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THE METAVERSE AND THE FUTURE OF SPORTS MARKETING: NEW FRONTIERS FOR DIGITAL ENTREPRENEURS

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Abstract: The rapid development of immersive digital environments, collectively referred to as the metaverse, is transforming the global sports industry and redefining how sports are experienced, marketed, and monetized. As digital spaces become more interactive, participatory, and decentralized, they open up unprecedented opportunities for digital entrepreneurship and innovation in sports marketing. This paper explores the dynamic intersection of these two domains, indicating that metaverse-based ecosystems enable new forms of fan engagement, branding, and value creation. By integrating insights from recent academic literature and practical examples, the study examines how emerging technologies are reshaping traditional sports marketing models and expanding the entrepreneurial landscape.

The paper highlights how digital entrepreneurs and sport organizations use metaverse platforms to develop immersive fan experiences, launch virtual merchandise and collectibles, organize hybrid sporting events, and create decentralized digital communities. These innovations are driving a fundamental shift from passive sports consumption to active co-creation of value, where fans become participants, collaborators, and even investors. Moreover, the research identifies key strategic implications for stakeholders seeking to position themselves competitively in this evolving environment.

While the metaverse presents significant benefits, including enhanced personalization, global reach, and new revenue streams, it also introduces major challenges related to data privacy, technological accessibility, interoperability, and ethical considerations. By addressing these opportunities and constraints, the paper contributes to understanding how the metaverse can serve as a new frontier for innovation, entrepreneurship, and marketing transformation in the sports industry. The findings underline the need for an adaptive, forward-thinking approach that integrates creativity, technology, and consumer insight to ensure sustainable growth in the digital sports economy.

Keywords: Metaverse, Sports Marketing, Digital Entrepreneurship, Fan Engagement, SportTech

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Introduction

The global sports industry is undergoing profound digital transformation driven by technological convergence, shifting consumer expectations, and the increasing demand for immersive, interactive, and community based experiences. Traditional sports marketing models, historically grounded in live event attendance, scheduled broadcasting, sponsorships, and mass advertising, are evolving toward digitally mediated ecosystems that prioritize personalization, experiential engagement, and consumer agency. Among the most disruptive developments shaping this transformation is the metaverse, a network of persistent virtual environments where users interact in real time, create digital content, maintain virtual identities, and participate in decentralized economies.

The metaverse represents more than a technological extension of the digital world. It has emerged as a socio economic environment in which sports consumption intersects with gaming, simulation, virtual socialization, and digital asset ownership. These environments enable sports organizations, brands, and athletes to interact with global audiences without the limitations of physical presence, offering new pathways for fan engagement, content monetization, and community led value creation.

Simultaneously, the metaverse has accelerated the rise of a new class of market actors: digital entrepreneurs who build ventures within immersive and decentralized ecosystems. These entrepreneurs develop virtual goods, design interactive platforms, activate digital communities, and establish new forms of revenue generation through digital ownership models, token enabled fan economies, and programmatic co creation of value. Unlike traditional sports marketers who communicate to audiences, digital entrepreneurs foster participatory ecosystems in which fans function as collaborators, producers, stakeholders, and co investors in brand ecosystems.

Despite the rapid commercialization of the metaverse in sports contexts, academic research has not yet fully examined the convergence of digital entrepreneurship, sports marketing, and immersive virtual economies. Existing studies typically address issues of technology adoption, digital fandom, or sport commercialization, but limited attention has been given to how entrepreneurial actors create value, structure business models, and scale market opportunities in decentralized and interoperable environments. Important questions remain about the mechanisms through which entrepreneurial innovation reshapes sports marketing, the strategic logics that govern competition in virtual sports ecosystems, and the challenges that influence sustainable commercialization.

This paper addresses these gaps by exploring the metaverse as an emerging entrepreneurial and marketing environment in the sports industry. It examines (1) how immersive digital environments transform sports marketing dynamics, (2) what entrepreneurial opportunities arise from virtual and token enabled sports engagement, and

(3) which strategic, ethical, and structural challenges influence competitiveness in the digital sports economy. By integrating theoretical perspectives and contemporary industry developments, the study contributes to a broader understanding of how value is created, shared, and scaled within digitally native sports ecosystems.

