



THE ROLE OF INTELLIGENT TECHNOLOGIES IN ENHANCING THE COMPETITIVENESS OF SPORTS CLUBS AND THEIR IMPACT ON REGIONAL DEVELOPMENT

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ABSTRACT

The integration of intelligent technologies into the sports industry has led to profound transformations in how sports organizations function and sustain competitive advantage. This study examines the role of such technologies in enhancing the competitiveness of sports clubs while evaluating their broader impact on regional economic and social development. The main objective is to analyze how digital tools such as artificial intelligence, big data analytics, fan engagement platforms, and smart infrastructure - contribute not only to athletic and financial advancement but also to the stimulation of local business, tourism, and regional identity. The methodological approach combines theoretical review, comparative analysis, and real-world case studies. Findings are expected to demonstrate that the adoption of intelligent technologies enhances organizational performance and long-term sustainability, while also expanding the social function of sport in the context of regional development. The study aims to offer applicable insights for both sports management practices and regional innovation policies.

Keywords: Intelligent technologies, Sport Business, Sports competitiveness, Regional development

INTRODUCTION

In an era marked by accelerating digitalization, the sports industry is increasingly transcending its traditional function as a platform for competition, establishing itself as a catalyst for innovation, regional development, and social inclusion. Today's sports clubs operate within a volatile and competitive environment, where success is achieved not solely through athletic performance, but also through strategic management, the integration of technological innovation, and active engagement with local communities (1). Within this framework, intelligent technologies including artificial intelligence, the Internet of Things (IoT), big data analytics, digital engagement platforms, and smart infrastructure are considered vital components in building a sustainable organizational advantage (2, 3). The adoption of these technologies in the governance and operations of sports organizations is reshaping

conventional models, not only by enhancing internal efficiency but also by enabling deeper socio-economic impacts in the regions in which they operate (4, 5). This technological evolution, particularly within the sports and tourism sectors, contributes to the formation of broader economic ecosystems (6). Sports clubs thereby assume a proactive role in the processes of urban and economic regeneration of city environments (7).

The assessment of competitiveness in sports clubs necessitates a multifaceted analysis encompassing managerial, marketing, financial, and technological indicators. The framework proposed by Milusheva offers a robust analytical basis that can be adapted to the specific characteristics of the sports sector (8). In this context, the present study applies a contemporary methodological toolkit to evaluate the effectiveness of intelligent technologies in fostering competitive advantage. Clubs that have successfully implemented digital transformation tend to exhibit significantly higher brand value, improved operational efficiency, and stronger levels of fan engagement (9).

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Beyond their direct organizational benefits, intelligent technologies in sports also contribute to positive regional transformations such as increased tourism flows, stimulated infrastructure investments, improved urban mobility, and enhanced social inclusion (5). In this broader context, sport emerges not only as an economic catalyst but also as a factor shaping regional identity and fostering long-term sustainable development (7).

The aim of the present study is to explore the interrelationship between the application of intelligent technologies, the growing competitiveness of professional sports clubs, and their impact on regional development. By combining a theoretical framework, an empirical comparative analysis, and a case study approach, the report establishes a comprehensive analytical model for understanding the transformative role of the sports industry within the context of the modern economy. **The primary objective** is to examine how the implementation of intelligent technologies influences the competitiveness of professional sports organizations, and how this process subsequently affects the socio-economic development of the regions in which these clubs operate.

This study seeks to answer the following research questions:

- To what extent does the implementation of intelligent technologies contribute to enhancing the competitiveness of professional sports clubs?
- What socio-economic effects on regional development emerge as a result of the digital transformation of sports clubs?
- What best practices can be identified through a comparative analysis of leading European football clubs?

In order to address these questions, the subsequent sections examine the existing intelligent technologies in sports management, the competitiveness of sports organizations, and the role of sports clubs in regional development. Furthermore, an empirical analysis is conducted through case studies of football clubs with varying levels of digital integration namely, FC Barcelona, Real Madrid CF, and Manchester City FC.

