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**A Typology of Circular Sport Business Models:
Enabling Sustainable Value Co-creation in the Sport Industry**

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**A Typology of Circular Sport Business Models:
Enabling Sustainable Value Co-creation in the Sport Industry**

Abstract

There is a continuing interest in the relationship between sport and nature. As a new field, sport ecology explores the impact sport has on the natural environment and how sport organizations and individuals can promote sustainability. However, a critical element is still missing in the sport ecology discourse - the link between organizations' sustainability efforts and their value co-creation processes. The circular economy can provide this link by decoupling the value co-creation of sport business models from their environmental impact and resource depletion. Based on an extensive literature review, this study provides a new theoretically derived typology of circular sport business models, including comprehensive reasoning about sustainable value co-creation processes in the sport industry. It explains how sport managers of all three sectors - for-profit, public, and non-profit, can transition toward more sustainable and circular business practices and offers integrative guidelines for future research.

Keywords: Circular economy, sport business models, sustainability, sport ecology, pluralism, circular ecosystems

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Introduction

Sport ecology is a relatively new field focusing on the intersection of sport and environmental sustainability. It is centered on exploring the impact of sport on the natural environment and how sport organizations and individuals can reduce their negative impact and promote sustainability (McCullough, Orr, & Kellison, 2020). This involves understanding how the organization of sport activities affects the natural environment (Collins & Flynn, 2008; Mallen et al., 2010) and how nature and changes in the natural environment impact the practice of sport, sport events, and sport venues (Kellison, 2023; Orr & Inoue, 2019). Current research highlights various aspects of environmental sustainability in sport, encompassing the environmental repercussions of events, motivations driving fans and athletes toward pro-environmental actions, and obstacles hindering such engagement (Casper et al., 2012; Cury et al., 2022; McCullough, 2023). While this work is beginning to create awareness and education about environmental sustainability among athletes, fans, and other stakeholders in the sport industry, there is still an essential element missing in this discourse - the link between organizations' sustainability efforts and the value co-creation processes of sport business models and strategies. Organizational strategy in sport is an under-researched topic, especially for organizations from the nonprofit sector (Gerke et al., 2022). Moreover, those studies taking an organizational strategy approach tend to draw from theories like the resource-based view (Amis et al., 1997; Gerrard, 2003) and dynamic capabilities (Demir & Söderman, 2015; Lefebvre et al., 2020). Yet these frameworks fall short in accounting for the influential roles of the natural environment and stakeholders on the periphery of the sport sphere.

A useful framework to link organizational sustainability efforts and value co-creation is the circular economy (CE), specifically circular business models (CBMs) (Bocken et al., 2016; Geissdoerfer et al., 2018). CE is emerging as a popular narrative for societal,

institutional, and organizational change that offers guidance to decouple economic activity from resource depletion (Fischer et al., 2021; Gümüşay & Reinecke, 2022; Stahel, 2016; Stål & Corvellec, 2018). Principles of CE include using renewable energies, eliminating toxic chemicals, and eradicating waste through maximizing reuse, repair, remake, and recycling (Bocken et al., 2016; Geissdoerfer et al., 2018; Jackson, 2009; Kirchherr et al., 2017).

While we see an increasing push from organizations and governments to adopt the circular imperative (European Commission, 2020) and rising scholarly interest across disciplines as diverse as engineering (Reh, 2013), environmental science (Korhonen et al., 2018), innovation, supply chain, and business model research (Bocken et al., 2016; Kirchherr et al., 2017), there is relatively little debate related to CE in sport (Connolly, 2019; Fehrer & Gerke, 2020). Notable exceptions are recent studies in the context of sport events (Bianchini & Rossi, 2021), sport stadia (Barry et al., 2022), and sport equipment (Fuchs & Hovemann, 2022), which utilize the CE framework to rethink traditional business practices. Arguably, sport equipment manufacturing, sport venue and infrastructure management, and the organization of sport training and competitions rely on vast quantities of exhaustible natural resources and non-renewable energy (Fisher et al., 1997) and thus, require careful consideration of resource use decoupled from pollution, waste, and energy loss (Gosalvez, 2020).

The purpose of this study is to holistically discuss CE principles within the sport industry and provide an encompassing *typology of circular sport business models and their value co-creation processes*. We explore how organizations across for-profit, public, and non-profit sectors can leverage CE principles for sustainable transformations of their business models. We offer a synthesized view by systematically combining literature insights on business models within these sectors and value co-creation processes discussed in the circular business model literature (Fehrer & Wieland, 2021; Hoye et al., 2009). The sport value

framework (Woratschek et al., 2014), underscored by the guiding axiom of value co-creation (Vargo & Lusch, 2004, 2008, 2016), and its recent expansion into sport ecosystems (Buser et al., 2022), provides the foundational perspective for our synthesis. To effectively map conceptual interrelationships, we adopt a typology-based style of theorizing (Benson-Rea et al., 2013; Cornelissen, 2017; Jaakkola et al., 2017), which is particularly suitable for fields under development (Delbridge & Fiss, 2013, p. 329), since it allows for structuring complex relationships of concepts and theoretical assumptions (Jaakkola et al., 2017).

Our research makes four important contributions. First, this study presents a typology of circular sport business models (CSBMs), including (1) circular for-profit SBMs, (2) circular public SBMs, (3) circular social purpose SBMs, and (4) circular platform SBMs. These four archetypes highlight the potential for the sport industry to embrace the principles of CE and support a comprehensive reasoning about sustainable value co-creation processes in the sport industry. This typology can guide sport managers of all three sport industry sectors in transforming their organizations into more circular and sustainable ones. Our second contribution comes from introducing the circular platform SBM as a new archetype that overcomes traditional business model limitations by focusing on broader stakeholder engagement. It aligns with the interconnected dynamics of sport industries and promotes a collective, system-wide approach to sustainable transformation. Our third contribution underscores the sport industry's unique blend of economic and social value co-creation, spanning both for-profit and non-profit sectors. Our research illuminates how CSBMs across these sectors drive CE transformations, offering pioneering insights into circularity within social purpose and public organizations. Collectively, the CSBM framework encapsulates value pluralism and complexity, merging elements from both for-profit and non-profit sectors to realize business models that are economically sound, socially impactful, and environmentally conscious (Castellas et al., 2019). More generally, it is one of the first

studies that explains how circularity in social purpose and public organizations unfolds. Our last contribution includes a research agenda for sport management scholars to explore how the CE concept can advance sport management theory and strategy.

