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Archives in Sport Management and Leadership
Vol. 3, No. 2, 2025, pp. 20 - 33

Twin Transformation in Sports Marketing: The use of storytelling in Grounded Theory

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Article Info

Article type:
Research Article

Received:
01 July 2025
Accepted:
16 Aug 2025
Published online:
20 Dec 2025

Abstract

The two forces reshaping industries in the 21st century are Digital Transformation (DT) and Sustainability which are referred to as twin transformations. Dual transformations are now ubiquitous in sports as fans and sports institutions urge clubs to be socially and technologically innovative. However, there is limited academic research at this intersection, especially in the context of sports marketing. This study uses a qualitative approach informed by Strauss and Corbin's grounded theory (GT). Semi-structured interviews were held with 15 participants. The data were interpreted by open, axial, and selective coding. The storyline method, which describes the dynamic interaction of the causal, contextual, and intervening elements of an event, was added in the last step of theory construction to describe the processes of digital sustainability in sport. Key findings portray how digital technology makes sustainable sports marketing possible by fostering eco-friendly marketing, improving fan interactions, and lessening ecological footprints. Fueling these advantages, however, inadequate infrastructure, a lack of governing frameworks, and digital inequality pose considerable hindrances. Synthesis through storytelling demonstrates theoretic convergence to show how sports firms embrace change by weaving digital sustainability into business frameworks, trimming costs, and reinforcing stakeholder confidence. The primary goal of this research is to illustrate the importance of strategically linking digital initiatives and sustainability objectives in the context of sports. It describes the steps processes through which organizations can align social innovation with digital innovation by systematizing evidence into a theory to strengthen social responsibility. Such a theory can inform future initiatives in policy development, brand-building, and engaging fans in sustainable practices.

Keywords: Digital Transformation, Fan Engagement, Grounded Theory, Sports Marketing, Sustainability

Cite this article: Pashaie, S., Golmohammadi, H., & Tekin, A. (2025). Twin transformation in sports marketing: the use of storytelling in grounded theory. *Archives in Sport Management and Leadership*, *3*(2),20 - 33. doi: 10.22108/asml.2025.145809.1086

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Introduction

Digital transformation (DT) and sustainability, known as twin transformations, have become two important forces that are reshaping industries in the 21st century (Chen et al., 2024; Christmann et al., 2024; Crome, 2025; Pappas et al., 2019; Robertsone & Lapiņa, 2023). The interaction of twin transformations involves two fundamental mechanisms: DT enables sustainability transformation, while sustainability transformation guides DT (Crome, 2025). As DT rapidly advances and fundamentally redefines new ways of working and business models (Kraus et al., 2021; Tohãnean et al., 2020; Zafar et al., 2025), organizations, particularly those operating in highly competitive arenas such as sports marketing, face mounting pressure to adapt and innovate (Pashaie et al., 2025). The transformative impact of DT is evident across diverse sectors: platforms like Booking.com and Airbnb have revolutionized the hotel industry (Verhoef et al., 2021), Spotify has reconfigured the music landscape (Wlömert & Papies, 2016), and iconic brands such as Starbucks have undergone substantial digitalization to remain competitive (Fitzgerald, 2013). Such transformations have been enabled by a suite of emerging technologies, including the Internet of Things (IoT), big data analytics, virtual reality (VR), augmented reality (AR), cloud computing, mobile technologies, and artificial intelligence (AI) (Mohammadi et al., 2025).

DT can be defined as a transformative process in which organizations change value-creating processes by adopting digital technologies in response to changes in the business environment (Vial, 2021). DT enhances innovation because it requires the acquisition of new knowledge and skills, demands new forms of collaboration across organizations and industries, promotes the creation of new business models, and leads to the sustainable use of organizational resources (Armengaud et al., 2017; Mayakova, 2019; Tabrizi et al., 2019). With the cultural and structural changes of the entire organization caused by DT (Hanelt et al., 2021; Jones et al., 2021; Kraus et al., 2021; Schneider & Kokshagina, 2021; Singh & Hess, 2020), DT also catalyzes further transformations, such as the transformation of governance, human resources, and information technology functions in organizations (Mergel et al., 2019; Sia et al., 2021).

