

Business Model Transformation Dynamics in the Digital Sports Ecosystem

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Abstract

The study aimed to analyze the transformation of business models within the digital sports ecosystem, with particular emphasis on the role of e-commerce and digital marketing in contemporary sports management. To this end, a systematic literature review adopted an integrative approach and followed the PRISMA protocol. The bibliographic search covered Scopus, Web of Science, and ScienceDirect for the 2010–2026 period, with an updated search conducted before manuscript completion to incorporate publications from 2026 that met the inclusion criteria. The systematic review analyzed 50 studies selected according to the protocol. In addition, theoretical and methodological literature supported the conceptual framework and research design.

The findings reveal a transition that has consolidated over several years, as traditional models increasingly give way to more digital and, in many cases, hybrid configurations. Social platforms, live commerce, data analytics, and immersive experiences all contribute to this reconfiguration. Another prominent finding concerns the interdependence among technological, commercial, and relational dimensions. Rather than evolving along separate paths, these three dimensions intersect and ultimately reshape how the sports sector creates and captures value.

The study's main contribution lies in a systemic conceptual framework designed to articulate these dimensions, as the literature predominantly offers fragmented perspectives that examine each aspect independently. The proposed framework provides an analytical tool for examining both the opportunities and risks associated with e-commerce in the sports sector, with particular relevance when considered from a Latin American perspective.

Keywords: Sports E-commerce; E-marketing; Omnichannel Retailing; E-marketplaces; E-sports; Virtual Reality; Data Analytics.

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Introduction

Over the past two decades, e-commerce has evolved from merely serving as a transaction channel into a structural pillar of the digital economy (Turban et al., 2015). In the sports sector, this transformation manifests itself simultaneously across several dimensions: the design of fan experiences, the commercialization of products and services, the management of online communities, and the integration of revenue streams that previously remained largely fragmented, including ticket sales, merchandising, audiovisual rights, and sponsorships. Within this context, industry reports published by Deloitte (2024) and PwC (2024) provide evidence of increasing digitalization and the transformation of business models across different segments of the sports industry.

The digital transformation of the sports industry rests on the convergence of three simultaneous dynamics. The first involves the expansion of e-commerce and social commerce, which has enabled clubs, leagues, brands, and athletes to scale their commercial operations and access global markets with lower entry barriers (Baethge et al., 2016; Zhang and Benyoucef, 2016; DHL, 2017). The second dynamic concerns the consolidation of omnichannel models that connect multiple touchpoints, including physical stores, websites, mobile applications, social media, and marketplaces, within fragmented yet strategically integrated consumer journeys (Jayasingh et al., 2022). The third dynamic involves the intensive use of data, which enables content personalization, advanced audience segmentation, and evidence-based marketing decision-making grounded in analytical insights (Li et al., 2025; Zhang et al., 2014).

Recent evidence indicates sustained growth in digital revenues among clubs and leagues, particularly in Europe and North America, alongside progressive expansion into emerging markets, where organizations have explored new monetization mechanisms through e-commerce, streaming, and immersive experiences (Deloitte, 2024; McKinsey & Company and World Federation of the Sporting Goods Industry, 2022). At the same time, these dynamics have created opportunities for less popular sports disciplines and smaller or grassroots sports organizations, which can use digital spaces to connect with groups of fans and sponsors located in different parts of the world.

Within this context, the relationship between e-commerce and digital marketing in sports management extends beyond the mere adoption of technological tools: it entails a reconfiguration of the business model that places fans at the center. This process integrates value propositions built around hybrid experiences (online-offline), subscription models, loyalty programs, and transmedia content strategies. Against this backdrop, the prosumer fan has emerged as a prominent figure who simultaneously consumes, produces, and distributes content, thereby becoming a key actor in value creation within the digital sports ecosystem (Zhang et al., 2014; Tajvidi et al., 2020).

From a sports marketing perspective, e-commerce has extended fan interaction far beyond the event itself, creating multiple touchpoints before, during, and after the event. Advance ticket sales, bundle offerings, access to exclusive content, and participation in digital experiences have progressively blurred the boundary between entertainment consumption and commercial transactions (Alonso-Dos-Santos et al., 2017; Mohammadi and Dickson, 2024).

The sports industry has consolidated its position as a setting for digital innovation, as reflected in the adoption of streaming platforms, short-form content, second-screen experiences, and the expansion of e-sports. These transformations have enabled subscription models, microtransactions, and sponsorship schemes with increasingly granular audience segmentation (Guo et al., 2025). At the same time, the development of immersive experiences based on virtual and mixed reality has narrowed the gap between physical attendance at an event and remote engagement with it (Capasa et al., 2022; Chang et al., 2024).

Consistent with the systematic nature of this review and following methodological recommendations for this type of study (Page et al., 2021; Snyder, 2019), the following research question guided the analytical process: What dynamics characterize the transition from traditional models toward digital and hybrid models within the sports ecosystem?

Accordingly, this study aims to analyze the transformation of business models within the digital sports ecosystem through a review of recent literature on e-commerce, social commerce, omnichannel retailing, data analytics, and immersive experiences applied to sports. The analytical process examines, in turn, the evolution of digital business models, the role of the marketing mix and omnichannel strategies, the function of content and video platforms, and the use of data and automation. The analysis then turns to emerging opportunities associated with virtual environments and e-sports, together with the main trends and challenges currently confronting

sports management. To address this objective, the study adopts a methodological approach based on a systematic literature review.

Theoretical framework

Analyzing the transformation of business models within the digital sports ecosystem requires the integration of conceptual frameworks drawn from different fields, including platform economics, business model innovation, social commerce, omnichannel retailing, the attention economy, and technology acceptance. Although these approaches emerged independently and developed from distinct theoretical origins, their integration reveals a key point of convergence: together, they help explain the reconfiguration processes that the sports sector has undergone as digitalization has expanded.

Integrating these approaches responds to the multidimensional and multicausal nature of the phenomenon under study, which requires analytical frameworks capable of simultaneously capturing its strategic, relational, and technological dimensions. The following sections present each framework, followed by a review of recent empirical literature.

Platform Economics and Digital Ecosystems

The theory of multisided platforms, developed primarily by Rochet and Tirole (2003) and subsequently advanced by Parker, Van Alstyne, and Choudary (2016), posits that certain markets operate through intermediaries that connect two or more groups of users and generate value through their interactions. Within this model, the value generated by a platform increases as more participants join, producing what researchers refer to as the network effect. This mechanism helps explain the success of marketplaces such as Fanatics, DAZN, and Amazon Sports in the global sports environment. Applying this theory to the digital sports sector helps explain why clubs, leagues, and brands tend to concentrate their commercial operations on platforms that already command large user bases rather than developing their own digital ecosystems from scratch. However, this process also creates tensions concerning control over fan data and the distribution of generated revenues, with both issues becoming increasingly important in negotiations between sports federations and major technology platforms.

Business Model Innovation

Osterwalder and Pigneur (2010) proposed the Business Model Canvas as a tool for analyzing and designing the fundamental components of a business model: value propositions, customer segments, channels, customer relationships, revenue streams, key resources, key activities, strategic partners, and cost structure. This framework proves particularly useful for examining transformations within the sports sector because it enables researchers to identify precisely which elements of traditional business models digital configurations have replaced or complemented. Chesbrough (2010) expanded this perspective by arguing that innovating the business model can prove as important as innovating products themselves, particularly in industries exposed to substantial technological disruption.