Circular Business Models as Part of Sport Ecology

Evolving field of sport ecology

Although research on sport and environmental sustainability began in the 1990s (Cachay, 1993; Lenskyj, 1998) with studies on the complex relationship between sport and the natural environment (Mallen & Chard, 2011; McCullough, Orr, & Kellison, 2020), and despite its increasing relevance in sport management practice, there is relatively little scholarly focus on sustainable business practices. Only recently, sport management scholars started to unpack and discuss sport and the natural environment and framed sport ecology as a new field of sport management (Mallen & Chard, 2011; McCullough, Orr, & Kellison, 2020).

Sartore-Baldwin and McCullough (2018), for example, argue that sport organizations are embedded in an anthropocentric society. Hence, their practices are determined by human-centeredness, production, domestication, violence, and policies (i.e., anthroparchic practices). They propose an eco-centric and equity-based approach to sport organization practices that recognizes the “interdependent relationship and similarities between humans and the environment” (Sartore-Baldwin & McCullough, 2018, p. 397). They further emphasize that humans and non-human-beings as well as the environment, are all part of larger nested systems “in which the need[s] of all living entities must be met to ensure survival” (Sartore-Baldwin & McCullough, 2018, p. 396).

Sport ecology means understanding the bidirectional relationship of how the organization of sport activities affects the natural environment (Collins & Flynn, 2008; Mallen et al., 2010) and how nature and changes in the natural environment impact the

practice of sport, sport events, and sport venues (Kellison, 2023; Orr & Inoue, 2019). Sport ecology discourse has recently focused on discussions of environmental sustainability in sport, including the (negative) impact sport has on the environment (Thibault, 2009; Wall-Tweedie & Nguyen, 2018), how changes in the environment impact offers and demand in sport consumption (McCullough, Orr, & Watanabe, 2020; Orr & Inoue, 2019), and how fans and athletes' can engage in pro-environmental behavior (Cury et al., 2022). Parallel to these, academic inquiries have delved into how sport organizations strategically plan around sustainability, encapsulating aspects like staff perceptions of green practices (Casper et al., 2012; Kellison & Mondello, 2012; Todaro et al., 2023) and decision-making anchored in sustainability (Mallen et al., 2010; McCullough et al., 2018; Pfahl et al., 2015). Moreover, they have examined how fans perceive sustainability and how these views might guide strategic operations in communications (Kellison & Kim, 2014; McCullough & Trail, 2023).

To foster sustainable transformations, stakeholder buy-in is critical, especially among fans. Sustainable business practices will likely appeal to fans' values and can be communicated and leveraged to drive deeper commitments with the sport organization (Trail & McCullough, 2020, 2021). Specifically, research by Casper and colleagues notes that as sport organizations communicate their environmental values, they can connect with fans across the political spectrum who may not otherwise be receptive to environmental messages (Casper et al., 2021) and deepen the connection with lower commitment fans (Casper et al., 2020). Trail and McCullough (2020, 2021) found that these campaigns can have a positive influence at sporting events and in everyday life to the extent that some fans will advocate for change in other aspects of their community.

However, there is little debate related to sustainable value co-creation and transformative business models that enable and enforce sustainable business practices. As sport organizations embed environmental sustainability deeper into their strategic blueprint

(McCullough et al., 2016), there is an impending need to innovate business models, ensuring alignment with overarching sustainable values. This calls for sport ecology studies to embrace sustainable business model paradigms. In bridging this gap, CBMs emerge as a potent tool. CBMs transcend traditional sustainability practices to counter the three-pronged global challenges of climate change, biodiversity depletion, and pollution.

Circular economy and circular business models

CE promotes the idea that economic activity and economic viability can be decoupled from resource depletion. The concept builds on work by Pearce and Turner (1990), who questioned the linearity at the core of the dominant industrial economic model. Linearity refers to the industrial process of firms taking resources and making goods and customers using and disposing of them at their end-of-life stage. This linear path, which guides many business models in the sport industry (Gosalvez, 2020), is viewed as problematic because it results in increasing waste and depletion of natural resources.

Originating from industrial ecology (Graedel & Allenby, 1995) and ecological economics (Commoner, 2020 [1971]), CE promotes the idea of an economy that mirrors the regenerative and restorative cycles of nature (Lyle, 1994; Morsetto, 2020). Subsequently, academic discussions have positioned CE as a *business case for sustainability* (Bocken et al., 2016; Esposito et al., 2018; Geissdoerfer et al., 2017). Such discussions underscore CE's potential as an economically viable path towards sustainability, with businesses seeking economic benefits and environmental conservation.

Amid critiques around its theoretical clarity (Corvellec et al., 2022), lack of parsimony and distinctiveness (Corvellec et al., 2020; Geissdoerfer et al., 2017), and oversight of social dimensions (Geissdoerfer et al., 2018), CE continues to expand, drawing significant attention in contemporary management practice (Fehrer et al., 2023). Definitions of CE span a spectrum: from specific focuses on recycling and reuse to expansive, systemic

views (Corvellec et al., 2022) that perceive CE as an “industrial economy that is restorative or regenerative by intention and design” (Ellen MacArthur Foundation, 2013, p. 7). While definitions vary, there is an emerging consensus around certain principles:

- (1) **Designing out waste and pollution** through using renewable energy and products that are “made to be made again” with easily recyclable elements (Webster, 2015) (see also work on the cradle-to-cradle idea of minimizing environmental damage through closed material loops (Braungart & McDonough, 2002));
- (2) **Maintaining and prolonging material and resource use** (Bocken et al., 2016; Geissdoerfer et al., 2018; Ghisellini et al., 2016; Merli et al., 2018) enabled through service (Tukker, 2004, 2015); and
- (3) **Regenerating natural systems** through regenerative design (Lyle, 1994), biomimicry (Benyus, 2002), and (eco)systemic thinking (Fehrer et al., 2023; Fehrer & Wieland, 2021; Konietzko et al., 2020).