Sports organizations are no exception to these dynamics. Recent surveys indicate that approximately 80% of sports organizations are actively pursuing DT strategies to maintain competitiveness (Stegmann et al., 2023). Nevertheless, despite the widespread commitment to DT, between 70% and 95% of DT initiatives reportedly fail due to a complex interplay of technological, organizational, and cultural challenges (Mohammadi et al., 2023). DT offers an array of advantages: it enhances operational flexibility (Parviainen et al., 2017), boosts productivity and efficiency (Li et al., 2025; Toanca, 2016), facilitates market expansion (Pereira et al., 2022), and equips organizations with superior capabilities to recognize and respond to emerging opportunities and threats (Toanca, 2016). Furthermore, DT drives process automation, reduces operational costs, improves strategic decision-making, fosters innovation (Rupeika-Apoga et al., 2022), and helps organizations align with shifting business environments (Ji & Li, 2022). Through the strategic use of social media platforms, mobile applications, big data analytics, and AI-driven personalization, brands now offer highly tailored fan experiences (Golmohammadi & Pashaie, 2025; Sbrighi, 2024), cultivating deeper loyalty and driving improved financial outcomes (Bayindir, 2024; Pashaie & Nasirpour, 2024). Additionally, immersive technologies such as AR and VR have introduced new, engaging modes of fan participation and experience (Cossich et al., 2023; Emadi Sadeghi et al., 2023). Critically, it has revolutionized customer engagement models, enabling brands to forge deeper and more meaningful connections with fans and broader society (Carrijo et al., 2021; Pashaie et al., 2024; Romanova & Shvalev, 2023). Evidence indicates that both DT and digital marketing significantly impact various aspects of branding. Specifically, DT enhances brand promotion and positioning in the market, as well as influencing the growth of e-commerce. Similarly, digital marketing plays a crucial role in strengthening brand promotion, improving brand positioning, and expanding e-commerce activities. (Golchi et al., 2023).

Parallel to the acceleration of DT, sustainability has become a central issue in the discourse surrounding sports marketing (Nazari Gashnigani & Moradi Chaleshtori, 2025). In today's environment, sustainability is no longer a peripheral concern but a core element of corporate strategy (Harris, 2000; Zahedi, 2011), and a key differentiator for brands seeking to build trust and loyalty among increasingly conscientious consumers (Rahimi & Taheri, 2024). To survive and ensure sustainable development, companies and organizations must

continuously improve their products, processes, and organizations while remaining efficient and effective (Robertsone & Lapiņa, 2023). When developing new products and services, companies can focus more on sustainable and environmentally friendly solutions (Dias et al., 2022). Stakeholders increasingly recognize that sustainability initiatives, encompassing social, economic, and environmental dimensions, present not only ethical imperatives but also strategic marketing opportunities (Chard et al., 2013; Khodadadi et al., 2019; Zafar et al., 2025). The growing convergence of DT and sustainability signals a transformative juncture in sports marketing (Glebova & Madsen, 2024). Beyond their entertainment value, sports events and organizations serve as influential platforms for promoting social, cultural, and environmental values (Mokhtarpour, 2019).

As public awareness of social and environmental issues intensifies (Walters, 2009), sports organizations recognize that social responsibility is integral to maintaining legitimacy and fostering long-term fan engagement (Salarvand, 2020). Brands that actively promote sustainable practices not only contribute to societal well-being but also strengthen their competitive positioning (Akrami et al., 2020). Simultaneously, strong digital capabilities have emerged as critical enablers of success, particularly in digital-first sectors such as e-sports (Mohammadi et al., 2023). The intersection of DT and sustainability thus presents significant opportunities for sports marketing innovation (Fekrat & Jaberi, 2024). Digital technologies offer powerful tools for amplifying sustainability initiatives (Karimi & Ahmadi, 2024) and mobilizing fans toward social and environmental causes (Mehra et al., 2025). For example, brands can leverage digital campaigns to fundraise for environmental projects, promote eco-friendly practices, and drive broader behavioral change among their fanbases. Such initiatives simultaneously reinforce brand reputation and deepen fan loyalty, creating a virtuous cycle of social and economic value creation.