In the sports sector, this transformation becomes evident in the shift from models dependent on ticket sales and television rights toward hybrid configurations that combine digital subscriptions, microtransactions, and the creator economy. Capturing these transformations requires a systemic and comprehensive interpretation of the business model.

Social Commerce and Social Influence Theory

The concept of social commerce emerged at the intersection of e-commerce and social media and has received extensive attention from Hajli (2015), Baethge, Klier, and Klier (2016), and Zhang and Benyoucef (2016). In general terms, it refers to commercial practices that leverage online social interaction, including recommendations, ratings, and communities, to facilitate purchasing decisions. The underlying rationale draws on social influence theory (Cialdini, 2001), which posits that individuals make decisions by observing the behavior of others whom they perceive as similar to themselves.

In digital environments, this principle translates into the growing relevance of reviews, influencers, and user-generated content throughout the purchasing process. Within the sports ecosystem, social commerce has expanded opportunities to market tickets, merchandise, and exclusive experiences through platforms such as Instagram, TikTok, and YouTube, where fan recommendations simultaneously function as mechanisms for commercial distribution and as sources of trust among buyers (Tajvidi et al., 2020; García Bonilla et al., 2020).

Omnichannel Retailing and Customer Journey Management

The theory of omnichannel retailing, systematized by Verhoef, Kannan, and Inman (2015) based on earlier research into multichannel management (Neslin et al., 2006), posits that consumer experiences unfold across multiple physical and digital touchpoints, which organizations must coordinate coherently to maximize perceived value. Unlike the multichannel approach, in which organizations manage each channel independently, omnichannel retailing seeks frictionless integration among physical stores, websites, mobile applications, social media, and marketplaces.

This perspective proves particularly relevant to understanding the digital sports ecosystem, where a fan may initiate a purchase journey through a notification received from a club's application, complete the transaction through the official online store, and subsequently collect the product at the stadium on the day of the event. Jayasingh, Girija, and Arunkumar (2022) show that omnichannel purchase intention for sporting goods depends on perceived convenience, trust in integrated channels, and ease of returns. These findings confirm that an omnichannel strategy extends beyond technological integration and relies on the quality of the relationship established with customers.

The Attention Economy

Davenport and Beck (2001) coined the concept of the attention economy to describe a dynamic in which the proliferation of information and digital stimuli turns human attention into a scarce resource with substantial economic value. Within this framework, sports organizations no longer compete solely for fans' spending; they also compete for their time and concentration within an environment saturated with entertainment options. This theory helps explain the rapid growth of short-form content, including reels, shorts, and stories, the proliferation of online sports betting as an engagement mechanism, and the development of second-screen experiences that accompany sporting events. For business models within the sector, this dynamic implies that fan monetization depends substantially on organizations' ability to capture, retain, and derive value from attention throughout the entire interaction cycle, thereby making content a primary strategic asset (Qu et al., 2023; Guo et al., 2025).

Technology Acceptance Model (TAM) and Its Application to the Sports Environment

The Technology Acceptance Model (TAM), developed by Davis (1989), proposes that the adoption of new technologies depends primarily on two factors: perceived usefulness and perceived ease of use. Subsequent extensions, including TAM2 (Venkatesh and Davis, 2000) and UTAUT (Venkatesh et al., 2003), incorporated additional variables such as social influence and facilitating conditions. Within the digital sports ecosystem, researchers have applied TAM to examine how fans adopt technologies such as virtual reality (Capasa et al., 2022; Chang et al., 2024), streaming platforms, and mobile applications operated by sports clubs. Findings from these studies suggest that fans adopt such technologies not merely because they perform effectively from a technical standpoint, but because they perceive that these technologies enrich their sports experience. Consequently, organizations must design digital value propositions around user needs rather than relying exclusively on a technology-driven logic.

Empirical Literature Review

Within the Latin American context, research on the digital transformation of the sports sector remains at an early stage, although the number of studies has increased in recent years. García Bonilla et al. (2020) conducted a conceptual examination of social commerce in Colombia and found that organizations in the country faced significant gaps in adopting e-commerce platforms to market sporting goods and services. Similarly, Guzmán Duque and Abreo Villamizar (2017) documented in Bucaramanga the transition from e-commerce to social commerce within the footwear sector, providing analytical categories that can also apply to the sports ecosystem. Alonso-Dos-Santos et al. (2017) examined the online behavior of sports consumers from a Spanish-speaking perspective and found that e-satisfaction and e-quality play a significant role in fostering customer loyalty in Spanish-speaking markets. These findings align with the marketing principles proposed by Kotler and Keller (2016), who argue that digital marketing has transformed the relationship between organizations and consumers. In the sports context, this transformation has materialized through the incorporation of digital platforms, e-commerce

strategies, and personalized experiences for fans, as evidenced by studies on the digital sports ecosystem (Ratten, 2020; Xiao et al., 2017; Alonso-Dos-Santos et al., 2017).

Business cases also illustrate digital transformation, including Hummel (Impact Commerce, 2019) and the expansion of Adidas's digital solutions (2017), both of which demonstrate the incorporation of digital commerce strategies and new consumer touchpoints. DHL eCommerce initiatives (2024, 2025) concerning cross-border shopper behavior also provide relevant evidence regarding consumption trends affecting Latin American markets. MMA Global and GroupM (2021) documented the journeys of connected consumers, highlighting important implications for emerging markets across the region. Brown (2003) contributed to understanding the evolution of communication and sponsorship in sports marketing. Although this work predates the consolidation of the digital ecosystem, it provides conceptual elements for understanding the subsequent evolution of communication strategies implemented in sports.

At the international level, the literature has made substantial progress over the past decade. Baethge et al. (2016) conducted a state-of-the-art review of social commerce and identified research gaps that remain relevant within the sports context. Zhang and Benyoucef (2016) examined social commerce adoption models in greater depth and developed a theoretical framework that integrates consumer motivations with platform-specific characteristics. Jayasingh et al. (2022) examined the determinants of omnichannel purchase intention for sporting goods and found that convenience and trust constitute central predictors of purchasing decisions. Li et al. (2025) analyzed impulse purchasing in the context of cumulative live shopping and highlighted the relevant role of parasocial relationships. Mohammadi and Dickson (2024) explored the relationship among flow, e-satisfaction, and e-loyalty in online purchases of sporting goods by fans.

Zhang et al. (2014) examined the determinants of customer engagement in social commerce and demonstrated the central role of virtual experiences in this process. Tajvidi et al. (2021), in turn, analyzed brand value creation in social commerce through information sharing on social media. Capasa et al. (2022) and Chang et al. (2024) investigated the acceptance of virtual reality in sports consumption, whereas Guo et al. (2025) examined how sporting events influence consumers' willingness to spend. Qu et al. (2023) analyzed impulse purchasing in live-streaming commerce and identified the determining role of anticipated emotions and perceived scarcity. Alhumud and Elshaer (2024), meanwhile, examined the impact of social commerce on sustainable customer relationships, providing a sustainability perspective relevant to the model proposed in the present study.