These principles have inspired novel CBMs, emphasizing *closing, slowing, and narrowing material loops* (Bocken et al., 2016; Esposito et al., 2018; Geissdoerfer et al., 2018). Closing material loops focus on recycling and collection to enhance material and energy efficiency (Bocken et al., 2014). This can include take-back schemes and the reuse of resources. Slowing loops accentuate the extended product lifecycle via repair, refill, and refurbishment methods (Khan et al., 2018). This is bolstered by service business models that underscore prolonged product use, highlighting leasing, upgrading, and pay-per-use strategies (Khan et al., 2018; Peronard & Ballantyne, 2019). Lastly, narrowing material loops prioritizes diminished resource intake across the value chain, fostering eco-efficiency (Bocken et al., 2016; Stewart & Niero, 2018). It promotes the adoption of renewable, bio-based, or biodegradable resources.

Recent CBM studies transcend the confines of focal organizations and explore organizations in their capacity as interconnected ecosystems (Fehrer et al., 2023; Konietzko et al., 2020). The overarching sentiment highlights the importance of inter-organizational relationships (Gerke & Benson-Rea, 2023), collaboration, cooperation, and coordination (Castaner & Oliveira, 2020). This perspective captures the complexity of multi-stakeholder settings. It recognizes that economic and societal transitions are grounded in institutional change processes and expand beyond narrow value creation by a focal organization. It allows for zooming in and out to consider value co-creation processes within and between nested and interconnected circular ecosystems (Fehrer et al., 2023; Vargo & Lusch, 2016).

While the CE narrative rapidly evolves, its spread into sport business models remains relatively unexplored (Connolly, 2019; Fehrer & Gerke, 2020). By merging insights from CBMs and sport business models as they present themselves in for-profit, public, and non-profit sectors, we aim to elucidate how CE can drive sustainable value co-creation within the sport domain.

Methodological Approach to Theorizing

Step 1: Identifying and grouping relevant research

We followed a structured process of a narrative literature review (Greenhalgh et al., 2005; Montori et al., 2003) of prior sport management research that considers environmental sustainability aspects combined with circular business model research. The publication search process was initially exploratory and became more focused as we became more knowledgeable on the topic (Tod, 2019). All authors participated in the theorizing process throughout the review process through regular meetings and discussions about the reviewed material and collaborative writing.

Step 2: Evaluation of guiding theoretical framework

To identify the categories for a CSBM typology, we linked previously unconnected sport business models and CBM literature in a novel way by examining it through a lens of value co-creation (Vargo & Lusch, 2004, 2008, 2016). This lens offers a counterpoint to traditional sport management frameworks (Woratschek et al., 2014), in which one actor (usually the firm) creates, delivers, and captures value. Instead, Vargo and Lusch (2004) suggest that *value is always co-created* through a wide range of stakeholders (firms, non-government organizations, fans, sponsors, athletes, customers, communities, governments, and others). Importantly, all these stakeholders, when they integrate their resources (for instance, sport event managers through providing recycling stations and fans through recycling their waste), are both providers and beneficiaries of sustainable service. Integration with the sport value framework (Buser et al., 2022; Woratschek et al., 2014) enabled us to see established business model types in a new way through a novel higher-order perspective (MacInnis, 2011).

Step 3: Defining four CSBM archetypes

We develop four CSBM archetypes by iterating between Steps 1 and 2 (Benson-Rea et al., 2013). Following Doty and Glick (1994), we refer to archetypes as ideal types of business models in the sport industry. Typologies are particularly suitable for fields under development (Delbridge & Fiss, 2013) since they allow for structuring complex relationships of concepts and theoretical assumptions (Jaakkola et al., 2017). According to Doty and Glick (1994), archetypes should be conceptually derived with explicitly defined constructs, and the relationships between constructs should be set out to enable predictions for further research and testing. In this study, we define CSBM archetypes in terms of their salient features (Helkkula et al., 2018), comprising different configurations of stakeholders, value co-creation mechanisms, structure, and governance that enable circularity.

A typology can “reduce complexity to manageable levels, both conceptually and methodologically,” hence, a typology is useful in the early stages of a research stream’s development “because the systematic ordering of a phenomenon’s core elements provides the initial building blocks for theory development.” (Snow & Ketchen, 2014, p. 231). These building blocks offer opportunities to construct and test evolving and extend existing theory (Snow & Ketchen, 2014). This CSBM typology draws from business models established in for-profit, public, and non-profit sport industry sectors (Moore, 2000). It extends them by (1) adding a new archetype – circular platform SBMs that transcend traditional sector boundaries and (2) (re-)defining sustainable value co-creation processes aligned with CE principles.

Typology of Circular Sport Business Models

Archetype 1: Circular For-Profit SBMs

For-profit sport organizations follow predominantly economic goals, with business models centered on manufacturing and distributing sport fashion, gear, and merchandise or providing service through professional sport leagues, sport media, sponsorship, tourism, events, facilities, and infrastructure management, as well as sport education and university college sport (Babiak et al., 2018). Independently from the specific context, sport business models often have one central aim in common - creating experiential value for their stakeholders, including their fans, athletes, and customers (Perić et al., 2016; Perić & Wise, 2015; Perić et al., 2017).

While the majority of studies on for-profit sport organizations do not refer to the business model concept explicitly, they implicitly link their work to some form of revenue-cost models (Borges, 2019; Buzzelli et al., 2020; Carrillo Vera & Aguado Terrón, 2019; Dilys & Gargasas, 2014; Hutchins et al., 2009). A few sport management studies refer explicitly to business models as devices that firms use to mediate technology development and economic value creation (Chesbrough & Rosenbloom, 2002) or blueprints that map

relationships among firms' customers, allies, and suppliers to enable product, information, and money flows (Chelladurai, 2013; Osterwalder & Pigneur, 2010; Weill & Vitale, 2002). Aversa et al. (2015), for instance, in the context of professional sport, conclude that Formula 1 race teams build on two complementary business models: one focused on selling technology, the other on selling well-trained human resources to competitors.