However, the integration of DT and sustainability is not without challenges (Brunetti et al., 2020; Chen et al., 2024). Rapid technological advancements and escalating consumer expectations have introduced new complexities into the sports industry landscape (Ratten et al., 2021). Despite the proliferation of DT initiatives, substantial gaps remain in the literature regarding how DT creates tangible value and drives sustainable outcomes (Stegmann et al., 2023). Measuring the impact of digital technologies on sustainability goals remains difficult (Liu et al., 2019), and issues such as data privacy (Karimi et al., 2024a), high resource demands, and the need for a supportive organizational culture further complicate progress (Karimi et al., 2024b; Li et al., 2025; Trushkina et al., 2020). Moreover, DT may have negative effects, especially on environmental sustainability, if not managed responsibly (Robertsone & Lapiņa, 2023). In countries like Iran, additional barriers include the absence of clear technology regulations, political restrictions affecting internet access, and lack of support for developers (Feiz et al., 2022). Given these challenges, sports organizations must develop clear, coherent strategies that explicitly integrate DT and sustainability objectives (Mohammadi et al., 2025). These conditions highlight the need for coherent strategies that align DT initiatives with sustainability goals, requiring targeted investment in infrastructure, skilled human resources, and ethical governance systems.

Given these complex challenges, it is essential to explore not only the limitations but also the strategic opportunities that emerge from the twin transformation of DT and sustainability. Digitalization plays a vital role in this process by offering tools to enhance efficiency, transparency, and stakeholder engagement. Twin transformation seeks to harness the synergies between digital and sustainable innovation while addressing their intertwined challenges (Crome, 2025). Although existing studies recognize DT as a potential driver of sustainable development, more comprehensive research is needed to understand its impact in specific contexts (Feroz et al., 2021; Hrustek, 2020; Robertsone & Lapiņa, 2023). Accordingly, this article investigates how DT and sustainability intersect in sports marketing and explores strategic pathways to leverage their combined potential. In a rapidly changing digital and socio-environmental environment, sports organizations that effectively integrate DT and sustainability will not only secure competitive advantage but also lead positive change in society. This study specifically aims to examine the mechanisms through which Twin Transformation can enhance value creation in sports marketing and to identify strategies that enable sports organizations to achieve both digital innovation and sustainable impact.

Research Methods

This research is conducted using a qualitative approach and the Grounded Theory (GT) method by Strauss and Corbin (Strauss & Corbin, 1994). The aim of this study is to investigate and analyze the challenges and opportunities arising from the intersection of DT and sustainability in sports marketing. The qualitative approach is employed to gain a deeper understanding of phenomena and to analyze the experiences (Pashaie et al., 2023) and perspectives of individuals regarding DT and sustainability in sports marketing. This approach allows the researcher to analyze the topic from various viewpoints and to achieve new and innovative findings.

The statistical population of this research comprised individuals active in the field of sports marketing, including club managers, sports media experts, and digital marketing consultants. Following the GT approach and purposive sampling, 15 participants were selected based on their direct professional experience in sports marketing and digital initiatives. The interviewees were selected through purposeful sampling, supplemented by the snowball technique. Purposeful sampling aligns with qualitative research norms, offering a robust strategy for gathering insights when exploring new or complex phenomena (Bernard, 2017; Creswell & Clark, 2017). The sample size of fifteen aligns with qualitative research norms, where 10-20 participants are often deemed sufficient to reach saturation, particularly in studies involving expert interviews (Creswell & Poth, 2016; Danaeifard et al., 2004). For instance, Boddy (2016) suggests 12 participants, while Hennink and Kaiser (2022) recommend sample sizes ranging from 9 to 17 interviews to achieve saturation in qualitative research. Ultimately, fifteen participants were chosen to achieve data saturation, which is the point at which no new themes emerge from additional interviews. Data saturation is a critical criterion for ensuring rigor in determining sample sizes in qualitative research. All participants voluntarily agreed to partake in the study and provided recorded consent. They were assured of the confidentiality of their data and personal information (See Table 1 for more details.).