Although the reviewed approaches have made significant contributions to understanding the digital transformation of the sports sector, they present specific limitations that warrant explicit consideration. First, seminal studies on social commerce (Hajli, 2015; Baethge et al., 2016; Zhang and Benyoucef, 2016) focus primarily on individual purchasing dynamics and do not sufficiently address the specific characteristics of sports consumers, whose emotional attachment to clubs and athletes introduces variables that these models fail to capture fully.

A similar limitation emerges in the literature on omnichannel retailing (Verhoef et al., 2015; Jayasingh et al., 2022), which assumes certain levels of digital maturity and infrastructure that do

not correspond to the heterogeneous nature of sports organizations in Latin America, particularly those operating in emerging or grassroots disciplines. Studies on live commerce and impulse purchasing (Li et al., 2025; Qu et al., 2023) also rely predominantly on samples from Asian markets, where digital consumption cultures differ considerably from those found in Latin America. Finally, research on virtual reality applications in sports (Capasa et al., 2022; Chang et al., 2024) remains primarily experimental, relying on small samples and short observation periods, which limits the generalizability of its findings.

The available Latin American literature (García Bonilla et al., 2020; Guzmán Duque and Abreo Villamizar, 2017; Alonso-Dos-Santos et al., 2017) likewise remains at an early stage of development and lacks integrative studies that simultaneously connect technological, commercial, and relational dimensions. In other contexts, various studies and practical experiences demonstrate progress in adopting digital marketing strategies, social platforms, immersive experiences, and new forms of interaction with fans (Tajvidi et al., 2021; Oliveira, 2019). These advances also emerge in initiatives implemented by sector organizations, such as the digital strategies of S. L. Benfica and the logistics solutions developed by DHL eCommerce to strengthen sports e-commerce (Benfica, 2025; DHL eCommerce, 2025).

Moreover, most of the analyzed models prioritize technological efficiency and commercial optimization while relegating critical dimensions such as the digital divide, data governance, consumer protection, and the equitable distribution of value within the ecosystem to a secondary position. These limitations provide the rationale for developing the integrative framework proposed in this study.

Method

The study adopted a qualitative interpretive approach through an integrative systematic literature review. The articulation of the qualitative interpretive approach with the PRISMA protocol, originally designed for systematic reviews and quantitative meta-analyses (Page et al., 2021), rests on the growing acceptance of PRISMA as a reporting standard for different types of systematic reviews, including integrative and qualitative reviews (Whittemore and Knafl, 2005; Snyder, 2019).

In this study, PRISMA served exclusively as a framework for reporting and ensuring traceability, with the aim of transparently documenting the identification, screening, eligibility, and inclusion phases. The interpretive analysis of the corpus, in turn, drew on content analysis and thematic coding techniques rooted in the qualitative tradition (Strauss and Corbin, 1990). This combination proves useful because it brings together two dimensions that do not always converge: the procedural rigor required by a systematic review and the interpretive depth needed to construct an integrative conceptual framework.

This design enabled the identification, analysis, and synthesis of both theoretical and empirical contributions concerning the transformation of business models within the digital sports ecosystem, while also facilitating the development of analytical categories and theoretical

propositions grounded in the evidence identified. Unlike descriptive reviews, this approach sought a relational understanding of the phenomenon by integrating multiple dimensions into a coherent analytical framework.

Search Strategy

The information search relied on the Scopus and Web of Science indexed academic databases, selected for their broad coverage of scientific literature. In addition, ScienceDirect served as a complementary platform for full-text access and the retrieval of specialized scientific publications from Elsevier, thereby expanding the thematic coverage of the review. Bibliographic searches took place between March 2025 and January 2026: the initial search occurred in March 2025, while the final update, intended to incorporate recent publications, concluded in January 2026.

The search strategy employed combinations of keywords in English and Spanish related to e-commerce, digital marketing, and sports. The main English descriptors included e-commerce, social commerce, digital marketing, omnichannel, sports management, sports industry, data analytics, streaming, and immersive experiences. In Spanish, the search employed the terms comercio electrónico, comercio social, marketing digital, omnicanalidad, gestión deportiva, industria deportiva, analítica de datos, streaming and experiencias inmersivas.

The search strategy relied on Boolean equations, including the following: (“sports” AND “e-commerce” OR “social commerce”) AND (“digital marketing” OR “omnichannel”) AND (“data analytics” OR “virtual reality”). Equivalent equations in Spanish were also employed using the corresponding descriptors to broaden the retrieval of relevant literature within the Latin American context. The complete equations adapted to each database, together with the field operators used, appear in the Methodological Appendix (see Appendix A).

These equations were adapted to the indexing criteria of each database to maximize the retrieval of relevant literature. The analysis period extended from 2010 to 2026 to capture the recent evolution of digitalization processes in the sports sector, while retaining seminal references relevant to understanding the phenomenon. Regarding search execution, the initial database queries took place in March 2025, whereas the final update occurred in January 2026 to incorporate recent publications that met the established inclusion criteria. During the final stage of manuscript preparation, publications available in 2026 that met the established inclusion criteria were incorporated to maintain the currency of the analysis and strengthen the discussion of the findings. This incorporation did not modify the methodological protocol or the selection criteria established for the systematic review.

Inclusion and Exclusion Criteria

The inclusion criteria sought to ensure the quality and relevance of the sources. Given the integrative nature of the review, two types of documents were considered. First, the review included scientific articles published in journals indexed in Scopus, Web of Science, and

ScienceDirect, as well as academic book chapters, which served as primary sources of knowledge. In addition to the systematic corpus of 50 studies, sectoral and institutional reports from recognized organizations and specialized consulting firms were consulted. These sources did not form part of the identification, screening, and eligibility process reported through PRISMA; instead, they served as secondary evidence for contextualizing market trends and industry practices and for triangulating findings from the literature.

Although this dual typology introduces a methodological tension, which the study acknowledges as a limitation, it enables the triangulation of theoretical evidence with updated empirical evidence from the sector, a combination that proves pertinent to the research topic. The review excluded duplicate documents, non-peer-reviewed literature and sources with limited traceability, studies adopting an exclusively technical focus without a connection to business models, and studies that failed to present findings or conceptual developments relevant to the study objective.

Literature Selection Process

The literature selection process followed the guidelines of the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to ensure methodological transparency and rigor. During the identification phase, 315 documents were retrieved from the selected databases (Scopus: 148; Web of Science: 112; ScienceDirect: 55). After removing 65 duplicate records, the process yielded a total of 250 documents.

During the screening phase, titles and abstracts underwent review, resulting in the exclusion of 140 records that failed to meet the predefined thematic relevance criteria. Subsequently, during the eligibility phase, 110 full-text articles underwent assessment. Of these, 60 were excluded because they did not directly address business models, lacked a connection to the sports context, or presented methodological limitations considered significant. At the end of the process, 50 studies remained and constituted the final systematic review sample.

The 50 selected studies constituted the documents analyzed in the systematic review. The hybrid nature of the digital sports ecosystem emerges through the convergence of seven interdependent processes: physical-digital hybridization (Göbeler et al., 2021), intelligent exercise systems (Tsai et al., 2025), media transformation and fan engagement (Lee and Lhotsky, 2025; Abeza and Bustad, 2025; Prabowo et al., 2026), algorithmic content moderation (Rahman et al., 2024), data-driven decision-making and predictive models (Xiang et al., 2024; Wang, 2025), participation and the development of inclusive communities (Kwon et al., 2026), and cross-cutting ethical governance.

