The Role of ESG Performance in Enhancing Intellectual Capital and Sustainability in European Football Clubs: A First Empirical Application

Alberto Manzari[1]

[1] Department of Human Sciences, Link Campus University, Rome (RM), Italy

Correspondence: Alberto Manzari, Department of Human Sciences, Link Campus University, Via del Casale di San Pio V, 44, 00165 Rome (RM), Italy. E-mail: a.manzari@unilink.it

Received: December 10, 2024 Accepted: December 26, 2024 Online Published: December 30, 2024

doi:10.5430/ijba.v15n4p22 URL: https://doi.org/10.5430/ijba.v15n4p22

Abstract

This study investigates the relationship between Environmental, Social, and Governance (ESG) performance and intellectual capital (IC) in professional football clubs. Using a quali-quantitative approach, the research analyzes secondary data from ESG scores and IC metrics of 17 European football clubs. Pearson correlation coefficients are employed to assess the links between ESG performance and IC dimensions, including player market value (human capital), social media engagement (relational capital), and stadium ownership (structural capital). The findings indicate that ESG practices positively influence intellectual capital, especially when IC components are considered collectively, demonstrating a stronger positive association than individual components. This underscores the synergistic effect of integrating intangible assets into a sustainability framework. The study contributes to theoretical understanding by linking ESG practices to value-creation strategies in professional sports. Practical implications highlight how football clubs can align ESG initiatives with recruitment, fan engagement, and infrastructure investments to enhance financial and social outcomes. Policymakers can use the results to promote ESG adoption in sports, while investors may view ESG performance as a marker of long-term stability and growth. This research empirically explores ESG and IC interplay in football, offering actionable insights and a framework for future studies.

Keywords: ESG, intellectual capital, sustainability, football clubs, value creation

1. Introduction

Integrating Environmental, Social, and Governance (ESG) factors into organizational strategies reflects a growing global emphasis on sustainability, transparency, and accountability. This trend aligns with increasing societal and regulatory expectations for organizations to adopt ethical and responsible practices. Professional football clubs uniquely combine business operations with cultural and social influence and offer an ideal context to analyze how ESG initiatives can influence organizational strategies and value creation. As entities with extensive global visibility and a diverse stakeholder base—including fans, sponsors, investors, and policymakers—football clubs are well-positioned to align sustainability initiatives with strategic goals (Beech & Chadwick, 2004; Aksoy et al., 2022). This research provides a novel perspective by bridging ESG practices with intellectual capital (IC), an area that has received limited attention in the sports industry, particularly in professional football.

Intellectual capital (IC) has been widely recognized as a critical driver of organizational success, particularly in industries where intangible assets dominate. Defined by Stewart (1997) and later developed in the context of football by Trequattrini et al. (2017), IC comprises human capital (e.g., the talent and market value of players), relational capital (e.g., stakeholder engagement and fan loyalty), and structural capital (e.g., ownership of key assets like stadiums). Together, these components underpin football clubs' competitive advantage and financial performance. Existing research has primarily focused on the financial and competitive dimensions of IC, often neglecting the role ESG practices can play in enhancing these intangible assets. This study addresses this gap by exploring the intersection of ESG initiatives and IC, emphasizing how sustainability-driven strategies can drive innovation and long-term value creation in football clubs. However, while the importance of IC in football is well-documented, limited research exists on the intersection of ESG practices and the development or enhancement of these intangible assets.

The growing relevance of ESG within the football sector is evident as clubs face increasing scrutiny over their environmental impact, social inclusivity, and governance standards (Banks, 2003; Cunningham, 2019). Stakeholders expect greater accountability and proactive sustainability measures, challenging clubs to innovate and integrate ESG principles effectively. However, these demands also present opportunities: for example, ESG practices can enhance relational capital through stronger fan engagement, human capital by attracting and retaining talent aligned with organizational values, and structural capital via investments in sustainable infrastructure (Aksoy et al., 2022; Barbu et al., 2022). This study sheds light on the transformative potential of ESG practices in shaping IC, arguing that clubs adopting these principles can better align intangible assets with strategic goals and stakeholder expectations. Despite the transformative potential of ESG practices, there remains a critical gap in understanding their role in shaping intellectual capital within professional football.