INTELLIGENT TECHNOLOGIES IN SPORTS MANAGEMENT

Over the past decade, the advancement of digital technologies has profoundly transformed

how sports clubs are structured, managed, and how they interact with their stakeholders. Intelligent technologies a broad term encompassing artificial intelligence (AI), the Internet of Things (IoT), machine learning, big data analytics, sensor systems, and smart infrastructure have become increasingly central to the strategic development of professional sports clubs (2, 9, 10). In this regard, the integration of intelligent technologies into sports management has a distinctly multifunctional character. Five principal applications of AI in sports can be identified: enhancing fan engagement, injury prevention, optimization of athletic performance, innovation in sports equipment, and automation for fair officiating (10).

The implementation of intelligent technological systems directly influences managerial efficiency, athletic outcomes, and revenue generation through marketing activities. More than 75% of sports organizations reportedly employ AI tools to optimize training and performance analysis (10), while approximately 80% observe a notable increase in fan engagement through digital communication channels (11). Among the most widely adopted tools are cloud-based analytics platforms, athlete load monitoring systems, customer relationship management (CRM) solutions, and intelligent stadium technologies aimed at improving the spectator experience (12, 13). The components of the Internet of Things (IoT) significantly contribute to this transformation by enabling real-time collection of biometric and movement-related data including biomechanics, heart rate, acceleration, and other key performance indicators for athletes (3, 6).

The economic dimension of digital transformation in sports also warrants close attention. According to recent market projections, the value of artificial intelligence in the sports industry was estimated at approximately USD 2.2 billion in 2022, with expectations for it to grow to nearly USD 29.7 billion by 2032. This expansion corresponds to a projected compound annual growth rate (CAGR) of 30.1% for the period 2023–2032 (14). Key drivers of this growth include the pursuit of increased revenue streams, improvements in managerial efficiency, and the development of sustainable competitive advantages (15).

Despite the documented positive outcomes, several challenges continue to hinder the full integration of intelligent technologies across certain sports clubs. Key obstacles include the shortage of adequately trained personnel, limitations in technical infrastructure, and ongoing concerns related to the protection of personal and performance-related data (10).

COMPETITIVENESS OF SPORTS CLUBS

The concept of "competitiveness" is among the most widely used in economic literature, yet it often lacks a universally accepted definition. In its classical interpretation, competitiveness refers to the ability of an economic entity be it a firm, industry, or country to create, deliver, and sustain value under conditions of market rivalry (16). When applied to sports clubs, this concept acquires additional dimensions, encompassing not only athletic success but also economic sustainability, marketing effectiveness, innovation capacity, and social responsibility (1, 8).

The competitiveness of sports organizations should be understood as a multidimensional phenomenon, incorporating various interrelated dimensions: **Sporting performance (league standings, victories, titles); Financial sustainability (revenue, profitability, debt levels); Marketing strength and brand value; Fan engagement and audience expansion; Quality of managerial processes and innovation capability.**

Beyond traditional financial and athletic indicators, a new dimension is emerging in the modern sports industry technological competitiveness. This encompasses the integration of intelligent technologies into both managerial and training processes, data-driven decision-making, advancement in digital transformation and fan communication, as well as investment in innovative infrastructure such as smart stadiums, virtual reality, and e-commerce platforms (17). Clubs with a high level of digital integration are capable of building sustainable competitive advantages even amidst athletic uncertainty. These advantages manifest through elevated brand value, stronger consumer trust, broader international reach, and an enhanced capacity for diversifying revenue streams (9, 15).

In this context, competitiveness in modern sports cannot be examined through a one-dimensional lens. It integrates both traditional indicators such as athletic performance and financial sustainability and emerging digital

factors, including brand value, fan engagement, technological adaptability, and innovation capacity. Within a dynamic and highly competitive environment, the ability of sports clubs to incorporate intelligent solutions into management and communication processes has become a critical component of sustainable organizational advantage. Competitiveness should therefore be understood as a constellation of interrelated elements that require strategic governance rather than merely operational measurement.