Interestingly, much of the sport management literature concerned with business models takes a broader understanding of value creation into account, including not only economic but also sport performance (Di Minin et al., 2014; McNamara et al., 2013) and social value creation (Pittz et al. (2021)). For example, Di Minin et al. (2014) investigated a medium-sized Italian soccer club's strategic agility (Doz & Kosonen, 2010) to understand the business model's balance of economic and sport performance. Pittz et al. (2021), in their study on business models of professional sport leagues in North America, explore stakeholder relationships and ownership structures and specifically refer to social value creation. Recent studies, particularly in sport tourism, consider the natural environment as the central value driver of sport business models (Perić et al., 2016; Perić et al., 2017). This provides a starting point to discuss sustainable value co-creation of circular for-profit SBMs (Girard & Nocca, 2017; Manniche et al., 2021; Manniche et al., 2019; Margaryan & Stensland, 2017; Sorin & Sivarajah, 2021).

According to CE principles, circular for-profit SBMs need to be designed to achieve efficient material and information flows directed toward zero waste by closing, slowing, and narrowing biological and technical lifecycles (Bocken et al., 2016; Stewart & Niero, 2018). Material efficiency can be increased through reusing material and resources through recycling, collecting, and take-back schemes (Bocken et al., 2014). Adidas, for example, is exploring closed-loop manufacturing processes for its products, in which materials from used products are recycled and used to create new products. This includes local sourcing and

shortening transportation (Sorin & Sivarajah, 2021). To achieve this, Adidas has released a sneaker made with materials and technology that enables the shoes to be returned to Adidas at the end of their life cycle (Tiernan, 2021).

Furthermore, the effective reduction of material throughput (i.e., dematerialization through service) supports circular closed-loop processes (Kasulaitis et al., 2019; Tukker, 2015). For example, Spinlister and other peer-to-peer sport equipment rentals enable the sharing sport equipment, such as bikes, skis, or surfboards, with others in their community. This model encourages the sharing of resources and reduces the need for individuals to purchase their equipment. In this case, value co-creation means the mutualization of assets with low utilization ratios (Fehrer et al. (2018). This can also be seen with sport facilities or stadiums that are (re-)designed for shared purposes, to use under-utilized assets. Slowing loops prolong the use phase and end-of-life cycle through designing long-life products, repairing, sharing, refurbishing, and upgrading (Khan et al., 2018). For instance, companies like REI (2020) and Patagonia (2017) have established programs to refurbish and resell used sport equipment and clothing, thus extending the life of products and reducing waste. Finally, narrowing loops use fewer resources (e.g., water, energy) throughout production, resulting in efficiency enhancements (Bocken et al., 2016; Stewart & Niero, 2018). CSBMs view natural resources, such as clean water, electricity, construction materials, and facilities, as investments (not costs) (Sorin & Sivarajah, 2021) and focus on repetitive recovering and reuse of resources (Manniche et al., 2021).

At each stage of the sustainable value co-creation process, customers and other stakeholders are seen as active participants in creating sustainable experiences (Jernsand et al. (2015). Breiby et al. (2020), for instance, suggest that spectators at sport events can be introduced to resource monitoring systems to learn about the material and other resource flows involved in the event. Once they accumulate, experiences like this can have a broader

societal effect and shape new cultural values built on pro-environmental behavior (Huguenin & Jeannerat, 2017; Manniche et al., 2021).

Archetype 2: Public CSBMs

Public sport organizations have the status of governmental organizations with the purpose of delivering public services related to a sport at a national, regional, or local level. A national sport governing body represents a sport (e.g., athletics and its disciplines) at a national level. It is responsible for governing, administering, financing, and developing it if the state provides it (Kennelly & Toohey, 2014). A sport federation's tasks include maintaining rules and the code of a sport, developing elite sport, and working with regional and local associations and clubs to develop grassroots sport opportunities (Ferkins & Shilbury, 2010; Henry, 2009)¹.

Public sport organizations have a social purpose (Moore, 2000). Indeed, from a traditional business model perspective, public sport organizations arguably have no 'business.' However, public sport organizations increasingly professionalize their activities towards more business-like functioning and management (Nagel et al., 2015) and develop internal revenue streams through the professionalization and commercialization of a range of activities (e.g., sport competitions, merchandising) (Dowling et al., 2014; Nagel et al., 2015; Shilbury & Ferkins, 2011). For example, sport federations have diversified their revenues from public subsidies to sponsorship revenues (Bailleul, 2018). Sport federations are increasingly exposed to competitive pressures; thus, they align their business practices to those of for-profit organizations (Garcia-Fernandez et al., 2018; Hautbois, 2019; Santacruz Lozano et al., 2021; Yu et al., 2021).

There is limited discussion related to sustainable business practices of public sport organizations in the existing literature. This is surprising because the public sector is a major

¹ The role of the state varies in different geographical regions and countries. In many European countries federations belong to the state, hence to the public sector (Henry, 2009).

contributor to sustainable value co-creation, not only through policymaking but also through green procurement, waste management, and green infrastructure management (Klein et al., 2020; Kristensen et al., 2021; Wijayasundara et al., 2022). Indeed, the European Commission views circular public procurement as a key element in the transition towards CE (European Commission, 2017; Kristensen et al., 2021). From complex construction projects of new stadiums to encouraging active transportation through new bike lanes to sourcing uniforms, equipment, medical services, and merchandise for sport events, public sport organizations' circular procurement touches all areas of sporting operations.

Kristensen et al. (2021) further emphasize that sustainable value co-creation enabled through circular public BMs needs to be considered from a multi-level perspective: on the product-level (e.g., buying recyclable materials and design for disassembly), supplier-level (e.g., prioritizing suppliers with take-back systems, repair services, rental, leasing and sharing options) and broader system level, including public-private partnerships (European Commission, 2017; Jones et al., 2017). Furthermore, Klein et al. (2020) highlight the importance of collaborative approaches since the success of any circular procurement process depends on the decisions made by all stakeholders involved (Grandia et al., 2015; Günther & Scheibe, 2006). Finally, Alhola et al. (2019) promote a clear commitment to service instead of product ownership and encourage contracting suppliers to provide integrated solutions following pay-per-use and product-as-a-service models, which not only reduce operational costs through outsourcing maintenance activities but also keep materials and products longer in use.