Table 1- Demographic characteristics of the interviewee

Interviewee	Work Experience	Role in Research	Area of Expertise	Education	Age	Gender
P1	≤ 5 years	Faculty member	Digital Transformation and Sustainability	PhD	48	Male
P2	6-10 years	Senior Manager	Sports Marketing	PhD	38	Male
P3	≥ 10 years	Faculty member	Digital Transformation	PhD	52	Male
P4	6-10 years	Researcher / University lecturer	Digital Consulting	PhD	44	Male
P5	6-10 years	Senior Manager	Sports Marketing	PhD	48	Female
P6	6-10 years	Senior Manager	Digital Consulting	Master	32	Male
P7	6-10 years	Researcher / University lecturer	Sustainability	PhD	46	Female
P8	≤ 5 years	Digital Platforms Manager	Sports Media	Bachelor	29	Female
P9	≤ 5 years	Sports Marketing Specialist	Digital Consulting	Master	36	Male
P10	≥ 10 years	Faculty member	Digital Transformation	PhD	58	Male
P11	≥ 10 years	Faculty member	Sustainability	Master	47	Male
P12	≥ 10 years	Faculty member	Sustainability	PhD	62	Female
P13	6-10 years	Researcher / University lecturer	Sports Marketing	PhD	43	Male
P14	6-10 years	Sports Marketing Specialist	Sports branding	Master	39	Female
P15	6-10 years	Faculty member	Digital Transformation	PhD	41	Male

Data were collected through semi-structured interviews, which were conducted both in-person and online. These interviews included questions designed to facilitate a deeper analysis of individuals' experiences and

opinions. For instance, participants were asked how they believe DT can impact sports marketing strategies, what actions can be taken to integrate sustainability principles into sports marketing using digital technologies, and what challenges they foresee in achieving sustainability in sports marketing in light of DT.

Analysis was undertaken concurrently with the data collection process. Data analysis was conducted using GT techniques. The data were analyzed through open coding, axial coding, and selective coding in order to extract key patterns and themes. After the data collection, the analysis proceeds through several key steps. First, open coding is employed to identify and label the key concepts within the data. Next, axial coding is used to recognize the relationships between different codes and extract the main themes. Following this, selective coding is conducted to select and develop the core themes, ultimately shaping the final theory. Moreover, we used storyline in GT research to arrive at the main theory of the research (Birks et al., 2009). Finally, the results are compiled into an analytical report that presents insights, recommendations, and new models in the field of sports marketing.

Validity and reliability are fundamental concerns in all research methodologies, drawing substantial attention from scholars (Babbie, 2002). Some scholars further argue that the objective of qualitative researchers is not to conduct generalizable and replicable studies, but rather to offer novel theoretical insights or to develop foundational theories. Consequently, such criteria are deemed unnecessary for qualitative research. These experts contend that the primary consideration in qualitative research should be the reliability and accuracy of the data (Gall et al., 2016; Seale, 1999). Qualitative validity is a relative term and is considered an objective, not an outcome (Creswell & Poth, 2007). To ensure validity, the first author used a secondary researcher to double-check all data. Reliability, defined as the consistency of research findings, was assessed in this study through Inter-Coder Reliability (ICR). ICR is a measurement of how much researchers agree when coding the same data set.

According to the results, in this study we achieved an ICR of 78%, which exceeds the generally accepted threshold of 60% (Roulston, 2010), indicating a high level of agreement and reliability.