THE ROLE OF SPORTS CLUBS IN REGIONAL DEVELOPMENT

Professional sports clubs are often viewed primarily through the lens of their athletic achievements and economic value within the sports industry. Increasingly, however, their role as active agents of regional development is gaining recognition particularly when they collaborate with local authorities and allocate resources toward sustainable infrastructural and social initiatives (5, 7). At the core of their regional impact lies the ability to stimulate the economy of the territories in which they operate. Clubs of the scale of FC Barcelona generate both direct and indirect employment opportunities, enhance tourism flows, and influence various aspects of the urban environment including property values, transportation connectivity, and business infrastructure. A prominent example of such integrated influence is the Espai Barça project, which is perceived not merely as a modernization of the Camp Nou stadium, but as a strategic investment in the urban fabric of the Les Corts district (18).

A recent academic study examined the interaction between a sports club and local authorities in the Portuguese city of Barcelos, where strategic collaboration led to the formation of a distinctive tourism identity and stimulated economic activity through the development of a football brand and the organization of related events. The study focuses on the clubs Gil Vicente and Clube de Barcelos. The partnership between these sports clubs and municipal structures illustrates the potential of leveraging sports tourism as a tool for economic and territorial development (5). Similar findings are presented in another study that analyzes the urban renewal of former industrial zones in Dortmund (Germany) through the establishment of sports and cultural centers in collaboration with local clubs. When embedded within long-term strategic planning,

such investments in sport can serve as sustainable catalysts for urban transformation (19). The influence of sports clubs on tourism development and the event-driven economy should not be underestimated. Collaboration between the sports and tourism sectors, supported by IoT technologies, enhances the return on investment and enriches the tourist experience (3). The integration of multi-sensor platforms during sporting events creates new modes of digital consumption and positions the region as a “smart tourism hub” (6).

Real Madrid represents an alternative development model that merges strong international positioning with deliberate economic expansion, institutionalized through strategic planning. The Nuevo Bernabéu project aims to construct a multifunctional space where sport is tightly integrated with commerce, culture, and technology. The combination of public and private investments has enabled the transformation of the stadium into a complex featuring over 300 retail outlets, a museum, interactive zones, and hybrid event halls. As a result, the venue is emerging as an economic catalyst not only for its immediate neighborhood but also for the broader Madrid region (20, 21). A particularly illustrative example of territorial regeneration can be found in the case of Manchester City. Over the span of a decade, the club evolved from a traditional urban team into a strategic driver of regional regeneration, with East Manchester becoming an active zone for innovation, education, and social inclusion. The Etihad Campus complex comprising a sports academy, partnerships with local schools, residential infrastructure, and business facilities has established a sustainable model of interaction between the sports industry and local development. This model has already attracted the interest of municipal authorities across several European countries (22, 23).

With a visionary approach and the implementation of intelligent technologies, modern sports clubs can position themselves as strategic partners to regional authorities. Their influence extends beyond direct economic gains, serving as a model for integrated regional development that combines economic growth, cultural identity, and digital transformation. The cases examined demonstrate that the contemporary sports club surpasses its traditional role as a results-driven organization. It emerges as a strategic actor in fostering sustainable, socially engaged, and technologically advanced urban communities.

The synergy between sport, regional development, and intelligent technologies is no longer a conceptual aspiration but is being actively realized through established governance models and territorial development policies.

EMPIRICAL ANALYSIS – CASE-BASED APPROACH

This section presents a comparative analysis of three leading football clubs FC Barcelona, Real Madrid CF, and Manchester City FC - each operating within distinct organizational, economic, and cultural contexts. The primary objective of the analysis is to assess the actual extent of digital transformation, the application of intelligent technologies, the development of competitive advantages, and the impact of club activities on regional development.

