you think about involving the athletes in your innovation process?
- Do you think athletes can help sportswear companies innovate or not?
- What do you think about the co-creation of clothes, equipment and shoes between companies and their sponsored athletes?
- Do you think using athletes to create innovative ideas, test clothes and equipment, and gather feedback would be valuable for your company?
- Do you think athletes would come up with insights that the company itself could not think about?
    - What insights do you think that would be?

    - How could that help the company? In what ways?
- Has any sponsored athlete ever expressed a desire for a particular piece of equipment or clothing to be improved?
- Do you think the athletes would be willing to share their ideas with you if they were given the opportunity?
    - Do you think they trust your company enough?
- When involving athletes in the innovation process, what risks and benefits can be associated with it? What do you think the outcome would be? From the athletes' point of view and the company's perspective?

7.3 Appendix C: Survey Questions

Athletes' Involvement in Sportswear Companies' Innovation Process

- *Participation is voluntary*
- *All participants are anonymous*
- *The research purpose is to understand how sponsored athletes are involved in the innovation process of sportswear companies, and whether insights from them can be used to develop and innovate products.*

Q1*: I agree that my responses will be used anonymously for the research purpose stated above when the researcher is writing her report

- ☐ I agree

Q2*: What sportswear company are you sponsored by? (company names will be anonymous and referred to as sportswear company X, Y etc.)

- ☐ X
- ☐ Y
- ☐ Z
- ☐ A
- ☐ B
- ☐ Other: ____

Q3*: What event(s) do you do?

- ☐ Sprints/hurdles
- ☐ Jumps
- ☐ Middle distance
- ☐ Long distance
- ☐ Other: ____

Q4*: Have you ever been asked to test shoes/clothes or give feedback on their products?

- ☐ Yes
- ☐ No

Q5*: If asked, do you think you would have valuable insight to offer the companies about improving their products or developing new ones?

- ☐ Yes

☐ No

Q6*: Do you think you can offer insight that the company itself cannot? (such as feedback on spikes, or coming up with new ideas)

☐ Yes
☐ No

Q7*: Would you want to be part of the sportswear company's innovation process?

☐ Yes
☐ No

Q8: If you answered yes to the previous question, what would you like to be involved with?

☐ Your ideas for new products (new product development)
☐ Provide feedback on already existing products for improvement
☐ Designing and co-creating products
☐ Test out products during training
☐ Test out products in a lab under controlled circumstances

Q9*: Do you have ideas for innovative products or improvements of existing products?

☐ Yes
☐ No

Q10: If you answered yes to the previous questions, please specify: (optional question)
Answer:____

Q11*: Would you be willing to share your ideas with the company?

☐ Yes
☐ No

Q12: If your company were to involve you and other athletes in its innovation process, can you recognize any advantages and/or disadvantages for you and your company? (optional question)
Answer:____

Q13*: Please specify if you agree or disagree with the following statements:

	Strongly disagree	Disagree	No opinion	Agree	Strongly agree
Involving athletes in their innovation process is a good idea	☐	☐	☐	☐	☐
Involving athletes can help sportswear companies innovate	☐	☐	☐	☐	☐
Using athletes to co-create products is a good idea.	☐	☐	☐	☐	☐
Using athletes for testing products is a good idea.	☐	☐	☐	☐	☐
Using athletes as a source of feedback on products can be a valuable approach.	☐	☐	☐	☐	☐

Having an online hub where athletes can share their innovative ideas is a good idea.	☐	☐	☐	☐	☐

**Questions must be answered*