Archetype 3: Circular Social Purpose SBMs

Social purpose organizations comprise various business models in the non-profit sport sector. They range from traditional non-profit models built on donations and patronage (e.g., community sport clubs, sport associations, and school sport) (Babiak et al., 2018) to sport for

development organizations that use sport to address social issues such as public health, socialization of youth, social exclusion, racism and more (Schulenkorf et al., 2016), to hybrid models of social entrepreneurship (Bjärsholm, 2017; Dacin et al., 2011; Reid, 2017; Thompson et al., 2000). While defined differently regarding their legal status, all these organizations have a social purpose as their *raison d'être* (Moore, 2000) ingrained in their business model. Literature on social purpose business models (Escamilla-Fajardo et al., 2021; Staley et al., 2019), albeit nascent in sport management, is beginning to show mechanisms of sustainable value co-creation that are centered on social value and cooperation as opposed to competition (Bradbury et al., 2021; Crick & Crick, 2021; Dyer & Singh, 1998). While critical for CE transformations, the link between social purpose organizations and CE principles has received limited attention within the sport discipline and beyond (Dentchev et al., 2018).

There is, however, increasing scholarly agreement that, in order to gain mainstream legitimacy, CE transformations must be locally appropriate and community-driven (Fiksel et al., 2021; Stratan, 2017). Indeed, many innovative CE transformation initiatives worldwide are being shaped by social entrepreneurs - from Bureo Skateboards. This US-based social enterprise produces skateboards and other products, from recycled fishing nets to Alive & Kicking. This social enterprise employs and develops skills with local people to make sport balls from recycled materials in Kenya, Zambia, and Ghana.

Circular social purpose SBMs enable sustainable value co-creation through innovative ways of mobilizing resources, collaboration in cross-sector partnerships, and active community engagement directed toward social progress and environmental stewardship (McDermott et al., 2018). Circular social purpose SBMs provide a socio-economic-sustainable bridge between economic growth, environmental stewardship, and social progress (Fehrer & Wieland, 2021). Increasing numbers of athletes are promoting social purpose organizations and actively building social enterprises as alternative models to drive inclusive

growth (Constantin et al., 2020). For example, Lornah Kiplagat, the Dutch professional long-distance runner, founded a famous high-altitude training center in Iten, Kenya. It was initially inspired by giving young Kenyan girls a place to train and maintain their academic studies. Now, it hosts athletes worldwide, and Kiplagat has established her own African-inspired sport brand.

More generally, social purpose organizations often raise awareness about circularity and advocate for CE policies and regulations. At the same time, they engage broad sets of stakeholders to join their movements for more sustainable business practices (McDermott et al., 2018). For instance, the Ocean Race has implemented a social purpose CSBM, which is committed to all race villages and boats being built from recycled materials, and all waste is managed through recycling and composting. This influences local public and private sport organizations hosting the race to implement circularity in their business models, which can have wider spillover effects.

Archetype 4: Circular Platform SBMs

Recent literature in sport management refers to platform ecosystems as business models through which stakeholders co-create value within an economic community and beyond industry boundaries (Buser et al., 2022; Fehrer et al., 2018; Jacobides et al., 2018). In the context of the sport industry, platform ecosystems encompass interconnected systems of services, tools, stakeholders, and technologies that operate within or around the realm of sport (Buser et al., 2022). These ecosystems are designed to create value by facilitating service exchange between market actors (Fehrer et al., 2018; Parker et al., 2017; Thomas et al., 2014). As platform ecosystems have grown in other industries, sport, too, has been increasingly influenced by the rise of platform-centric strategies (Buser et al., 2022).

Popular examples include streaming platforms such as Entertainment and Sports Programming Network+ (ESPN+), DA ZONE (DAZN), and National Broadcasting Company

(NBC) Sports Gold, which allow fans to stream live sport events (Cook et al., 2021; Grohs et al., 2020). Fitness platforms like Strava, MyFitnessPal, and Peloton have also emerged, creating communities centered around fitness and sport activities. Additionally, eSport platforms like Twitch and YouTube Gaming host and stream eSport competitions, forging connections between players, fans, and advertisers (Bertschy et al., 2020; Kunz et al., 2022). However, the concept of platform ecosystems in sport extends beyond digital platforms. It also encompasses engagement platforms, such as physical sport events, sponsoring (Buser et al., 2020), and branding platforms (Kunkel & Biscaia, 2020) that enable various stakeholders to integrate their resources to co-create value mutually (Buser et al. (2020)). For instance, sport events serve as intermediary platforms that connect sport teams, athletes, spectators, fans, coaches, sponsors, media companies, equipment manufacturers, and others (Horbel et al., 2016; Kolyperas et al., 2019). Cook et al. (2021) have explored how sport ecosystems built around major sport events can enable both economic and social value creation. Furthermore, McLeod and Nite (2019) highlight the shared interest among all stakeholders in the U.S. rugby ecosystem—including competitors and complementors—in co-creating aspirational value.

Importantly, adopting a platform ecosystem perspective - rather than a narrow, firm-centric business model - expands the strategy spectrum from negotiating sponsorship agreements, managing sport events, and running sport organizations to orchestrating, navigating, and shaping the sport ecosystem to achieve mutual value creation at the environmental, social, and economic level. In this context, value co-creation is not an isolated act but a broad and inclusive process involving various stakeholders (Doyle et al., 2020; Horbel et al., 2016). The ecosystemic perspective highlights that the business models of all stakeholders in the ecosystem are as crucial for sustainable value co-creation as that of the focal organization (Adner, 2016; Buser et al., 2022; Wieland et al., 2017). Value co-creation

involves a collaborative process where all parties negotiate value propositions. The goal is to achieve mutually agreeable (i.e., legitimized) sustainable outcomes.