Literature Review: The Metaverse in the Sport Industry

From an etymological perspective, the term metaverse is a compound formed from the Greek prefix meta and the word universe. In Greek, the prefix meta (μετά) originally means “after,” “beyond,” or “with,” and it has been historically used to indicate transcendence, transformation, or a higher-order relationship to something else. In philosophical contexts, meta appears in words such as metaphysics, denoting inquiry that goes beyond the physical or material world.

The concept “metaverse” was first introduced by Neal Stephenson in his 1992 novel Snow Crash, to indicate a fully immersive, computer-generated virtual world existing alongside the physical environment. However, the concept gained its full meaning with the acceleration of digital transformation and the rise of social media, virtual reality, and digital product formats. According to Merriam – Webster (2021) the term metaverse is defined as a highly immersive virtual world where people gather to socialize, play, and work. According to Mysdakidis (2022), the metaverse represents a persistent digital ecosystem that integrates physical and virtual realities, enabling real-time, immersive, and multisensory interaction through technologies such as VR and AR, within interconnected social and collaborative environments. Similarly, Cheng (2023) considers the metaverse to be a fully immersive and interactive virtual world in which users can interact with one another in a seamless and realistic manner.

The sport industry is increasingly recognized as a pioneering sector for metaverse applications (Morgan & Kerr, 2025). The metaverse offers a unique platform for creating immersive digital spaces where athletes, fans, and other stakeholders can interact in innovative ways. Evidence from a 2022 survey of 4,500 sport consumers indicates that 81% would be willing to pay to experience real-world sporting events within a metaverse environment (Cohen, 2022).

Furthermore, Esmer (2025) conducted a comprehensive bibliometric analysis examining the intersection of artificial intelligence and the metaverse within the sports domain. The study demonstrates a substantial increase in scholarly output, particularly from 2022 onward, and highlights the high citation impact of earlier works, reflecting the growing academic attention and significance of this research area. Notably, the analysis indicates that the majority of studies have concentrated primarily on technological applications, adoption of virtual environments, and user engagement metrics,

with relatively limited exploration of entrepreneurial activities, business model innovation, or value creation mechanisms in metaverse sports ecosystems.

Empirical research indicates that fan engagement in metaverse-based sports environments is driven by a convergence of experiential, cognitive, technological, and brand-related factors. In their qualitative investigation of Nikeland, a brand-sponsored metaverse platform, Demir & Dinc (2023) demonstrate that immersive environments reduce traditional barriers to participation, enabling diverse user groups to engage in sports experiences without the constraints of age, physical ability, or geographic location. This highlights the metaverse's potential to broaden access and redefine inclusivity in sports consumption. A central determinant of engagement lies in the sensory and atmospheric richness of the virtual environment, where elements such as spatial design, interactive architecture, and ambient audiovisual cues generate a heightened sense of presence. Emotional activation further reinforces participation, with users reporting enjoyment, excitement, and satisfaction derived not only from the environment itself but from social interaction and gamified challenges that encourage active rather than passive involvement. Importantly, cognitive absorption emerges as a defining feature of metaverse engagement, as many participants describe experiencing flow, a state of deep focus and uninterrupted interaction indicative of strong psychological immersion. This is accompanied by a perceptual convergence of physical and digital realities, wherein virtual sports experiences are interpreted as experientially authentic rather than simulated. However, the findings also reveal that engagement is contingent on usability, with platform complexity and interface friction posing barriers to sustained interaction, emphasizing the strategic importance of intuitive design. Finally, metaverse participation shapes brand-related outcomes, as users associate immersive digital environments with innovation, creativity, and forward-looking brand identity. This demonstrates that metaverse platforms are not merely engagement tools but mechanisms for strengthening brand equity, deepening community affiliation, and enabling value co-creation between sports organizations and digitally active fan ecosystems.

Complementing these findings, Kim & Kim (2024) examined virtual sport participation intentions using semantic network and topic modelling analysis. Their results emphasize additional motivators, including gamification, digital ownership through collectibles, social presence, experiential novelty, and the accessibility of virtual participation without physical constraints. Collectively, these studies illustrate that fan engagement in the sports metaverse is multidimensional, encompassing psychological, social, technological, and brand-related drivers.