Findings

In this study, the GT method based on the Strauss and Corbin approach was used to analyze qualitative data obtained from 15 semi-structured interviews. This method includes three stages of open, axial, and selective coding, which are explained in detail below:

First step: Open coding

In the initial phase of the analysis, open coding was the technique of choice. In this phase, the interview data was examined and analyzed, and interview data was analyzed and subdivided into smaller, more meaningful units. The constant comparison method was applied to define the core ideas and preliminary themes, which enabled recognizing important concepts and preliminary ideas within the data. Initially, 136 codes were identified; however, after removing duplicates and overlapping items, the number was reduced to 92 codes. The 92 codes identified were based on the three central questions designed around the role of DT within the context of sustainable sports marketing. This stage was vital to structuring the raw data, and labeling concepts assisted in forming dense concepts which were clustered into early preliminary categories. In the course of the study, we collected data through 15 interviews and identified striking quotes which captured the essence of the interviewees' viewpoints. These quotes went through a phase of open coding which helped in identifying important themes and ideas relevant for our research.

For example, one participant noted, ‘P2’ Alluded to the evolving the needs of the fans saying, modern fans expect to more engagement, not more observation. They expect to take part by through mobile phones and social media.’ This expresses greater expectation towards fan engagement. ‘P5’ also discussed about the organization’s attempt towards saving operational costs as a result of transitioning from a printed advertisement to a digital, eco-friendly one which we placed under the reduction of cost because of green digital strategy. Additionally, ‘P8’ spoke about digital marketing, as one of the investment an organization

makes to enhance their infrastructure and emphasized on the marketing tools which said organization would be enabled to use. Such marketing technologies improve the capability of its infrastructure, enabling us to refer to it infrastructure as digital enablers. Different older fans also expressed their support for more traditional media which split fans into opposing digital divides. Furthermore, "P14" discussed about a campaign about sustainability and talked about the fan engagement through online narrative and emotional appeal which we placed under the use of narrative technique in sustainability campaign. 'P6' also expressed concern about vague legal structures within the country and we coded this as legal-regulatory barriers to transformation.

Second step: Axial coding

In the second step of data analysis, axial coding was used to find connections between the open codes and group them under broader categories. In this stage, one main category (called the core category) was selected to serve as the central idea of the study. Then, other related categories were connected to this core category based on their roles, such as causes, context, conditions, strategies, and outcomes. This helped to build a clearer structure and show how different ideas from the interviews are related to each other. Axial coding made it possible to organize the 92 open codes into 13 main categories and 6 subcategories, which provided a deeper understanding of the role of DT in sustainable sports marketing.

Table 2- Axial coding

Component	Description
Core Phenomenon	Digital Transformation in Sustainable Sports Marketing
Causal conditions	➢ There is a growing need for direct interaction with fans through digital media. ➢ Competition in the sports market is increasing. ➢ New generations are more comfortable with technology. ➢ There is pressure to make marketing activities more transparent. ➢ Environmental issues are becoming more important. ➢ Consumers expect brands to be more responsible.
Background conditions	➢ Sports clubs and organizations are becoming more digitally ready. ➢ IT infrastructure is improving. ➢ Marketing staff have different levels of digital skills. ➢ Organizational culture and innovation matter. ➢ People are more open to using new technologies.
Intervening conditions	➢ Financial resources for investing in technology. ➢ Laws and regulations related to technology and sustainability. ➢ Need for technical knowledge in digital and environmental areas. ➢ Digital gaps between different fan groups. ➢ Pressure from competitors and media.
Strategies	➢ Adding sustainability goals to marketing strategies. ➢ Creating green digital campaigns. ➢ Using data to optimize resource use. ➢ Training and empowering staff. ➢ Improving fan relationships through technology. ➢ Working with eco-friendly brands.
Consequences	➢ The brand is seen as more sustainable. ➢ Fan engagement increases. ➢ Operating costs are reduced. ➢ Environmental performance improves. ➢ Competitive advantage becomes stronger. ➢ Innovation and social responsibility work together better.