Within the Latin American literature reviewed, the study identified progress in the adoption of digital business models, e-commerce strategies, digital marketing, and data governance. However, empirical evidence regarding the comprehensive application of these dimensions within sports organizations across the region remains limited. Consequently, the proposed conceptual framework provides a foundation for future research aimed at validating its dimensions across different Latin American countries.

In addition, theoretical, methodological, and supporting literature was incorporated to underpin the conceptual framework and the interpretation of the findings. Consequently, the total number of bibliographic references exceeds the number of studies included in the systematic review. Table 1 summarizes the literature selection stages according to the PRISMA protocol.

Table 1. Literature Selection Process According to PRISMA

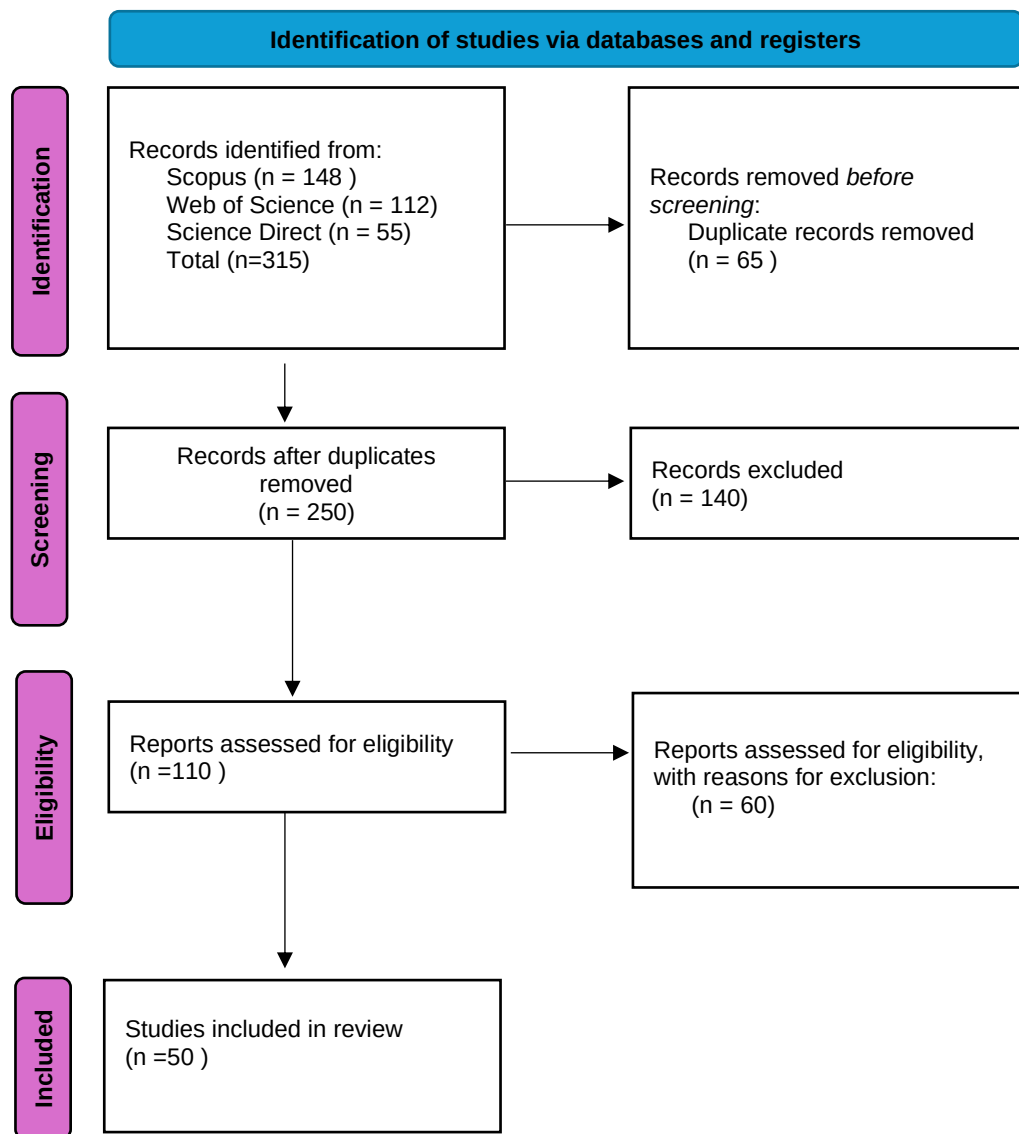
Phase	Process Description	Number of Records (n)
Identification	Records identified in databases (Scopus: 148; Web of Science: 112; ScienceDirect: 55)	315
	Duplicate records removed	65
	Records remaining after duplicate removal	250
Screening	Records screened by title and abstract	250
	Records excluded due to irrelevance	140
Eligibility	Full-text articles assessed for eligibility	110
	Articles excluded based on content or methodological criteria	60
Inclusion	Studies included in the final review	50

Source: Authors' own elaboration.

The study selection process is summarized in Figure 1 through the flow diagram proposed by PRISMA 2020. This diagram made it possible to visualize sequentially the stages of identification, removal of duplicate records, screening, eligibility assessment, and final inclusion of the studies that constituted the research corpus.

The study selection and full-text assessment were conducted independently by the five reviewers on the research team. The inclusion and exclusion criteria were applied, and disagreements identified during the process were resolved through consensus to ensure the consistency and reliability of the final study selection. The systematic review did not rely on a protocol previously registered on open science platforms. Nevertheless, the methodological process followed the guidelines of the PRISMA 2020 statement, thereby ensuring transparency and traceability throughout the review.

Figure 1. Flowchart of the Identification, Screening, Eligibility, and Inclusion Process for Studies According to PRISMA 2020



Source: Authors' own elaboration based on Page et al. (2021), PRISMA 2020.

Quality Assessment of the Included Studies

To ensure the methodological rigor of the review, the study established a quality assessment procedure for the included studies in accordance with the recommendations for integrative literature reviews proposed by Whitemore and Knafl (2005). Given the integrative nature of the review and the mixed nature of the sources consulted, which included indexed scientific articles

alongside institutional and sectoral reports, the study did not apply a risk-of-bias instrument designed for randomized controlled trials. Instead, four methodological assessment criteria adapted from the Critical Appraisal Skills Programme (CASP) and the Joanna Briggs Institute (JBI) framework for integrative scoping reviews were adopted: (a) direct thematic relevance to the research topic; (b) clarity and transparency in describing the method employed; (c) source credibility and traceability, verified through indexing in Scopus, Web of Science, or ScienceDirect, or through the recognized authority of the issuing organization within the sports sector; and (d) verifiable theoretical or empirical contribution to the field of digital business models in sports. The research team members conducted the assessment independently; disagreements were resolved by consensus, following the procedure previously described for study selection, thereby ensuring the consistency and traceability of the process.

Analysis Process

The analysis proceeded through four consecutive stages, using content analysis and thematic coding techniques informed by the grounded theory procedures proposed by Strauss and Corbin (1990), while adapting them to the requirements of a systematic review. The first stage followed an exploratory approach: the titles and abstracts of the 110 eligible articles were reviewed to assess their thematic relevance and exclude those that did not contribute meaningfully to the research topic. During the second stage, which involved an in-depth analytical reading, the 50 selected studies were read in full, and information from each document was extracted into an Excel matrix containing the following fields: (a) bibliographic reference, (b) study objective, (c) predominant theoretical approach, (d) methodology employed, (e) main findings, (f) stated limitations, and (g) geographical context.