The ecosystemic perspective is particularly insightful in understanding the complexity of CE transitions (Aarikka-Stenroos et al., 2021; Boldrini & Antheaume, 2021; Konietzko et al., 2020). For example, Konietzko et al. (2020) posit that circularity should be understood as a systemic property (e.g., the transportation system within a city) rather than a property of products or services (e.g., an electric vehicle or ridesharing provider). Moreover, a growing body of work emphasizes the significance of inter-organizational collaboration and complex network coordination (Aarikka-Stenroos et al., 2021; Boldrini & Antheaume, 2021; Fehrer et al., 2023). Another set of studies centered around urban planning (Nesticò et al., 2022; Paes et al., 2022) leans on the concept of ecosystem service to underscore the essential role of services provided by the environment, such as clean air, food, water, and infrastructure for human sustenance (Costanza et al., 1997; Daily, 1997; Xu et al., 2016) offering insights beneficial for sporting events and infrastructure planning.

Indeed, an ecosystemic perspective not only provides a more comprehensive view of value co-creation in sport organizations but also reveals essential insights into how stakeholders can intentionally influence value co-creation by modifying and designing the ecosystems they are part of (Derom & VanWynsberghe, 2015; Vink et al., 2021). Similar to natural ecosystems, sport ecosystems demonstrate emergent qualities and are therefore beyond the control of any individual stakeholder (Chandler et al., 2019). However, stakeholders can partially influence ecosystems' evolution (Mele et al., 2018) by reconfiguring the guiding institutions for value co-creation within ecosystems (Koskela-Huotari et al., 2016; Vargo et al., 2015). This might start with understanding institutional frictions (misaligned social structures) and using them as catalysts for sustainable innovation. Globelet, a New Zealand-based enterprise, exemplifies this by recognizing the friction

between large-scale sport events, like marathons, and the associated plastic waste. They devised a cleaning and collection system to reuse plastic cups during sport events and beyond.

Embracing an ecosystemic perspective can drive innovative sustainable strategies, enabling stakeholders to traverse complex networks and shape more sustainable markets. As the sport industry increasingly integrates digital and physical platform ecosystems, it has the potential to unlock opportunities for collaboration, inclusive growth, and environmental stewardship. Table 1 summarizes the four archetypes of sport business models and how they can be designed to align with circular business practices.

----- Insert Table 1 here -----

Discussion

Implications for Theory

The four CSBM archetypes provide a holistic understanding of the potential of CE for the sport industry. This typology supports scholars, managers, and policymakers in understanding the complexity of sustainable value co-creation. The first contribution of this study comes from demonstrating how these archetypes differ. We show how this differentiation can add precision to thinking, supporting more comprehensive reasoning about CSBMs and sustainable value co-creation processes. Each archetype builds on a different mechanism of value co-creation. The circular for-profit SBM archetype builds on closing material loops, slowing down end-of-life cycles, and narrowing resource use (Bocken et al., 2016; Stewart & Niero, 2018), which increases efficiency and effectiveness of resource integration processes while also reducing dependence on non-renewable resources. Circular public and social purpose SBM archetypes provide a socio-economic-sustainability bridge between economic growth, environmental stewardship, and social progress (Fehrer & Wieland, 2021), and the

circular platform SBM archetype offers an integrative perspective of platform-enabled value co-creation of broad sets of stakeholders in sport ecosystems (Buser et al., 2022).

This nuanced understanding of sustainable value co-creation enabled by CSBMs informs research in the field of sport ecology. Specifically, it introduces the tripartite dimensions of environmental, social, and economic value co-creation to the debate. Research thus far has focused on how the organization of sport activities affects the natural environment (Collins & Flynn, 2008; Mallen et al., 2010), and how nature and changes in the natural environment impact the practice of sport, sport events, and sport venues (Kellison, 2023; Orr & Inoue, 2019), and has more broadly acknowledged the inseparable nature of human beings, natural, and social environments (Sartore-Baldwin & McCullough, 2018). Our research complements this discussion by offering concrete insights into value co-creation mechanisms that are less dependent on, and increasingly uncoupled from, natural resource depletion.

While our four archetypes are theoretically distinct, we acknowledge that these archetypes rarely exist in isolation; each represents a unique combination of stakeholders, value constellations, and design elements that, in practice, often co-exist. Patagonia, for example, could be classified under the for-profit CSBM as a company that manufactures and retails outdoor sport clothing and equipment. However, many of Patagonia's business practices align with those of social purpose organizations. An example is the creation of "Patagonia Action Works," an online platform that helps individuals connect with like-minded people to get involved in social and environmental activism (Patagonia, 2021a). With this initiative, Patagonia creates social value at a community and ecosystem level.

Further, Patagonia's "Worn Wear" program encourages customers to repair and reuse their clothing instead of buying new clothes (Patagonia, 2021b), which indicates efforts to implement CE principles holistically by changing internal production processes *and* customer behavior. This pluralistic approach to CSBMs, as the Patagonia example shows, combines

complementary features of all four archetypes on the micro- (firm-customer), meso- (network/markets), and macro- (society) level (Benson-Rea et al., 2013; Castellás et al., 2019). As Patagonia powerfully illustrates, sport organizations often draw from multiple value co-creation processes, including economic, social, recreational, and environmental dimensions. Where prior studies observed business models in silos (e.g., for-profit business models in sport tourism (Perić et al., 2019) or professional sport (Aversa et al., 2015)), our framework fosters a comparative analysis, offering nuanced insights for complex sport organizations striving for circularity in their operational blueprint.

Our second contribution lies in presenting a novel business model archetype: circular platform SBMs. This archetype transcends the constraints of traditional sport business models that primarily concentrate on the focal firm's value creation while sidelining other stakeholders. As recent developments in the sport industry, such as eSport and online fitness communities, showcase, value creation processes are mutual, and stakeholders at the periphery of the sport ecosystem can play a significant role. Moving towards CE involves more than merely adopting new processes and technologies - it demands a profound reshaping of existing norms, regulations, societal values, and infrastructure (Fehrer et al., 2023). This transformation process necessitates collective action and requires systemic thinking beyond the narrow boundaries of the focal organization. The circular platform SBM archetype provides a multifaceted view that embraces both firm-level considerations and the wider network, facilitating the exploration of value co-creation processes within and between nested and interconnected circular ecosystems (Fehrer et al., 2023).