FC Barcelona, Spain - Technological Transformation and Regional Leadership

FC Barcelona has emerged as one of Europe's foremost football clubs, with its development over the past decade exemplifying a high degree of digital transformation. The organization has not merely invested in sports technologies, but has also constructed a comprehensive managerial model grounded in innovation, global positioning, and a strategic commitment to regional development. A central element of this transformation is the Barça Innovation Hub, which operates as a research and development platform integrating sports science, technological advancement, and business innovation. Through this initiative, the club promotes internal innovation while also building strategic partnerships with universities, corporate entities, and sports institutions. The scope of its activities encompasses player performance analytics, injury prevention, virtual simulation, sports medicine, and fan behavior studies (24, 25). The club stands as a leading example of the application of artificial intelligence in marketing operations, CRM systems, and automated fan engagement. FC Barcelona uses AI technologies to segment audiences by interest, language, and geographic origin, enabling real-time content personalization. Its partnership with Spotify represents more than a commercial agreement; it constitutes an integrated digital strategy that combines music and sports content within a unified communication ecosystem (26). Barcelona is also recognized as a pioneer in leveraging big data for sports-technical decision-making, including tactical modeling,

individual movement analysis, and transfer strategy planning (27).

On the financial front, the club underwent a significant transformation following a period of structural instability. With reported revenues exceeding €1.259 billion for the 2022/23 season (based on the most recent official figures), the club has managed to restore financial stability through a combination of sporting success and effective digital monetization. Nonetheless, it remains vulnerable due to high debt levels and reliance on external commercial partnerships (28). At the regional level, the club plays a powerful territorial role. The Espai Barça project is designed as a large-scale urban center, encompassing a renovated stadium, green zones, commercial facilities, and sustainable transportation infrastructure. Moreover, the club's symbolic status as a representation of Catalan cultural identity reinforces the intersection of sport, politics, and regional cohesion (25).

FC Real Madrid, Spain - Institutional Transformation and Global Digital Brand

FC Real Madrid has established itself as a model of contemporary football club governance, where sporting, business, and technological strategies operate in close synergy. The club is characterized by a high level of institutional maturity, whereby market and management processes are coordinated through a centralized structure aimed at consolidating global leadership in professional sports. A key component of Real Madrid's transformation is its integrated digital platform for fan engagement management, which combines CRM solutions, automated communication channels, and behavioral analytics databases (26). The club employs big data-driven analytical models to assess individual player performance, anticipate market trends, and strategically guide transfer policy decisions (27).

Additionally, Real Madrid operates a fully integrated online store, a digital subscription platform, and personalized mobile applications, all contributing to an expanded digital presence and enhanced user experience. A pivotal element of the club's digital strategy is the redevelopment of the Santiago Bernabéu stadium into a smart multifunctional facility. The new stadium integrates advanced technologies such as automated lighting systems, video analytics platforms, contactless payment infrastructure, 360-degree digital

visualization capabilities, and a modular digital framework tailored to host a broad array of events from music concerts to international trade exhibitions. Rather than functioning solely as a sports venue, the stadium is envisioned as an economic and cultural hub embedded within Madrid's urban fabric (20). At the regional level, Real Madrid applies an economic integration model wherein the stadium and its surrounding infrastructure serve as a catalyst for the development of the Chamartín district and the wider city. The Santiago Bernabéu reconstruction project is viewed not merely as a sports initiative, but as a strategic instrument for economic and image-driven transformation of the metropolitan landscape. The expected annual economic impact exceeds €470 million, accompanied by the creation of substantial direct and indirect employment opportunities in sectors such as tourism, commerce, event management, and auxiliary services (33). While the club may not bear the same cultural symbolism for a specific regional identity as FC Barcelona does for Catalonia, its role in the economic and infrastructural dynamics of the Spanish capital is indisputably significant.