The third stage involved a two-level coding procedure. First, open coding consisted of assigning *in vivo* and descriptive codes to relevant excerpts from each study, generating an initial inventory of 87 primary codes associated with concepts such as social commerce, live streaming, personalization, prosumers, omnichannel retailing, and virtual reality, among others. Subsequently, axial coding grouped these primary codes into higher-level conceptual clusters based on semantic similarity, frequency of occurrence, and their relationship with business model components. This aggregation process resulted in five emerging analytical categories: (i) digital business models; (ii) digital marketing and omnichannel retailing; (iii) content platforms and the attention economy; (iv) data analytics and automation (Sport 4.0); and (v) immersive experiences and e-sports. Theoretical saturation was established when the final ten articles reviewed no longer introduced new codes. The research team conducted the coding, which was subsequently reviewed collectively to verify the consistency of code assignments and resolve discrepancies through consensus.

In the fourth stage, the five categories were integrated into a cross-categorization matrix, presented in Table 3. This matrix enabled the identification of patterns, convergences, tensions, and gaps in the literature and provided the basis for formulating the theoretical propositions of the study.

Results

The systematic review identified recurring patterns in the literature on digital transformation in sports. The findings make clear that changes in business models do not stem from a single dimension but rather from the simultaneous interaction of technological, commercial, and social factors. The studies analyzed converge on the view that the digital sports ecosystem takes shape through the convergence of e-commerce, digital marketing, content production, data analytics, and immersive experiences.

The analysis also revealed a significant asymmetry in academic output. Digital marketing and omnichannel retailing account for the largest body of research, whereas immersive experiences and e-sports remain at an emerging stage. From a critical perspective, this distribution does not appear neutral. Instead, it reflects a bias toward approaches that prioritize conversion and transactional efficiency while giving less attention to cultural, ethical, and participatory dimensions associated with emerging technologies. The overrepresentation of digital marketing studies also suggests a reliance on analytical frameworks derived from general retail, whose applicability to the sports ecosystem remains questionable given the central role of emotional and community dimensions in sports consumption. This asymmetry constitutes a relevant finding in its own right, highlighting the need to rebalance the research agenda.

The open and axial coding process described in the methodological section yielded five analytical dimensions that provide an integrated understanding of the transformations under study: the evolution of digital business models; digital marketing and omnichannel retailing; content platforms and the attention economy; data analytics and automation, referred to here as Sport 4.0 by analogy with the Industry 4.0 concept proposed by Schwab (2016), to denote the convergence of artificial intelligence, the Internet of Things, big data, and automation applied to sports management (Ratten, 2020; Xiao et al., 2017); and immersive experiences and e-sports. A critical examination of these dimensions reveals that they do not operate independently or hierarchically. Rather, they constitute a system of interdependencies in which each dimension simultaneously strengthens and conditions the others. This systemic finding challenges the linear interpretations that predominate in the literature, which tend to examine each dimension as an autonomous domain. The central finding, therefore, lies not in identifying the dimensions themselves but in the empirical evidence that value creation and value capture within the digital sports ecosystem emerge from the systemic interaction among them. Table 2 organizes the main dimensions identified in the literature and maps them onto the structural components of the theoretical framework.

Table 2. Systematization of Transformation Dynamics within the Digital Sports Ecosystem

Analytical Dimension	Key Elements Developed	Transformation Dynamics	Impact on the Business Model
Evolution of Business Models	Brick-and-mortar, pure play, click-and-mortar, marketplaces, B2C, C2C, C2B, social commerce	Digitalization offerings and disintermediation	of New revenue streams and global expansion
Digital Marketing and Omnichannel Retailing	Digital marketing mix (product, price, place, promotion), channel integration, user experience	Coordination hybrid journeys and (online–offline)	of Customer loyalty and increased customer value
Content Platforms and Streaming	Video, streaming, live commerce, second-screen experiences, user-generated content	Monetization attention continuous engagement	of and Extension of the sports consumption cycle
Data, Automation, and Sport 4.0	CRM, analytics, personalization, automation, segmentation	Data-driven decision-making	Revenue optimization and operational efficiency
Immersive Experiences and E-sports	Virtual/augmented reality, virtual worlds, gaming, hybrid experiences	Innovation in fan engagement	New markets and digital products
Trends and Challenges in Sports Management	Hybrid models, data ethics, digital inequality, Latin American context	Strategic adaptation and sustainability	Reconfiguration of sports management

Source: Authors' own elaboration.

Analytical Integration of the Dimensions

When these dimensions are examined in an integrated manner, the findings reveal a shift from transaction-centered models toward configurations that place greater emphasis on experience and continuous relationships with fans. Digitalization has driven the transition toward hybrid configurations that combine physical and digital channels, thereby expanding the reach of sports organizations and enabling them to diversify their revenue streams. Within this context, omnichannel retailing serves as the mechanism that connects multiple touchpoints, while data analytics enables content personalization and more evidence-based decision-making. Complementing these processes, content platforms and immersive experiences expand user interaction and extend consumption beyond the sporting event itself.

From a more critical perspective, however, this shift should not be interpreted as a linear progression or as universally beneficial. The findings reveal structural tensions that the literature

often overlooks. For example, sports organizations' growing dependence on global platforms increasingly concentrates bargaining power among a small number of technological intermediaries. Algorithmic personalization, which researchers frequently celebrate as an advancement, raises significant concerns regarding information asymmetries between organizations and fans. Likewise, omnichannel expansion, which could theoretically help bridge digital divides, often reproduces existing inequalities in access to digital infrastructure. These tensions, which received limited attention in the studies reviewed, constitute a substantive component of the findings.

To organize the results of the review, the study developed a systematization matrix (see Table 3) that groups the main theoretical and empirical contributions according to the analytical dimensions of the study, integrating the predominant approaches, central findings, and identified limitations.

Table 3. Systematization Matrix of the Literature on the Digital Sports Ecosystem

Dimension	Approaches in the Literature	Main Findings	Identified Patterns	Gaps in the Literature
Digital Business Models	E-commerce, social commerce, marketplaces, hybrid models	Global expansion, reduced intermediation, scalability	Transition from traditional to digital models	Lack of integrated studies applied to the Latin American sports context
Digital Marketing and Omnichannel Retailing	Customer journey, digital marketing mix, channel integration	Improved experience, increased customer loyalty	User centrality in strategy	Limited evidence from Latin American contexts
Content Platforms	Streaming, live commerce, user-generated content	Extended consumption, monetization attention	Convergence between sports and entertainment	Limited integration with sustainable business models
Data Analytics and Automation	CRM, segmentation, personalization, AI	Improved decision-making, enhanced commercial performance	Growing use of data in sports management	Limited discussion of data ethics and governance
Immersive Experiences and E-sports	Virtual reality, augmented reality, gaming	New forms of interaction and monetization	Expansion into virtual environments	Lack of studies on model sustainability in emerging markets
Systemic Integration	Interdisciplinary approaches	Interdependence among dimensions	Need for integrative models	Theoretical fragmentation and limited articulation among dimensions in the literature

Source: Authors' own elaboration.