From a market demand perspective, Chen and Zhang (2024) further demonstrate that metaverse sport consumption is shaped by dimensions that differ from traditional

patterns of sport participation. Their mixed methods research identifies three overarching demand drivers, including conventional sport consumption motives, demand for VR enabled engagement, and demand for immersive metaverse specific experiences, all of which significantly predict fans' willingness to participate in virtual sporting environments. Complementing this perspective, Pizzo et al. (2024) indicate that the metaverse is fundamentally transforming sport and leisure by expanding them into immersive digital ecosystems. However, they caution that the current fragmentation of metaverse platforms complicates the balance between organizational control and user autonomy. Their findings demonstrate that sustainable metaverse sport ecosystems depend on collaborative value creation models that integrate both firm driven design and active user participation, emphasizing co-creation as a central mechanism for long term engagement and community viability.

The Evolution of Sports Marketing Toward Digital Ecosystems

The evolution of sports marketing reflects a gradual shift from traditional, one-way communication models toward complex, interconnected digital ecosystems that facilitate multi-stakeholder engagement. Historically, sports marketing relied on mass media channels, sponsorship arrangements, and linear messaging to reach audiences. However, the advent of the internet and social media fundamentally transformed these dynamics, enabling direct, interactive communication between sports organizations, athletes, and fans. This digital shift allowed for greater personalization of content, continuous engagement, and the collection of data to inform strategic marketing decisions.

Given the significant impact of digitalization on the sports industry, the term "digital sports marketing" has increasingly been adopted in the scholarly literature (Ratten & Thompson, 2021). Digital sport marketing has evolved significantly with the transition of traditional sports channels, such as ESPN, Eurosport, and Sky Sports, to mobile and digital platforms, reflecting the increasing proliferation of consumer-focused content across video, audio, and social media formats, and marking a new era in which fan engagement and commercial considerations are closely intertwined (Seymour & Blakey, 2020).

Streaming platforms have become central to digital transformation in sport, providing fans with access to live sporting events, exclusive content, and on-demand programming. According to market estimates, the global sports streaming service market was valued at USD 0.74 billion in 2024, with continued

growth expected through 2033, driven by increasing digital adoption, improved streaming infrastructure, and rising investments in sports broadcasting rights by major digital platforms (Business Research Insights, 2024). Over half of sports fans consider streaming platforms their primary method for watching sports, and a majority report that the accessibility and exclusive content offered by these services have increased their engagement with sports (Sports Business Journal, 2025). The providers such as Amazon Prime Video, DAZN, and Sky have responded by investing heavily in sports rights and developing tailored content strategies to capture increasingly digital and on-demand audiences. These platforms not only serve as distribution channels but also function as engagement tools, enabling sports organizations to collect user data, foster communities, and deliver personalized marketing campaigns.

A notable example of innovative digital sport marketing is UEFA's mobile strategy during its European football tournaments. Through a dedicated mobile app, UEFA created a centralized hub for fan engagement, delivering live updates, interactive content, and personalized experiences. The app allowed the organization to monitor user behaviour across different markets, revealing trends such as a 24 percent decrease in engagement in Spain following the tournament kickoff (Sensi, 2024). This case illustrates how mobile and digital platforms enable sports organizations to combine fan engagement, data collection, and marketing insights within a single ecosystem, bridging traditional broadcasting and on-demand consumption.

In Europe, the sports streaming market illustrates both the opportunities and challenges of digital sport marketing. While international providers like Amazon and DAZN expand their presence, domestic services such as Sky Sports, BBC On-Demand, and Canal+ continue to dominate local markets (Statista, 2024). This diversity highlights the importance of context-specific strategies and the need for sports marketers to balance global reach with localized content offerings.

In addition to streaming, digital sport marketing encompasses social media campaigns, interactive fan experiences, gamification, virtual merchandise, and, increasingly, metaverse-based platforms. By integrating these channels, sports organizations can create immersive, multi-platform ecosystems that enhance fan engagement, strengthen brand identity, and generate new revenue streams. The evolution of sports marketing toward digital ecosystems provides fertile ground for digital entrepreneurial activity, particularly in metaverse sports, where inno-