The financial performance of Real Madrid confirms the long-term sustainability of its strategic management model. For the 2022/2023 season, the club reported revenues of €1.318 billion the highest among European clubs and achieved a net profit of €12.5 million, despite significant capital expenditures associated with the stadium's reconstruction and inflationary pressures (29). Real Madrid is not only a leading economic entity but also the most valuable brand in the global sports sector (30). In terms of sporting competitiveness, the club remains a dominant force in both La Liga and the UEFA Champions League. Over the past decade, it has secured five European titles, solidifying its status as an institution with global athletic influence. This on-pitch success is reinforced by a targeted strategy of digital expansion that has transformed the club's brand into a global platform engaging an audience of over 500 million people worldwide (21). Real Madrid functions simultaneously as an institutional and digital entity, utilizing its sports infrastructure not merely in pursuit of athletic excellence, but as a tool for urban development, economic stimulation, and technological transformation. This strategic orientation sets it apart from culturally

embedded models of other clubs and positions it as a unique global sport-corporate actor.

Manchester City FC, England – Technological Maturity and Urban Transformation through Sport

Manchester City has emerged as one of the most prominent examples of a football club's transformation into a digitally driven corporation with an explicitly defined mission in urban development and social inclusion. This transformation occurs across multiple interconnected dimensions ranging from the implementation of cutting-edge technologies in sporting and administrative management to active involvement in urban regeneration and community engagement initiatives. The club's strategy integrates technological advancement, a corporate governance framework, and territorial impact, positioning it as a unique case in contemporary sports management. At the core of this model stands the City Football Group, a global multi-club network within which Manchester City functions as a central hub for technology and analytics. Management practices, digital platforms, and analytical tools developed in Manchester are adapted and applied in clubs located in Australia, the United States, Japan, and other regions. Manchester City has developed a large-scale cloud and information infrastructure that synchronizes sporting data, commercial operations, and strategic communications on a global level (26).

The club's technological capacity is most comprehensively realized through the Etihad Campus a multifunctional complex combining sports, education, and innovation facilities. Described as a "smart district," this complex integrates IoT networks, sensor systems, AR/VR simulations, and analytical centers for medical and training diagnostics. In addition to enhancing athletic performance, this infrastructure facilitates innovation transfer between academia, local businesses, and public institutions (23). Manchester City's digital transformation extends beyond its sporting operations to encompass a comprehensive consumer model based on personalization and technological integration. The club invests in subscription-based platforms, adaptive fan content, matchday experience management systems, and products targeting a global audience. As a result, it has positioned itself as a digitally focused organization with a strong

sporting identity and commercial adaptability (22). The club's financial indicators clearly reflect the effectiveness of its strategic framework. For the 2022/23 season, Manchester City reported approximately €830 million in revenue (31), demonstrating consistent growth in operational profitability and capital stability (30). In contrast to other top clubs, it maintains relatively low levels of debt and operates a well-balanced revenue model that includes commercial, media, and sporting streams.

Perhaps the most significant impact of Manchester City manifests at the regional level. The eastern part of Manchester historically lagging in socio-economic development has undergone a profound transformation due to investments associated with the Etihad Campus. Although the precise economic valuation of the Etihad Campus's impact has not been officially disclosed, public documents and media analyses consistently cite it as one of the most significant sources of employment, private investment, and economic revitalization in East Manchester. Based on the scale of investment and the facility's capacity, the estimated economic contribution to the local economy reaches several hundred million pounds annually (32).

In this context, Manchester City serves as an innovation catalyst, combining the roles of a football club, digital operator, and regional investor. Unlike Barcelona, which acts through the lens of cultural identity, and Real Madrid, which follows an institutionalized model with a global orientation, Manchester City represents a hybrid strategic actor that integrates digital innovation with regional regeneration in a cohesive and forward-looking model.

COMPARATIVE ANALYSIS AND SYNTHESIS OF CASE STUDIES

The case study analysis of the three leading football clubs reveals that, despite their shared status as global sports organizations, there are significant differences in their governance models, technological strategies, and regional functions. Each club adopts a distinct approach to digitalization, competitiveness building, and interaction with the local environment determined by its specific historical, cultural, and economic context. (Table 1)

Table 1. Comparative analysis and synthesis of case studies

Club	Implementation Model	Technologies and Platforms	Primary Strategic Focus
FC Barcelona	Internal Innovation Ecosystem	Barça Innovation Hub, AI, Big Data, partnerships with Spotify	Personalization, sports science, brand identity
Real Madrid CF	Centralized Corporate Integration	CRM, e-commerce, digital stadium, video and AR technologi	Global audience, digital market expansion
Manchester City FC	Group-Based Holistic Model	IoT, Cloud, AR/VR, City Football Group, smart campus infrastructure	Global governance, local urban regeneration

FC Barcelona emphasizes technological advancement that is closely intertwined with the club's identity and directed toward internally driven innovation processes. In contrast, Real Madrid consolidates its digital strategy within a highly institutionalized managerial framework, reflecting centralized corporate governance.