Third step: Selective Coding and Final Grounded Theory

In the third and final stage, the researchers used the findings from the central coding stage to develop a GT about the phenomenon of the intersection of DT and sustainability: the future of sports marketing. This

stage was based on the storytelling method (Corbin & Strauss, 2014) and attempted to integrate all categories into a coherent, theory-driven narrative around the central phenomenon. Storytelling plays a vital role in qualitative research because it helps to clarify personal experiences and collective narratives (Birks et al., 2009; Lewis, 2019). Through storytelling, researchers can gain deeper insights into the feelings, motivations, and contexts of participants (Corbin & Strauss, 2014; Pavlenko, 2008). Construction of a theory that is grounded in the data and not influenced by external concepts is possible through the use of storyline (Birks et al., 2009).

Storytelling

The central idea of the theory is that DT acts as a key driver of sustainable sports marketing. The existing theory is expanded by introducing the concept of storytelling (Boldosova & Luoto, 2020). In today's professional sports, clubs and organizations are under growing pressure from fans, media, and global institutions to meet social and environmental responsibilities. In this situation, DT acts as a central phenomenon and plays an important role in redesigning sports marketing strategies toward sustainability. This transformation is driven by causes such as the need for better fan engagement, reducing traditional costs, and meeting the expectations of the digital generation (causal conditions). In a supportive environment, thanks to digital readiness, a culture of innovation, and staff training, sports organizations are better able to use digital tools for sustainable marketing (contextual conditions). However, this path is not without challenges. Organizations face barriers like the digital divide, limited resources, legal and regulatory issues, and difficulty in measuring digital sustainability (intervening conditions). To deal with these, they apply strategies such as adding sustainability principles to digital campaigns, using data to optimize resources, training employees, and improving digital communication with fans (strategies).

As a result, the outcomes include a stronger sustainable brand, higher fan loyalty, improved environmental and social performance, and a more durable competitive advantage. This study demonstrates that in the current era of digital technology, sports organizations can build marketing systems that not only drive business success but also actively support sustainability. By aligning digital innovation with environmental and social goals, sports organizations are able to enhance their market presence while contributing to broader sustainable development efforts.

Core Category/Theory

"Digital transformation (DT), as a platform for integrating sustainability into sports marketing, requires technological readiness, innovative strategies, and overcoming environmental and legal challenges, and leads to sustainable branding and stronger fan loyalty".