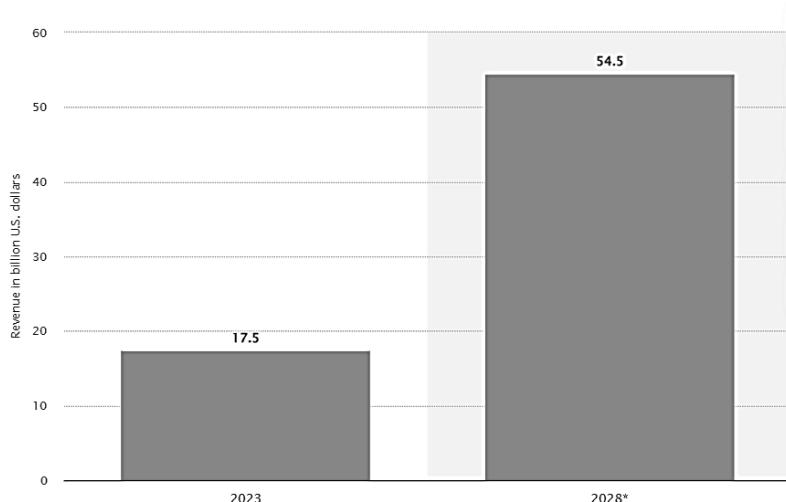
ative business models, virtual experiences, and interactive fan engagement can redefine the commercial and experiential dimensions of the industry.

Digital Entrepreneurial Opportunities in Metaverse Sports

Considering the opportunities enabled by digitalization, contemporary literature adopts a broader conceptualization of entrepreneurship that extends beyond business creation to encompass any proactive process in which an individual or organization identifies, evaluates, and exploits opportunities to generate sustainable new value under conditions of risk and uncertainty (Jovanović et al., 2024). The metaverse is anticipated to evolve into a trillion-dollar market within this decade (Weking et al., 2023), presenting transformative opportunities for digital entrepreneurship through the development of new business models, innovative venture creation, and the integration of hybrid physical–virtual value propositions.

Moreover, according to relevant statistic reports, metaverse-related revenues are projected to increase from 17 billion U.S. dollars in 2023 to 54.5 billion U.S. dollars by 2028 (Fig.1), reflecting a compound annual growth rate of 25.5 percent (Statista, 2025).

Figure 1: Global metaverse-related revenues in 2023 with projections for 2028 (in billion U.S. dollars).



Source: Statista (2025)

Weking et al. (2023) identify the metaverse as a key external driver of entrepreneurial activity, providing a conceptual framework that explains how ventures can create opportunities within digital, hybrid, and immersive environments. By highlighting the distinct characteristics of metaverse-enabled entrepreneurship compared with traditional, out-of-metaverse practices, the study emphasizes novel opportunities for developing innovative offerings, structuring business models, and designing entrepreneurial processes that capitalize on the unique capabilities of virtual and interconnected ecosystems.

Within this context, the metaverse represents a particularly promising opportunity for digital entrepreneurship in sports. This concept is closely related to Sportech, a term that encompasses technological innovations in sport (Lanfranchi & Rotondo, 2019) aimed at enhancing athletic performance, fan engagement, operational efficiency, and commercial opportunities. Sportech includes digital tools, wearable devices, performance analytics, virtual and augmented reality applications, and emerging metaverse platforms that facilitate immersive and interactive experiences for athletes, fans, and sports organizations. With regard to the metaverse, entrepreneurs can leverage fully virtual, physical-to-virtual, virtual-to-physical, and hybrid pathways to create innovative offerings, design immersive fan experiences, and develop novel business models that integrate digital and physical interactions. Examples include virtual stadium experiences, gamified fan engagement, digital collectibles, and augmented reality integrations that link real-world events to immersive digital content. The emergence of the metaverse in sports has given rise to new concepts, including the notion of the virtual stadium. This term first appeared in 2022 when the Atlanta Braves launched the Digital Truist Park (Cunningham & Ko, 2025), marking a pioneering effort to recreate the stadium experience in a fully digital environment.

Recent empirical research conducted among 1,208 MZ-generation participants (aged 18–42) with prior exposure to metaverse sports events in Korea demonstrated that event characteristics embedded in virtual environments significantly shape user engagement and behavioural outcomes (Morgan & Kerr, 2025). Both spatial and relational immersion were found to positively affect personal and relational satisfaction, respectively, which in turn significantly strengthen team attitudes. For digital sport entrepreneurs, this highlights the strategic importance of designing metaverse offerings that integrate social

connectivity, personalization, and sensory immersion to attract, retain, and monetize diverse fan segments.