By integrating insights on ESG and IC, this research highlights how sustainability-oriented strategies can be leveraged to meet growing societal and regulatory demands and strengthen intangible assets, creating a competitive advantage for football clubs in global markets.

Given their dual role as cultural institutions and economic entities operating in competitive global markets, football clubs offer a compelling context for examining the interplay between ESG practices and IC. This research contributes to filling this gap by analyzing how sustainability-driven strategies can enhance intangible assets, thus providing both theoretical insights and practical applications for the sports industry and beyond.

This paper investigates the relationship between ESG performance and IC in European professional football clubs. It focuses on how ESG practices impact three core IC dimensions: human capital (measured by players' market value), relational capital (measured through fan engagement metrics), and structural capital (measured by ownership of facilities). The research employs a quantitative methodology, using data from the GSBS report 2022 (Global Sustainability Benchmark in Sports, 2022) and publicly available metrics to uncover patterns and correlations that highlight the potential of ESG initiatives to create value through intangible resources.

By bridging ESG and IC frameworks, this study addresses a significant gap in the literature and provides actionable insights for managers, policymakers, and stakeholders in the professional football sector. It highlights the importance of sustainability as a driver of innovation and value creation, proposing that football clubs leveraging ESG practices can strengthen their IC while responding proactively to societal and regulatory pressures. The remainder of the paper is organized as follows: Section 2 reviews relevant literature on ESG and IC, identifying theoretical underpinnings and gaps. Section 3 outlines the research methodology, detailing the data sources and analytical techniques. Section 4 presents the study's findings and their implications, while Section 5 concludes by summarizing contributions, discussing limitations, and offering directions for future research. Through this analysis, the paper emphasizes the strategic role of ESG practices in enhancing IC and driving long-term value creation in professional football.

2. Literature Review

In recent decades, intellectual capital (IC) has emerged as a fundamental resource for competitive advantage, particularly in industries characterized by high visibility and stakeholder engagement, such as professional football. Defined by Stewart (1997) and further refined by Sveiby (1997), IC is broadly categorized into three components: human capital (e.g., players' skills and market value), relational capital (e.g., fan engagement and sponsor relationships), and structural capital (e.g., stadium ownership and operational infrastructure). Within the football sector, IC represents both a strategic asset and a key driver of value creation (Beech & Chadwick, 2004; Barbu et al., 2022; Bunds & Casper, 2018).

The management and development of IC in football have evolved through several stages. Initially, clubs focused on recognizing and categorizing intangible assets, such as talented players and iconic brand identities (Anthony, 1965). This recognition phase paved the way for targeted investments in training, branding, and infrastructure (Trequattrini et al., 2011; Brunkhorst & Fenn, 2010; Capasso & Rossi, 2013). Subsequently, clubs adopted strategies to enhance IC by acquiring new skills and technologies, such as data analytics and digital marketing, which improved decision-making and operational efficiency (Berman, 2012; Carlsson-Wall et al., 2023; Coombs & Osborne, 2012).

The third phase involved the active utilization and expansion of IC assets, such as leveraging relationship networks to acquire sponsorships and implementing AI-driven tools to analyze player performance and fan engagement (Dorrego et al., 2013; Faccia et al., 2020; Geeraert, 2019). The final stage, characterized by continuous innovation, integrates sustainability practices into IC management, thus aligning with broader Environmental, Social, and Governance (ESG) goals (Daddi et al., 2022; Lozano & Barreiro-Gen, 2023; Hassan & Hamil, 2010).

The intersection of ESG principles and IC management has introduced new opportunities and challenges for football clubs. ESG practices have a direct impact on all three components of IC. For example, renewable energy and waste reduction investments enhance structural capital by improving operational sustainability (Kellison & Hong, 2015; Lucas et al., 2017; Kim et al., 2018). On the social dimension, diversity and inclusion initiatives strengthen human capital by fostering an equitable and inclusive workplace (Cunningham, 2019), while community outreach programs reinforce relational capital by deepening fan loyalty and stakeholder trust (Aksoy et al., 2022; Behnam et al., 2023; Liu et al., 2019).