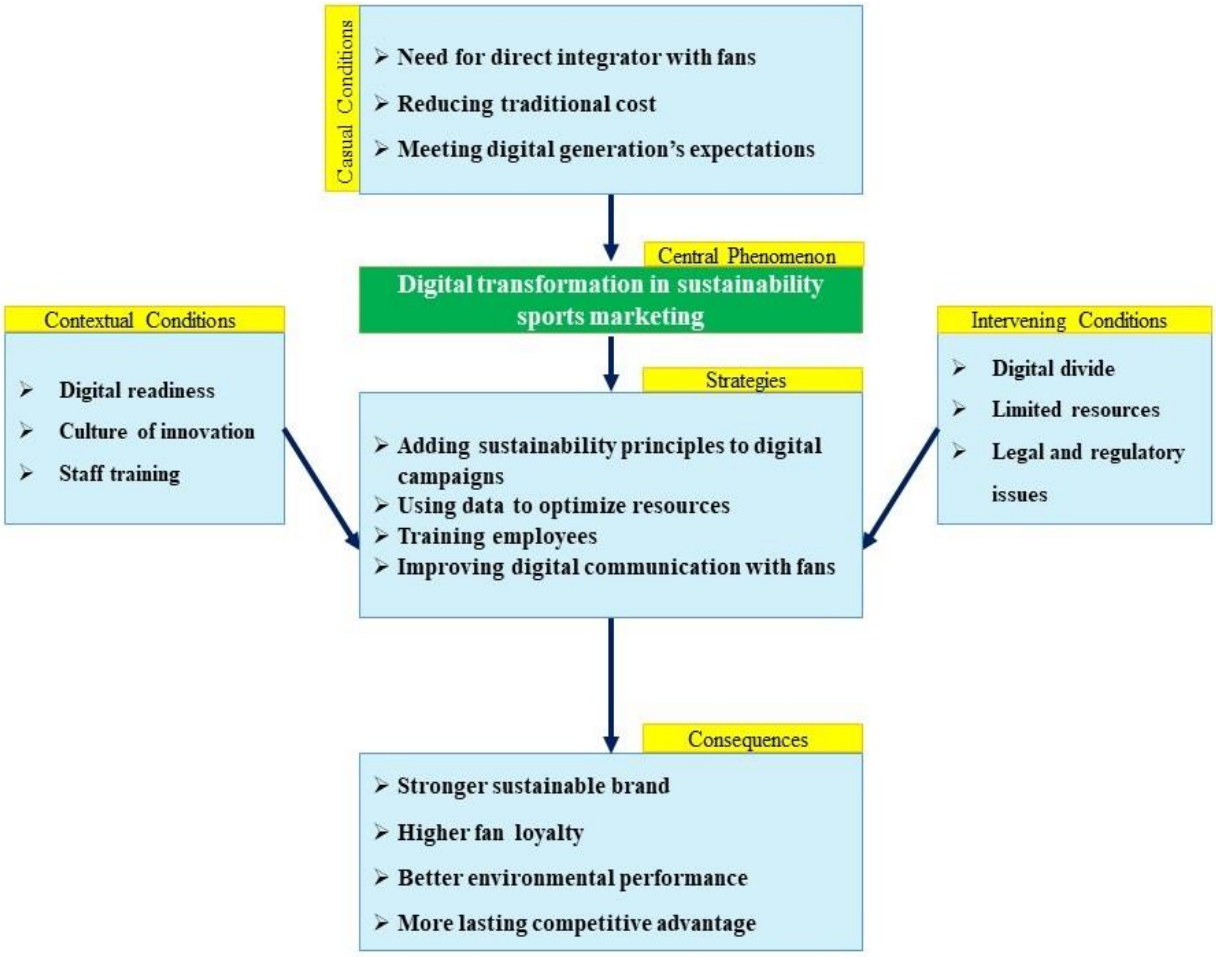

Figure 1. Paradigm model

Discussion

The results of this research confirm that digital transformation (DT) is more than a mere technology upgrade; it strategically facilitates the advancement of sustainability within the sports marketing ecosystem. As revealed through GT analysis, DT is both a response to and a reinforcing reaction to critical institutional, social, and environmental pressures. The relationship of DT and sustainability is increasingly being referred to as a "twin transformation" (Christmann et al., 2024; Crome, 2025) convergence that is a powerful driver for enhancing competitive and social legitimacy for sports organizations.

From a theoretical standpoint, identifying the causal, contextual, and intervening factors of the case study deepens insights on the multi-layered interactions that drive digital sustainability in the sports domain. As an example, notable causal conditions such as heightened consumer demands, the need for marketing accountability, and demographic changes toward more digitally-engaged audiences bolster previously established theories that emphasize the need for digital responsiveness in sports organizations (Mohammadi et al., 2023; Pashaie et al., 2025). The contribution of contextual enablers focuses on IT infrastructure, innovation culture, and human capital. These enablers align with the literature on digital maturity, which argues that organizations situated in technology-ready settings are more likely to achieve strategic DT-driven objectives (Rupeika-Apoga et al., 2022; Verhoef et al., 2021).

Importantly, the intervening conditions identified in this study such as regulatory uncertainty, resource limitations, and the digital divide mirror previous concerns about the uneven capacity of organizations, especially in emerging markets, to implement and sustain digital change (Stegmann et al., 2023). These challenges underscore the necessity for multi-level governance, investment in infrastructure, and stakeholder coordination to ensure equitable and scalable implementation of digital strategies in sport.

Strategically, this study indicates that effective digital sustainability in sports marketing requires a proactive integration of environmental values into campaign design, data-driven optimization of resources, and continuous capacity building (Ghalenoei et al., 2023). These findings are consistent with broader digital marketing frameworks, which emphasize personalization, engagement, and automation as levers for impact (Golchi et al., 2023; Pashaie et al., 2025). However, this research uniquely contributes to the literature by demonstrating how these digital levers can be purposefully aligned with sustainability objectives, thus moving beyond consumer-centric KPIs to embrace metrics related to social and environmental performance.