Moreover, digital entrepreneurship is transforming sports branding by enabling novel, technology-driven approaches to brand co-creation, fan interaction, and digital asset commercialization. Global sports brands increasingly leverage the metaverse (Chen et al., 2023) as a new arena for digital entrepreneurship, integrating virtual goods, gamified environments, and community-driven interaction into their business models. Qualitative document analysis of Nike and Adidas (Vural, 2024) demonstrates that brand-led metaverse ecosystems extend beyond digital presence toward asset creation, platform ownership, and value exchange through Non-fungible tokens (NFTs). Nikeland, launched by Nike in 2021 on the Roblox platform, demonstrated how sports brands can leverage the metaverse to create immersive digital ecosystems and foster entrepreneurial value. The platform allows users to adopt personalized avatars, participate in sport-themed games, explore branded environments, and acquire virtual merchandise, including NFTs linked to real-world products. Similarly, Adidas distributes branded NFTs through The Sandbox metaverse, linking virtual ownership with real-world benefits such as product discounts. In 2021, Adidas initiated a high-profile collaboration with prominent blockchain-native entities, including Bored Ape Yacht Club (BAYC), gmoney, and PUNKS Comic, to co-create Into the Metaverse, a limited NFT collection that integrated digital identity, virtual wearables, and exclusive community access. The collection sold out rapidly, generating over USD 22 million in initial sales and demonstrating significant market demand for branded digital goods (Digital Twin Insider, 2023). These initiatives indicate that metaverse entry is driven by strategic goals of expanding user reach, strengthening competition, stimulating sports participation, and establishing reciprocal value creation between brand and consumer. The examples illustrate how metaverse environments support hybrid business models that merge digital products, experiential engagement, and brand co-creation, offering replicable pathways for entrepreneurial innovation in sport. In line with these findings, Kim et al. (2025) indicate that sport organizations must develop proactive strategies to effectively monitor and enforce their trademark rights within these expansive digital environments.

Furthermore, the metaverse offers sports organizations significant opportunities to optimize costs associated with hosting mega events such as the FIFA World Cup or the Olympic Games. Traditional events require enormous inves-

tment in stadium construction, maintenance, security, and logistics, often amounting to billions of dollars. By leveraging metaverse platforms, organizers can create immersive, large-scale virtual experiences that replicate the atmosphere of live events (Schmid et al., 2023) while reducing reliance on physical infrastructure. Hybrid models, which combine in-person attendance with virtual participation, further enhance this potential. For example, while fans attend matches or competitions on-site, remote participants can engage through interactive digital environments, customize avatars, participate in virtual fan zones, and access exclusive content. Such integration expands audience reach beyond stadium capacity, generates additional revenue streams through digital merchandising and sponsorships, and allows resources to be redirected toward fan engagement and marketing initiatives. With regard to this perspective Piccioni (2023) explains that hybrid events provide notable advantages by expanding and diversifying the audience, indicating that participants gain flexibility, as they can choose to attend either in person or online, depending on their preferences and circumstances. Consequently, metaverse-enabled hybrid events not only reduce operational costs but also provide flexible, scalable, and participatory experiences, transforming the economics and strategic planning of global sports mega-events.

In addition to previously discussed applications, the metaverse offers significant entrepreneurial opportunities in sport through advanced marketing communication, performance development, and new revenue models. Immersive digital environments enable data-driven, personalized brand engagement, real-time consumer analytics, and innovative sponsorship activation that surpass traditional digital channels. Furthermore, AI-supported simulations and virtual training systems enhance athlete performance analysis, tactical preparation, and injury-prevention capabilities (Zhu et al. 2023; Hadi et al. 2024).

Conclusion

The emergence of the metaverse represents a transformative frontier for sport marketing and digital entrepreneurship. By providing immersive, interactive, and hybrid physical–virtual environments, the metaverse enables sports organizations and entrepreneurs to create novel experiences that deepen fan engagement, enhance brand loyalty, and generate new revenue streams. Digital platforms, such as virtual stadiums, NFT-based merchandising, and interac-

tive fan zones, offer innovative opportunities for co-creation, personalized marketing, and global audience expansion, while reducing reliance on traditional physical infrastructure.

Entrepreneurs operating within metaverse sports ecosystems can leverage these environments to develop new business models, integrate physical and virtual assets, and experiment with hybrid event formats that combine live attendance with virtual participation. This convergence of technology, sport, and entrepreneurship expands commercial potential, but also reshapes the strategic approaches of clubs, leagues, and brands seeking to engage digitally connected and interactive fans. Overall, the integration of metaverse technologies in sport marketing underscores the growing importance of digital entrepreneurship in shaping the future of the global sports industry, emphasizing creativity, adaptability, and innovative value creation.

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