Our third contribution relates to the specific characteristics of the sport industry, which offers new insights into the CE discourse in general. By their nature, business models in the sport industry combine economic and social dimensions of value co-creation and span across for-profit and non-profit sectors. Our study demonstrates how CSBMs collectively contribute

to CE transformations across for-profit, public, and non-profit sectors. It is one of the first studies that explains how circularity in social purpose and public organizations unfolds. Our last contribution includes a research agenda for sport management scholars to explore how the CE concept can advance sport management theory and strategy (see Table 2).

----- Insert Table 2 here -----

Implications for Practice

Thus far, business model research in the sport industry has taken a rather traditional perspective on business models, reflecting value creation, delivery, and capture frameworks from an economic value creation and firm-centric perspective (Teece, 2010). Our research provides a wider spectrum of possible business models and value-creation mechanisms for sport managers and entrepreneurs to consider and progressively engage in. This study discusses how sport managers and entrepreneurs can incrementally apply CE principles to their business models. Furthermore, the circular platform SBM offers guidance for sport managers to broaden their mental model of doing business beyond the focal company and narrow stakeholder groups, such as athletes, fans, and customers. It provides insights to navigate value co-creation processes of broad stakeholder groups. It embraces complexity to deal with wicked issues and unavoidable goal conflicts when transitioning toward more sustainable business practices (Fehrer et al., 2022). We want to encourage sport managers and entrepreneurs to work with systemic design tools, such as ecosystem mapping, stakeholder mapping, and value mapping (Fehrer & Wieland, 2021), to transform their business models gradually into CSBMs.

For sport governing bodies and policymakers, this study offers an agenda to shape CSBMs on an industry level. We provide concrete suggestions for the for-profit, public, and

non-profit sectors to embrace CE principles as part of their business practice. The nuanced description of our CSBM typology, summarized in Table 1, can help sport governing bodies to incentivize and fully embrace CE in the sport industry.

Implications for Future Research

We see much potential for future research on sustainability and circularity in sport. We have shown that the sport management literature lacks conceptualizations of business models in general and CBMs in particular. Despite two divergent trends in the sport industry - increasing professionalization and commercialization of the non-profit and public sector and the reorientation of for-profit organizations toward social purpose - we suggest that it is timely to stimulate an extended debate on CSBMs.

This study establishes a foundation for circular business models in the sport industry. Future research could delve deeper into areas of strategic management, including strategic decision-making and planning, innovation, and operations strategies. Additionally, the marketing aspects of circular business practices, particularly in fan engagement, warrant further exploration. We propose that research on strategic management and fan engagement should more effectively align with and integrate the critical roles of sport organizations in environmental stewardship, promoting pro-environmental behavior, and advocating for social justice.

Building on our newly developed integrative framework of CSBMs, our fourth contribution is a research agenda centered around four important themes: (1) Circular for-profit SBM transformation, (2) CE transformation on the level of public sport organizations, (3) Advancing toward circular social purpose SBMs, and (4) Circular platform SBMs shaping circular ecosystems. Table 2 provides a detailed summary of future research themes and related research questions. We encourage sport management scholars and practitioners to consider CSBMs to shape a more sustainable sport industry.

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Table 1. Archetypes of Circular Sport Business Models

	Circular For-Profit SBMs Creating sustainable stakeholder experience and high degrees of stakeholder engagement	Circular Public SBMs Representing a sport and its sustainability mission	Circular Social Purpose SBMs Following a social purpose and enhancing community engagement in sustainable sport activities	Circular Platform SBMs Linking stakeholders in the sport industry to shape and foster sustainable business practices
Stakeholders				
Main stakeholders	<ul style="list-style-type: none"> ▪ Sport service providers, manufacturers, retailers ▪ Athletes/ Clubs ▪ Customers/fans ▪ Private leagues 	<ul style="list-style-type: none"> ▪ National, regional, and sport governing bodies (sport federations) ▪ Leagues/clubs with public ownership ▪ Ministry for sport ▪ Sport service departments in municipalities/ cities 	<ul style="list-style-type: none"> ▪ Non-government organizations, social entrepreneurs, and other social purpose organizations ▪ Volunteers ▪ Customers ▪ Local communities ▪ Federations without state delegation 	<ul style="list-style-type: none"> ▪ Sport service providers, manufacturers, and retailers, including the network of suppliers and complementary service providers ▪ Sport entrepreneurs ▪ Athletes ▪ Customers, spectators, fans ▪ Non-government organizations, social entrepreneurs, and other social purpose organizations ▪ Volunteers ▪ Local communities ▪ Sport governing bodies, leagues
Other relevant stakeholders	<ul style="list-style-type: none"> ▪ Stakeholder network of suppliers and complementary service providers 	<ul style="list-style-type: none"> ▪ Stakeholder network of suppliers, complementary service providers ▪ Customers/fans 	<ul style="list-style-type: none"> ▪ Sport governing bodies ▪ Network of suppliers and complementary service providers 	
Value co-creation mechanisms				
Value conceptualization	<ul style="list-style-type: none"> ▪ Value-in-experience: individually experienced but socially co-created between sport organizations and their stakeholders 	<ul style="list-style-type: none"> ▪ Social value: Social purpose at the regulatory level with business-like value creation (e.g., revenue creation) as second order goal 	<ul style="list-style-type: none"> ▪ Social value: Social purpose at the local community level with economic value creation as second order goal 	<ul style="list-style-type: none"> ▪ Ecosystem viability: Mutual value creation across stakeholder networks to increase individual well-being and ecosystem viability
Sustainable value co-creation processes	<ul style="list-style-type: none"> ▪ Closing of material loops to increase material efficiency ▪ Dematerialization through service and mutualization of assets ▪ Slowing loops through prolonging use and end-of-life cycle phases ▪ Narrowing loops through lower resource use 	<ul style="list-style-type: none"> ▪ Maintaining, potentially changing rules and code of a sport toward more circular business practices (e.g., fair trade; sustainable supply chains) ▪ Circular public procurement on product-, supplier-, and public-private partnership level ▪ Service contracts with suppliers based on pay-per-use and product-as-a-service (PaaS) models 	<ul style="list-style-type: none"> ▪ Finding allies for social and sustainable innovation ▪ Collaborative (as opposed to competitive) orientation and strengthening of cross-sector partnership ▪ Local community engagement directed toward social change and environmental stewardship ▪ Mobilizing resources to fuel sustainability movement ▪ Raising awareness and advocating for CE policies 	<ul style="list-style-type: none"> ▪ Facilitating stakeholders negotiating value propositions to arrive at mutually agreeable (i.e., legitimized) sustainable outcomes ▪ Interorganizational and cross-sectoral collaboration and complex network coordination enabled through engagement platforms ▪ Reconfiguring the institutions that guide value co-creation ▪ Identifying institutional frictions as catalysts for sustainable innovation
Structure and governance				