Governance, the third pillar of ESG, has become increasingly critical for clubs aiming to maintain credibility and accountability. Strong governance frameworks, including transparent financial reporting and ethical decision-making, contribute to relational and structural capital by building stakeholder confidence (Banks, 2003; García & Welford, 2015; Lombardi et al., 2020). Furthermore, adopting CSR initiatives has been shown to generate long-term economic benefits by aligning club values with those of socially conscious investors and fans (Fifka & Jaeger, 2020; Dingle & Stewart, 2020; Marchi, 2011).

The strategic importance of IC lies in its ability to drive both sporting and financial performance. Human capital, exemplified by players' market value and skill levels, is pivotal for on-field success (Brunkhorst & Fenn, 2010; Radaelli et al., 2018; Montazeri et al., 2017). Clubs with strong human capital are more likely to attract sponsorships, secure higher broadcast revenues, and achieve competitive advantages in player transfers (Carlsson-Wall et al., 2023; Orr & Inoue, 2019). Relational capital, on the other hand, directly influences revenue streams through fan engagement and sponsorship deals. Clubs building and maintaining strong relationships with fans and sponsors often see enhanced brand equity and loyalty (Machado et al., 2020; Aksoy et al., 2022; Ruta et al., 2020).

Structural capital, including physical infrastructure and technological capabilities, provides the foundation for sustainable growth. Investments in eco-friendly stadiums and digital transformation initiatives are increasingly recognized as strategic imperatives for modern clubs (Lozano & Barreiro-Gen, 2023; Graham et al., 2020; Sartore-Baldwin & McCullough, 2018). By aligning these assets with ESG principles, clubs improve operational efficiency and position themselves as leaders in sustainability (Daddi et al., 2021; McCullough et al., 2016; Schubert, 2014).

Management control systems (MCS) have been vital in optimizing IC within football clubs. Traditionally focused on financial metrics, MCS has evolved to include non-financial indicators such as fan satisfaction, environmental impact, and social engagement (Kaplan & Norton, 1992; 1996; Schubert, 2014; Senaux, 2008). These systems enable clubs to align their IC assets with broader strategic objectives, such as maximizing wins, profits, and stakeholder engagement (Trequattrini et al., 2017; Anthony, 1965; Skoog, 2003).

For instance, clubs prioritizing profit maximization invest heavily in monetizing IC assets, such as merchandising and digital content (Brunkhorst & Fenn, 2010; Stern, 1998). Conversely, clubs focused on sporting success leverage human capital by investing in player development and analytics-driven strategies (Dorrego et al., 2013; Trequattrini et al., 2015). Finally, clubs aiming to enhance fan satisfaction often adopt community-driven CSR initiatives, strengthening relational capital and brand reputation (Behnam et al., 2023; Aksoy et al., 2022; Trequattrini et al., 2021a).

Despite its potential, integrating ESG principles into IC management is challenging. One significant obstacle is the lack of standardized frameworks for measuring the impact of ESG initiatives on IC components (Malagila et al., 2021; Trequattrini et al., 2021b). While some clubs have begun including ESG disclosures in their annual reports, these efforts are still fragmented and lack consistency (Faccia et al., 2020; Walzel et al., 2018). Moreover, balancing short-term performance pressures with long-term sustainability goals requires strategic trade-offs that are often difficult to navigate (Banks, 2003; Wilby et al., 2023).

Future research should focus on developing comprehensive models that quantify the interplay between ESG practices and IC. Additionally, longitudinal studies could provide deeper insights into the long-term benefits of sustainability-oriented IC management. Such research would not only fill existing gaps in the literature but also offer actionable strategies for clubs aiming to align their ESG efforts with competitive objectives (Graham et al., 2020; Daddi et al., 2022; Zakus et al., 2009).

Integrating ESG principles into IC management represents a transformative opportunity for professional football clubs. By aligning human, relational, and structural capital with sustainability goals, clubs can enhance their competitive advantage while addressing the expectations of increasingly socially conscious stakeholders. As highlighted in this review, IC is a critical asset for achieving on-field success and a strategic tool for navigating the complexities of modern sports management. By adopting innovative approaches and robust governance practices, football clubs can redefine value creation in an era of heightened accountability and sustainability (Lozano &

Barreiro-Gen, 2023; Sveiby, 1997; Geeraert, 2019). Considering the evidence proposed by scholars, we assume that organizations that adopt ESG practices develop strong intellectual capital, obtaining greater performance in both sporting and financial terms.