The theoretical model developed in this research highlights a virtuous cycle: successful digital-sustainability integration enhances brand credibility, deepens fan loyalty, and improves environmental outcomes that, in turn, reinforce competitive advantage. This resonates with stakeholder theory and legitimacy theory, which suggest that aligning business practices with societal expectations not only reduces reputational risks but also strengthens organizational resilience (Tewari et al., 2024).

Moreover, the study highlights several critical implications for managerial practice. First, successful DT in sports marketing requires deliberate leadership that fosters a shared sustainability vision across all organizational units. Second, the effectiveness of this integration is contingent upon the development of adaptive organizational cultures capable of embracing technological change while remaining anchored in ethical and environmental principles. Third, the study advocates for metrics frameworks that capture not just market performance but also sustainability impact an area that remains underdeveloped in current sports marketing analytics.

Finally, the findings raise critical questions for future research that directly stem from the unique theoretical model developed in this study. How can organizations measure the long-term ROI of digital sustainability strategies in ways that go beyond financial gains? What is the role of fan co-creation in shaping sustainable digital campaigns? And how can policymakers facilitate more inclusive digital environments that support innovation while ensuring social equity?

Conclusion

The research focused on the relationship between two concurrent transformations, Digital Transformation (DT) and sustainability, within the framework of sports marketing. This research investigates the impact of digital instruments on the sustainability and competitiveness of sports organizations using GT method and expert interviews. The results show that DT tends to start from within the organization, such as enhancing fan experiences and decreasing costs, and progresses through the adoption of advanced technologies, innovation-driven projects, as well as skilled personnel. Nonetheless, the journey is often met with pitfalls such as inadequate funding, low digital infrastructure, and vague policies. In addition, the research shows that through digital technologies, DT, especially, holds great promise in advancing sustainability. A step further, digital technologies can increase awareness and participation with sustainability issues on an individual level, thus leading to a more educated decision-making process and results in more sustainable actions. DT is vital for organizations since it allows the integration of sustainable measures into the business model while improving productivity. Trust and transparency are core pillars in any society. Digital technologies can enhance this kind of transformational shift. Without careful consideration of the sustainability of the technologies, they may turn into hindrances instead of engines of progress. Individual behavioral changes are imperative, however, achieving global sustainability goals necessitates broader organizational and systemic changes (Crome, 2025).

In the case of sports organizations, the integration of DT with sustainability concepts not only improves operational efficiency, but also enhances value creation and overall governance. Improved brand image, enhanced fan engagement, and organizational longevity are also by-products of this approach. This research is equally relevant to the executives and marketers who want to implement social and eco-friendly goals around tech trends by providing a practical framework and recommendations on how to strengthen sustainability and improve competitiveness.

Practical suggestions

The practical conclusions that stem from this study on the dual changes in the marketing of sports create a pathway for practitioners and policymakers that enables them to use creativity technology for a long-lasting impact. Specifically, sports organizations must ensure that DT objectives, like fan engagement programs, smart ticketing, and AI marketing systems, eco-friendly and socially responsible. Strengthening the digital infrastructure and focusing on workforce training in data and AI competencies are essential for more fully realizing the integration of DT and sustainability. Moreover, actively involving fans in participatory sustainable digital initiatives like interactive programs, gamified challenges, and virtual events encourages and strengthens loyalty and value co-creation in the sports marketing ecosystem. For enhanced accountability and the ability to track changes over time, organizations need to create integrated digital innovation and measurable impact indicators of sustainability initiatives such as greenhouse gas emissions per fan interaction. Lastly, technology partners and local and environmental activists should be included for collaboration to create the most impact with the concept of dual changes.

Acknowledgments

We sincerely thank all those who assisted me during this research.

Conflicts of Interest

The authors declare no conflicts of interest.

Funding

The authors declare that they have not received any financial support for the research, writing, and/or publication of this article.

Declaration of generative AI and AI-assisted technologies in the writing process

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

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