Structure	<ul style="list-style-type: none"> ▪ Firm-centered activity system linking stakeholders to support circular business practices 	<ul style="list-style-type: none"> ▪ Governing body as a central platform linking sport organizations to foster circularity at product and supplier levels and in public-private relationships 	<ul style="list-style-type: none"> ▪ Network-centered activity system linking community members and stakeholders to support social and circular business practices 	<ul style="list-style-type: none"> ▪ Platform ecosystem linking stakeholders and shaping institutions to drive systemic change toward circular business practices
Governance	<ul style="list-style-type: none"> ▪ Centralized (contractual and relational) with a focus on stakeholder management 	<ul style="list-style-type: none"> ▪ Centralized with governing body coordinating interaction between sport organizations and ensuring their conduct 	<ul style="list-style-type: none"> ▪ Distributed (community-based/cooperative) coordination based on shared goals 	<ul style="list-style-type: none"> ▪ Distributed among stakeholders in the ecosystem, coordinated by shared social structures

Table 2. Future Research Agenda

Themes	Research Questions
<p>Circular for-profit SBM transformation</p> <p>For-profit sport BMs often follow a linear model of production and delivering service. While many sport practitioners might agree that the linear value chain models are not appropriate to reflect value co-creation processes in the sport industry, research on alternative models is still limited. Hence, further developing the CSBM concept and guidance for CSBM transformation processes is an important avenue for future research.</p>	<ol style="list-style-type: none"> 1. How do sport managers decide which CE principle(s) to follow when transforming their sport business models? 2. What are potential goal conflicts and barriers to implementing CSBMs? 3. How does an increase in digitalization affect BM transitions toward CSBMs? 4. How can circularity in CSBMs be measured? 5. How do existing measurement models need to change to account for sustainable value co-creation of CSBMs? 6. How can for-profit SBMs integrate environmental stewardship into their strategies? 7. How can consumers (including fans) engage with for-profit SBMs' pro-environmental strategies? 8. How can for-profit SBMs better embrace social justice?
<p>CE transformation on the level of public sport organizations</p> <p>Public sport BMs represent state-owned organizational structures and governmental organizations that govern sport. While public sport BMs, by nature, have a purpose that serves the common good, the implementation of CE thinking is yet to be established. We see great potential in supporting public sport organizations in reinventing themselves as ambassadors of the CE. This includes incentivizing sport organizations aligned with the CE principles.</p>	<ol style="list-style-type: none"> 9. How can public sport organizations navigate CE transformations? 10. How can public sport organizations incentivize other sport organizations to transition toward CSBMs? 11. How can sustainable business practices be wider spread in the network of sport clubs, federations, and other actors typically governed by public sport BMs? 12. How can changes to rules and sporting codes contribute to more sustainable business practices in public sport BMs? 13. How can public sport organizations better engage citizens in pro-environmental behavior? 14. How can public sport organizations better engage citizens in efforts toward social justice?
<p>Advancing toward more circular social purpose SBMs</p> <p>Social purpose sport BMs are situated on a spectrum between donation and subsidy-funded organizations and self-sustaining social enterprises. While it seems natural to combine social purpose with environmental stewardship and CE principles, there is relatively little research on the social and circular business interface. We see great potential in further refining how circular social businesses can be characterized and how they fit in the landscape of the current and future sport industry.</p>	<ol style="list-style-type: none"> 15. What tensions unfold between circular and social sport BMs, and how can they be solved? 16. How can social purpose be more systematically combined with environmental purpose? 17. How can inter-organizational relationships, networks, and activity systems around social purpose BMs be structured to support circular practices? 18. How can local sport organizations and decentralized organized community sport fully embrace the principles of the CE? 19. What challenges regarding circular business practices come with more decentralized governance mechanisms, often embedded in social purpose organizations? 20. How can social purpose SBMs embrace and integrate environmental stewardship?
<p>Circular platform SBMs shaping circular ecosystems</p> <p>Moving towards CE involves more than merely adopting new processes and technologies—it demands a profound reshaping of existing norms, regulations, societal values, and infrastructure. This type of sport BM allows for zooming in to the firm level and out to the wider network to consider value co-creation processes within and between nested and interconnected circular ecosystems. While some sport organizations are starting to embrace this approach, there is still much to explore related to strategies,</p>	<ol style="list-style-type: none"> 21. What tools, methods, and techniques support organizations in adopting circular business practices systemically in alliance with their partners? 22. How can sport organizations integrate principles of industrial symbiosis, where by-products and waste products of one organization can be used as resources for another sport organization? 23. How can sport organizations collectively set standards for more circular business practices? 24. How can sport organizations identify and manage institutional frictions as catalysts for sustainable innovation? 25. How can inter-organizational relationships in ecosystemic BMs help to advance and support circular practices? 26. What kind of platforms and platform design can serve to advance the shaping of circular ecosystems in the sport industry?

business model design, and business model innovation of pluralistic sport BMs.

27. How can sport organizations, fans, customers, associations (and others) engage in institutional change to foster sustainable value co-creation in the sport industry?
 28. How can pluralistic strategies help sport organizations in the transition to CBMs?
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