The systematization matrix revealed that, although the literature has advanced in analyzing each dimension separately, conceptual fragmentation persists and prevents a comprehensive

understanding of the phenomenon. This finding highlighted the need to propose a conceptual framework that integrates these dimensions and to formulate theoretical propositions that connect the relationships among the identified dimensions.

Theoretical Propositions

Based on the integration of the findings, the following theoretical propositions were formulated (see Table 4) to explain the transformation dynamics of business models within the digital sports ecosystem and structure the conceptual framework of the study. These propositions represent empirically testable relationships and express the expected direction of effects among observable variables, thereby enabling their examination through quantitative, qualitative, or mixed-methods research in future studies.

Table 4. Theoretical Propositions on the Transformation of the Digital Sports Ecosystem

Code	Theoretical Proposition	Associated Analytical Dimension	Implication for the Business Model
P1	Sports organizations that adopt hybrid and digital business models exhibit higher levels of revenue diversification and commercial scalability than those that retain traditional configurations.	Digital Business Models	Revenue diversification and scalability
P2	A higher degree of omnichannel integration in sports management is positively associated with fan loyalty and customer lifetime value.	Digital Marketing and Retailing	Improved experience and customer retention
P3	The adoption of digital content and streaming platforms by sports organizations extends the fan interaction cycle beyond the in-person event and generates differentiated revenue streams based on digital engagement.	Content Platforms	Engagement-based revenue generation
P4	The systematic use of data analytics and automation tools by sports organizations is positively associated with offer personalization and greater efficiency in strategic decision-making, as measured through operational performance and commercial conversion indicators.	Data Analytics and Automation	Evidence-based decision-making
P5	Incorporating immersive experiences and e-sports into the portfolios of sports organizations generates new market segments and diversifies revenue streams, with effects that vary according to the level of digital E-sports penetration in the target market.	Immersive Experiences and E-sports	New markets and forms of interaction
P6	The simultaneous integration of the five dimensions, business models, omnichannel retailing, content platforms, data analytics, and immersive experiences, is associated with higher levels of value creation than the isolated adoption of each dimension.	Systemic Integration	Business model innovation

Source: Authors' own elaboration.

Conceptual Framework for the Transformation of the Digital Sports Ecosystem

Based on the theoretical propositions and the integration of the analytical dimensions, this study proposes a conceptual framework that explains the transformation of business models within the digital sports ecosystem as a dynamic and interdependent system. The framework organizes the identified dimensions around a central axis represented by the fan, understood as an active prosumer who participates in value co-creation.

The conceptual framework demonstrates that digital business models emerge from the simultaneous interaction among omnichannel marketing, content platforms, immersive experiences, and intensive data use, with these interactions providing the system with its systemic character. Within this system, data analytics and automation function as cross-cutting components that permeate all dimensions and enable their integration, facilitating offer personalization and evidence-based decision-making. More specifically, omnichannel marketing connects the user's multiple touchpoints, while content platforms enable organizations to capture and monetize attention. Immersive experiences and e-sports, in turn, expand opportunities for interaction and open new sources of revenue and participation.

The proposed framework shows that the transformation of the digital sports ecosystem does not follow a unidirectional path. Rather, it constitutes a systemic process in which interactions among these dimensions generate mutually reinforcing effects that continuously redefine how the sports sector creates and captures value.

Figure 2. Conceptual Framework for the Transformation of Business Models within the Digital Sports Ecosystem

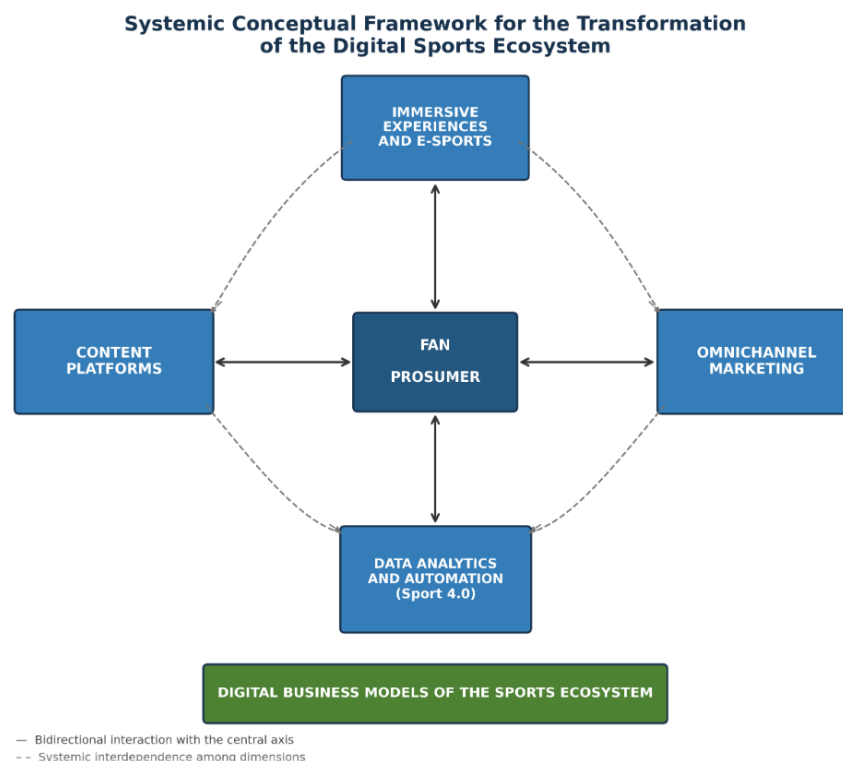


Figure 2 represents a nonlinear systemic model in which the dimensions interact dynamically and bidirectionally with one another and with the central axis, the prosumer fan, as indicated by the double-headed arrows in the diagram, thereby forming an interdependent ecosystem. The findings show that the transformation of the digital sports ecosystem follows a systemic logic in which multiple dimensions interact and progressively redefine business models. This process involves more than the adoption of technologies; it entails a profound reconfiguration of organizational strategies and the ways in which sports organizations engage with fans.

Discussion

The findings of the study share several commonalities with the literature on digital transformation in the sports sector, while also introducing nuances that warrant separate examination. The transition toward hybrid and digital models identified in the findings aligns with sectoral evidence reported by Deloitte (2024) and McKinsey & Company and the World Federation of the Sporting Goods Industry (2022), which document sustained growth in digital revenues among high-performance clubs and leagues. This sectoral empirical evidence complements earlier conceptual approaches (Turban et al., 2015). The findings extend this perspective by demonstrating that the transition does not occur uniformly but rather progresses at different rates depending on organizational size, geographic location, and available technological capabilities. This gap becomes particularly evident in the Latin American context.

Regarding omnichannel retailing, the findings align with Jayasingh, Girija, and Arunkumar (2022), who demonstrated that integrating physical and digital channels enhances purchase intention in the sports sector. However, the results show that, in Latin American contexts, such integration encounters additional barriers associated with inequalities in access to digital infrastructure, a dimension that studies conducted in mature markets have largely overlooked. This finding partially converges with the evidence reported by García Bonilla et al. (2020) regarding social commerce adoption gaps in Colombia and broadens the discussion toward the need to design omnichannel strategies that reflect local realities.