Meanwhile, Manchester City adopts an internationalized model, whereby technology, data, and management practices are orchestrated on a transnational scale through the operational network of City Football Group. **(Table 2)**

Table 2. Market Performance and Sporting Success

Indicator	FC Barcelona	Real Madrid CF	Manchester City FC
Revenues (2022/23)	€1.259 billion	€1.318 billion	€830 million
Sporting Achievements	Spanish La Liga Champion (2022/23)	5× UEFA Champions League titles in the past 10 years	English Premier League Champion (2022/23); domestic dominance
Financial Sustainability	Recovering	High	Moderately stable
Marketing and Brand	Cultural loyalty	Global symbol	Rapidly growing tech-driven brand

Real Madrid exhibits the highest level of economic sustainability and brand value on a global scale. FC Barcelona structures its financial model around a strong emotional bond with the local community and cultural

representativeness. Manchester City, in turn, achieves accelerated growth through an innovative economic model supported by sporting dominance and digital expansion. **(Table 3)**

Table 3. Functions, Scale, and Strategic Orientation

Indicator	FC Barcelona	Real Madrid CF	Manchester City FC
Territorial Model	Urban renewal with cultural framing	Economic integration	Urban transformation with social development goals
Flagship Project	Espai Barça	Nuevo Bernabéu	Etihad Campus
Institutional Role	Partner to public authorities	Independent corporate engine	Connector between business, city, and community
Expected Impact	Tourism, mobility, cultural vitality	Event-based revenues and commercial expansion	Employment, education, and social cohesion

FC Barcelona implements a model of integrated cultural urbanization, wherein sports infrastructure is interwoven with local identity and public space. Real Madrid contributes to the economic restructuring of the capital city through investments in multifunctional infrastructure with high market value. Manchester City, in turn, adopts a holistic approach to sustainable urban regeneration that combines technological innovation with social responsibility, focusing on the revitalization of marginalized areas.

The comparative analysis of the three leading football clubs demonstrates that no universal model of organizational effectiveness exists in contemporary sports management. Successful practices are shaped by the regional context, cultural framework, and managerial philosophy inherent to each institution. While smart technologies are indeed a core driver of competitive advantage, their strategic impact unfolds most fully when embedded in broader territorial, social, and economic processes. In the globalized market environment, sports organizations are no longer assessed solely by their on-field performance, but by their capacity to act as social innovators, urban investors, and adaptive digital brands.

CONCLUSION AND RECOMMENDATIONS

This study has demonstrated that smart technologies occupy an increasingly central role in the strategic development of leading European football clubs. Their impact extends beyond athletic performance enhancement, becoming fully integrated into managerial processes, marketing practices, and long-term interaction models between clubs and their respective regional environments. The case study analysis of FC Barcelona, Real Madrid CF, and Manchester City FC reveals three distinct yet effective strategies for achieving competitiveness and regional influence. FC Barcelona embeds technological solutions within a cultural identity and urban collaboration framework. Real Madrid constructs a model of digitally driven economic dominance focused on a multifunctional sports complex with global projection. Manchester City, in contrast, executes a full integration of club and city, whereby sport serves as a lever for social rehabilitation and economic revitalization of a peripheral urban area.

The overarching conclusion is that smart technologies alone do not ensure sustainable

competitive advantage or regional development. Their effectiveness depends on strategic governance, the presence of a local development vision, and the ability to build networks linking sport, business, and the public sector. It is precisely this integrative capacity that determines whether technological solutions will remain isolated tools or become genuine drivers of transformation.

The recommendations derived from this research emphasize the need for an integrated approach to the implementation of smart technologies in sport. For clubs undergoing growth, it is crucial that these technologies be embedded within a comprehensive strategy that unites athletic goals, business sustainability, and social engagement. Organizations should focus on developing their own digital infrastructure including databases, CRM systems, and personalized platforms to achieve greater autonomy and strategic agility. Regional and national authorities should establish mechanisms for public-private partnerships that facilitate the involvement of sports institutions in territorial development and social transformation, particularly in vulnerable areas. The creation of a regulatory framework promoting sustainable sports investment with a digital component is a necessary condition for effective urban integration. For the academic community, the findings underscore the importance of studying sports clubs as platforms for innovation that extend beyond the domain of athletics, incorporating perspectives from urban studies, digital culture, and economic governance. Special attention should be paid to comparative research involving clubs from diverse socio-economic and political contexts, including regions such as Eastern Europe, South America, and Asia.

REFERENCES

1. Wiśniewski, A. (2020). Competitiveness of sports market enterprises: determinants, classification, challenges. *Ekonomia i Prawo. Economics and Law*, 19(2), 367–377. <https://doi.org/10.12775/EiP.2020.024>
2. Gill, S. A., Javed, S., Naseer, A., & Rajab, S. (2024). Usage of Artificial Intelligence Reshapes the Prevailing Scenario of Today Sports at the Globe. *THE SPARK" A HEC Recognized Journal"*, 9(1), 1-8.
3. Hu, T., Wang, X., He, Q., & Bei, J. (2024). Coupling development of sports industry and tourism industry based on internet of things. *PLOS ONE*, 19(4), e0299080.