The role of content platforms in extending the sports consumption cycle follows the same direction as the findings reported by Tajvidi et al. (2021) and Mohammadi and Dickson (2024), who identified a significant influence of user-generated content on customer loyalty. The present study complements this line of research by showing that live commerce and real-time streaming represent a further evolution of this process, as they transform fans from spectators into active participants in the commercial experience. Li et al. (2025) and Qu et al. (2023) provide complementary evidence concerning the emotional dynamics of live shopping and their influence on impulse purchasing, a phenomenon with considerable potential in the sports market but one that remains insufficiently explored in Latin America.

A point of divergence from much of the reviewed literature concerns the emphasis placed on the ethical challenges associated with data use. Whereas studies such as Li et al. (2025) and Zhang et al. (2014) focus primarily on the benefits of analytics-based personalization, the findings of the present study identify fan trust and data governance as necessary conditions for model sustainability, a dimension identified as a gap in the literature according to Table 3. This

divergence becomes particularly relevant in light of regulations such as the European General Data Protection Regulation (GDPR) and similar frameworks in Latin American countries, whose implications for data collection and use practices in sports require careful consideration by organizations operating in the sector.

Regarding immersive experiences, the findings align with those reported by Capasa et al. (2022) and Chang et al. (2024), who found increasing acceptance of virtual reality among fans in sports contexts. Nevertheless, the results suggest that the penetration of these technologies in Latin American markets remains at an early stage. Consequently, their impact on business models represents more of a potential opportunity than an established reality. The gap between the technological frontier documented internationally and the actual deployment of these technologies in Latin America opens a valuable avenue for future research with strong practical relevance.

Emerging Dynamics Complementary to the Proposed Framework

Integrating more recent literature makes it possible to refine the conceptual framework while also identifying complementary dynamics that contribute to a deeper understanding of how the digital sports ecosystem is transforming. These dynamics are organized into seven analytical axes that directly engage with the five dimensions of the proposed framework.

The first observation concerns the integration of physical and digital components, which gives rise to a typology of hybrid sports that extends beyond the traditional dichotomy. Göbeler et al. (2021) propose a classification comprising four categories, digitally supported, augmented, replicated, and translated sports, according to how physical and digital components, the sports space, and actor influence interact. This typology adds conceptual granularity to the digital business model dimension of the proposed framework and demonstrates that hybridization does not constitute a uniform phenomenon but rather a continuum encompassing differentiated configurations.

Second, intelligent exercise systems and smart sports equipment are reshaping training practices through real-time monitoring, personalized feedback, and dynamic interaction, thereby promoting health self-management and hybrid forms of participation (Tsai et al., 2025). This dynamic extends the data analytics and automation dimension (Sport 4.0) beyond the commercial domain by incorporating dimensions related to health, active aging, and participant well-being.

Third, media transformation and fan engagement have accelerated considerably through streaming services, social media, and immersive technologies such as augmented and virtual reality, thereby shaping interconnected global communities and increasingly personalized experiences (Lee and Lhotsky, 2025; Abeza and Bustad, 2025; Prabowo et al., 2026). This development reinforces the content platform dimension of the proposed framework and makes clear that real-time interaction and collaborative content creation have become central drivers of fan loyalty.

Fourth, the rise of digital platforms has also generated challenges related to offensive content management and the moderation of digital interactions, requiring specific technological solutions such as artificial intelligence-powered comment-filtering systems (Rahman et al., 2024). This dynamic introduces a critical component into the framework, algorithmic content moderation, which has remained underrepresented in the literature on the digital sports ecosystem.

Fifth, data-driven decision-making has consolidated as a strategic capability through artificial intelligence, big data analytics, and wearable devices, which optimize athlete performance, training, and officiating while increasing organizational operational efficiency (Lee and Lhotsky, 2025; Prabowo et al., 2026). Advanced techniques such as hybrid models and machine learning support outcome prediction, injury management, and improved decision-making processes in sports management (Xiang et al., 2024; Wang, 2025). These contributions strengthen the Sport 4.0 dimension by providing empirical evidence of its practical implementation.

Sixth, participation and community building have evolved from predominantly local and face-to-face interactions toward global digital networks, manifested in virtual fitness groups, fantasy sports, and e-sports forums, which foster collective identity and participant engagement (Abeza and Bustad, 2025). At the same time, technology-integrated sports such as drone soccer create inclusive environments with diversified participation pathways for historically marginalized groups (Kwon et al., 2026). This dynamic connects the content platform and immersive experience dimensions of the proposed framework while incorporating an equity and diversity perspective that holds particular relevance for the Latin American context.

Seventh and transversally, the ethical and governance challenges associated with growing dependence on digital tools, including data privacy, ethical governance, and the risks of automated decision-making through artificial intelligence, require organizations to balance innovation with regulatory considerations to preserve the integrity of sport. In Latin America, the strengthening of digital governance has accompanied the adoption of regulatory frameworks for personal data protection. In this regard, Colombia's Statutory Law 1581 of 2012, Brazil's Lei Geral de Proteção de Dados Pessoais (Law No. 13,709 of 2018), Peru's Law No. 29733 on Personal Data Protection, Mexico's Federal Law on the Protection of Personal Data Held by Private Parties (2010), and Argentina's Law No. 25,326 on Personal Data Protection constitute relevant regulatory benchmarks.

Their principles concerning lawfulness, transparency, purpose limitation, security, and accountability guide the processing of information in digital environments. These considerations acquire particular relevance in digital sports ecosystems that employ data analytics, artificial intelligence, and digital platforms to personalize services and interact with fans. This axis confirms the relevance of the structural tensions identified in the findings and reinforces the critical interpretation of the proposed framework.

The incorporation of these dynamics directly addresses the research question because it demonstrates that the transition toward digital and hybrid models occurs through the convergence of seven interdependent processes: physical-digital hybridization (Göbeler et al., 2021); intelligent exercise systems (Tsai et al., 2025); media transformation and fan engagement (Lee and Lhotsky, 2025; Abeza and Bustad, 2025; Prabowo et al., 2026); algorithmic content moderation (Rahman et al., 2024); data-driven decision-making and predictive models (Xiang et al., 2024; Wang, 2025); participation and inclusive community building (Kwon et al., 2026); and cross-cutting ethical governance.

Within the Latin American literature reviewed, the study identified progress in the adoption of digital business models, e-commerce strategies, digital marketing, and data governance. However, empirical evidence concerning the comprehensive application of these dimensions within sports organizations across the region remains limited. Consequently, the proposed conceptual framework provides a foundation for future research aimed at validating its dimensions across different Latin American countries.

For empirical validation, the conceptual framework can be operationalized through observable variables within each of its five dimensions. In this regard, the digital business model dimension can be measured through indicators such as the percentage of total revenue generated through digital channels, the number of active channels, and the omnichannel conversion rate. The marketing and omnichannel dimension can incorporate metrics such as customer lifetime value, Net Promoter Score, and cross-channel retention rates. For content platforms, relevant indicators include engagement rate, average viewing time, and revenue generated through live commerce. Data analytics can be assessed through analytical maturity indicators and the return generated by algorithmic personalization. In the case of immersive experiences, researchers can use virtual and augmented reality adoption rates and revenue generated through e-sports.

This indicator matrix enables the framework to move into the empirical domain and allows the six theoretical propositions to undergo empirical testing through mixed-methods designs, for example, by combining structured surveys of sports managers with transactional data analytics obtained from digital platforms.