- <https://doi.org/10.1371/journal.pone.0299080>
4. Rausch, L., Burtscher, J., & Ruedl, G. (2024). How to Embrace Interdisciplinarity in Sport Science. *Current Issues in Sport Science* (CISS). https://doi.org/10.15203/CISS_2024.11515
 5. Ribeiro, A.M, Sousa, B. B., & Goncalves. (2025). The Relationship between Sports Clubs and Regional Development: Destination Management in Barcelos (Portugal).
 6. Zhang, W., Jia, C., Liu, Z., & He, P. (2025). Strategies for enhancing the value of the sports tourism industry supported by multi-sensor network technology. *Wireless Networks*, 31(2), 1587–1599. <https://doi.org/10.1007/s11276-024-03470-w>
 7. Kozma, G., Teperics, K., & Radics, Z. (2014). The changing role of sports in urban development: A case study of Debrecen (Hungary). *The International Journal of the History of Sport*, 31(9), 1118–1132. <https://doi.org/10.1080/09523367.2014.927457>
 8. Milusheva, V. (2012). Methodology for Assessment and Analysis of Industrial Firm Competitiveness. (4), 95–104.
 9. Valchev, V. (2024) Tendencies in the implementation of smart technologies in the sports industry. *Industrial Growth Conference 2024*, Az-buki National Publishing House, 246-257, <https://doi.org/10.53656/igc-2024.16>
 10. Greenfly. (2023). How Sports Teams Use AI to Drive Fan Engagement. Retrieved from <https://www.greenfly.com/blog/social-media-in-sports/>
 11. Mallen, C. (2019). *Sport Facility Operations Management: A Global Perspective* (3rd ed.). Routledge.
 12. Ivich, D. (2023). Fan engagement strategies in digital sport ecosystems. *Sports Business Journal*, 15(2), <https://www.footballbusinessinside.com/artificial-intelligence-for-fan-involvement-in-football>
 13. Allied Market Research. (2024). Artificial Intelligence in Sports Market Size. Retrieved from <https://www.alliedmarketresearch.com/artificial-intelligence-in-sports-market-A12905>
 14. Deloitte (2023). Sports Industry Outlook 2023: Navigating disruption in a changing landscape. <https://www.deloitte.com/gh/en/Industries/tmt/perspectives/sports-industry-outlook.html>
 15. Porter, M. E. (2001). The competitive advantage of nations. *Harvard business review*, 68(2), 73-93.
 16. Schmidt, S. L., Gracht, H. A., Beiderbeck, D., & Heidemann, G. (2023). AI, blockchain, and immersive technologies: metaversal business models of professional football clubs in 2030.
 17. Tadesse, M. (2024). The Production of Smart Cities: An Analysis of Barcelona and Toronto.
 18. Liu, X., He, L., Chen, N., & Chen, K. (2025). Land redevelopment based on sports and cultural projects: A study on the regeneration of old industrial areas in Dortmund, Germany. *Journal of Natural Resources*, 40(1), 112–124. <https://doi.org/10.31497/zrzyxb.20250112>
 19. Poulsen, N. J. L. (2021). Digital transformation in sports.
 20. Li, X. (2024). Innovative Management and Economic Analysis of Business Models in Sports Enterprises: Enhancing Competitiveness Through Strategic Practices. *Revista de Psicologia del Deporte (Journal of Sport Psychology)*, 33(3), 93–104.
 21. Larsen, F. R. (2023). Market Entry for Danish Sports Tech Companies to the UK Market.
 22. Baroncelli, A., & Ruberti, M. (2022). Smart sport arenas make cities smarter. In *Managing Smart Cities: Sustainability and Resilience Through Effective Management* (pp. 89-104). Cham: Springer International Publishing.
 23. Jinga, G. (2024). Sports Marketing and Management: Strategies for Success in the Digital Age. *Revista de Management Comparat International*, 25(3), 586-594.
 24. Ginesta, X., Ordeix, E., & Payne, G. (2024). STUDYING FC BARCELONA AS A CORPORATE BODY: How to Become a Global Entertainment Multinational in the Post-Covid Era. In *FC Barcelona* (pp. 159-173). Routledge.
 25. Balzano, M., & Bortoluzzi, G. (2023). The digital transformation of soccer clubs and their business models. *Impresa Progetto*, 1.
 26. Mohammadi, S., Pashaie, S., Ghaffarisadr, S. I., & Rayner, M. (2025). Opportunities and Challenges of Leveraging Artificial Intelligence (AI) in Sport Marketing. *Advancing the Marketing Technology (MarTech) Revolution*, 233-272.

27. Cacho-Elizondo, S., & Álvarez, J. D. L. (2020). Big data in the decision-making processes of football teams integrating a theoretical framework, applications and reach. *Journal of Strategic Innovation and Sustainability*, 15(2), 21-44.
27. Fernandes, A. L. P. (2024). AI in Sports: A Game-Changer for Performance.
28. FC Barcelona. (2023). Financial Report 2022/23: Net Profit of €30.4 Million Announced. Retrieved from: <https://www.fcbarcelona.com/en/club/news/3703615/fc-barcelona-announces-after-tax-net-profit-of-304-million-euros-in-202223>
29. Real Madrid. (2023). Financial Results 2022/23: Real Madrid Closes the Year with a €12 Million Net Profit. Retrieved from: <https://madridistanews.com/en/news/detail/real-madrid-close-the-2022-23-financial-year-with-positive-result-of-12m-euros>
30. Deloitte. (2023). Football Money League 2023. Deloitte Sports Business Group. <https://www2.deloitte.com/uk/en/pages/sports/articles/deloitte-football-money-league.html>
31. Manchester City FC. (2023). Annual Report 2022/23. Retrieved from: <https://www.mancity.com/annualreport2023/wp-content/uploads/2023/11/manchester-city-annual-report-2022-23.pdf>
32. Manchester City Council. (2024). Etihad Campus Progress Update. <https://democracy.manchester.gov.uk/documents/s49601/Sports%20City%20Etihad%20Campus%20progress%20update.pdf>
33. Lavin, J. M., & Jimenez-Sanchez, Á. L. V. A. R. O (2024). The case of the Santiago Bernabéu Stadium.

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