Limitations of the Study and Future Research Agenda

The study presents limitations inherent to its methodological design. From a methodological perspective, the systematic literature review enabled the construction of analytical categories for interpreting the transformation of business models within the digital sports ecosystem. However, because the study relies on documentary evidence, it does not incorporate empirical evidence from sports organizations, thereby limiting the empirical testing of the proposed propositions through primary data. Accordingly, future research could employ longitudinal case studies, surveys targeting sports managers, and platform analyses based on real-world data. Such methodological approaches would provide valuable complements for corroborating or, where appropriate, refining the proposed conceptual framework.

Second, although the selection process followed the PRISMA protocol and relied on established academic databases, the review may remain subject to publication bias and to the availability of indexed studies during the period under analysis.

Conclusions

The study demonstrates that the transformation of business models within the digital sports ecosystem follows a systemic logic in which multiple interdependent dimensions converge: e-commerce, omnichannel retailing, content platforms, data analytics, and immersive experiences. This transformation cannot be understood as the isolated adoption of technologies; rather, it constitutes a structural change in how the sports sector creates and captures value.

The study's main theoretical contribution lies in constructing a conceptual framework that integrates dimensions that the literature typically examines separately, thereby enabling a more systemic understanding of the digital sports ecosystem. This approach helps address persistent gaps in the literature and provides a solid foundation for future empirical research.

First, the findings confirm that the transition toward hybrid and digital models constitutes a central driver of the changes currently reshaping the sports industry. E-commerce has evolved from a complementary channel into a strategic component that integrates physical and digital experiences. This finding aligns with Proposition P1 and highlights the need to redesign business models around user needs.

Second, omnichannel retailing emerges as an integrating mechanism that enables organizations to manage relationships with fans across multiple touchpoints. Consistent with Proposition P2, channel integration not only enhances the user experience but also strengthens customer loyalty and long-term customer value, positioning channel integration as a key element of competitiveness among sports organizations.

Third, the findings demonstrate that content and streaming platforms are redefining the logic of sports consumption by extending the interaction cycle beyond the event itself and transforming fan attention into an economic asset. This finding, consistent with Proposition P3, confirms the progressive convergence of sports, entertainment, and the digital economy.

Data analytics and automation are likewise consolidating as strategic capabilities that enable organizations to personalize offerings and make evidence-based decisions, as proposed in Proposition P4. However, this process also generates ethical challenges concerning data use, particularly in contexts involving real-time interaction. These challenges make it necessary to incorporate governance and consumer protection principles into business model design.

Immersive experiences and e-sports expand the sports ecosystem into virtual environments and generate new forms of interaction and monetization (Proposition P5). These dynamics not only diversify revenue streams but also transform how fans participate and enable markets with

relatively low entry barriers across the Latin American region, representing a potentially relevant avenue for local sports organizations.

Across all dimensions, the findings demonstrate the increasingly active role of the fan as a prosumer who participates in value creation through interaction, content, and digital consumption to a substantially greater extent than in previous configurations. The integration of the analyzed dimensions forms an interdependent system that redefines business models within the digital sports ecosystem, consistent with Proposition P6.

From a theoretical perspective, the study contributes to the literature by proposing a conceptual framework that integrates the principal dimensions of digital transformation in sports within a systemic model, thereby moving beyond the fragmented approaches that predominate in the literature. This contribution facilitates an understanding of digitalization not merely as a technological phenomenon but also as an organizational and strategic process.

From a managerial perspective, the findings suggest that sports organizations should adopt more integrated approaches that combine technological capabilities, digital marketing strategies, and community management to develop sustainable value propositions. Organizations also need to strengthen their capabilities in data analytics, omnichannel experience design, and content management while incorporating digital ethics and adapting their strategies to local contexts, particularly across Latin American markets.

The study's main limitations include its documentary nature, which restricts the empirical validation of the proposed propositions. Future research should therefore undertake empirical investigations to test the proposed framework and comparatively examine how these transformations unfold across different regions and sports disciplines in Latin America. From a policy and management perspective, the findings highlight the need to strengthen the digital capabilities of sports organizations and promote regulatory frameworks that support data protection and the sustainability of the digital ecosystem.

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APPENDIX A.

METHODOLOGICAL PROTOCOL FOR THE BIBLIOGRAPHIC SEARCH

A.1 Databases and Search Dates

The bibliographic search was conducted across three academic databases: Scopus, Web of Science (WoS), and ScienceDirect. The initial search was performed in March 2025, and the final update, intended to incorporate recent publications, was completed in January 2026. The analytical coverage period spanned from 2010 to 2026.

A.2 Search Equations by Database

The following Boolean search equations were adapted to the indexing criteria of each platform to maximize the retrieval of relevant literature.

Database 1: Scopus

TITLE-ABS-KEY (("sports" OR "sport industry" OR "sports management") AND ("e-commerce" OR "social commerce" OR "digital marketing" OR "omnichannel") AND ("business model" OR "digital transformation" OR "data analytics" OR "streaming" OR "virtual reality" OR "immersive experience")) AND PUBYEAR > 2009 AND PUBYEAR < 2027 AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "ch")) AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "Spanish"))

Database 2: Web of Science (WoS)

TS = (("sports" OR "sport industry" OR "sports management") AND ("e-commerce" OR "social commerce" OR "digital marketing" OR "omnichannel") AND ("business model" OR "digital transformation" OR "data analytics" OR "streaming" OR "virtual reality")) AND PY = (2010-2026) AND DT = (Article OR Book Chapter) AND LA = (English OR Spanish)

Database 3: ScienceDirect (Complementary Search)

Advanced search: TITLE-ABSTR-KEY ("sports" AND ("e-commerce" OR "digital marketing" OR "business model") AND ("digital transformation" OR "data analytics" OR "streaming")) | Year: 2010–2026 | Document type: Journal articles and book chapters | Access: Full text through Elsevier

A.3 Descriptors Used

Language Descriptors

English	e-commerce, social commerce, digital marketing, omnichannel, sports management, sports industry, data analytics, streaming, immersive experiences, business model, digital transformation, virtual reality, e-sports
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Language Descriptors

Spanish comercio electrónico, comercio social, marketing digital, omnicanalidad, gestión deportiva, industria deportiva, analítica de datos, streaming, experiencias inmersivas, modelo de negocio, transformación digital

A.4 Inclusion and Exclusion Criteria

Criterion	Specification
Inclusion	(a) Scientific articles identified through Scopus and Web of Science. ScienceDirect was used as a complementary platform for retrieval and full-text access. (b) Publications in English or Spanish, published between 2010 and 2026. (c) Direct relevance to business models, e-commerce, or digital marketing in the sports sector. Complementary sources: Institutional and sectoral reports issued by recognized organizations within the sports industry were consulted to contextualize market trends and triangulate findings from the academic literature. These sources did not form part of the systematic corpus or the PRISMA selection process.
Exclusion	(a) Duplicate records across databases. (b) Non-peer-reviewed literature or sources with low traceability. (c) Studies with an exclusively technical focus and no connection to business models. (d) Studies lacking results or conceptual contributions relevant to the research topic.

A.5 Summary Record of the Selection Process (PRISMA)

Phase	Records (n)
Identification — Scopus: 148 WoS: 112 ScienceDirect: 55 315	
Duplicate removal	−65 → 250
Title and abstract screening	−140 → 110
Eligibility (full-text review)	−60 → 50
Studies included in the final review	50

Source: Authors’ own elaboration.