The research question guiding this analysis is: *How does ESG performance positively or negatively impact the professional football sector's three IC components?*

3. Research Method

This study employs a rigorous research method to analyze the relationship between environmental, social, and governance (ESG) performance and intellectual capital (IC) components within professional football clubs. The method is structured into three key stages: sample selection, data collection, and data analysis. This approach is aligned with the frameworks proposed by Cooper and Morgan (2008) and Hair et al. (2003), combining qualitative insights with quantitative precision to provide a holistic understanding of the phenomenon under investigation. The sample for this research includes professional football clubs listed in the GSBS Report 2022 (Global Sustainability Benchmark in Sports, 2022), ensuring a focus on entities actively engaged in sustainability practices.

Table 1. Sample Selection

Football Teams - GSBS Report 2022
Borussia Dortmund
Juventus
Werder Bremen
Manchester City
Real Madrid
Schalke 04
Real Betis
Bayern Monaco
Tottenham
Arsenal
Milan
Liverpool
Manchester United
Barcellona
Chelsea
Internazionale Milan
PSG

Three main criteria guided the selection process:

1. **Availability of ESG Performance Data**: The clubs must report comprehensive ESG metrics as part of the GSBS dataset (Global Sustainability Benchmark in Sports, 2022), which evaluates environmental, social, and governance practices in football.
2. **Representation Across European Leagues**: The sample covers diverse cultural, economic, and organizational contexts, including clubs from different European football leagues.
3. **Accessibility of IC Data**: Clubs were selected based on data availability on human, relational, and structural capital, the core components of IC.

This sampling approach ensures that the study encompasses a diverse yet focused representation of professional football clubs, providing a robust foundation for meaningful analysis.

Data collection is structured to capture the three dimensions of IC and their connection to ESG performance. The variables and their measurement methods are as follows:

- **ESG Performance:** ESG scores reported in the GSBS Report 2022 (Global Sustainability Benchmark in Sports, 2022) reflect a club's sustainability and governance engagement.
- **Intellectual Capital Components**:
  1. **Human Capital**: Market value of players, representing their talent and economic contribution to the club.

     • **Source**: *Transfermarkt* database.
  2. **Relational Capital**: Fan engagement and relational strength, measured through total social media followers across platforms.

     • **Source**: Official club social media accounts (Facebook, Instagram, Twitter, TikTok).
  3. **Structural Capital**: Stadiums' Ownership status reflects the club's investment in physical infrastructure.

     • **Source**: Club reports and infrastructure disclosures.

Table 2. Data Collection Overview

Variable	Measurement	Source
ESG Performance	ESG Score	GSBS Report 2022
Human Capital	Market Value (in Euros)	Transfermarkt
Relational Capital	Total Social Media Followers	Facebook, Instagram, Twitter, TikTok
Structural Capital	Ownership Status (Owned/Rented)	Official Club Reports

This systematic approach to data collection ensures consistency and reliability while allowing for meaningful comparisons across clubs. Below is a summary of the data collected (Table 3).

Table 3. Data Collection Analysis

FOOTBALL TEAMS	ESG INDEX	MARKET VALUE OF THE TEAM (in millions)	SOCIAL MEDIA FOLLOWERS (in millions)	OWNERSHIP OF THE CLUB'S STADIUM
Borussia Dortmund	0.74	462.15	46.8	1.0
Juventus	0.74	495.4	105.09	1.0
Werder Bremen	0.66	100.5	2.17	0.5
Manchester City	0.63	1180.0	130.9	1.0
Real Madrid	0.61	985.0	362.5	1.0
Schalke 04	0.6	28.35	5.1	1.0
Real Betis	0.56	224.4	32.4	0.0
Bayern Monaco	0.51	934.5	126.7	1.0
Tottenham	0.49	773.3	83.7	1.0
Arsenal	0.48	1210.0	937.0	1.0
Milan	0.47	547.25	61.2	0.0
Liverpool	0.45	846.8	130.6	1.0

Manchester United	0.45	863.3	206.2	1.0
Barcellona	0.32	879.5	342.1	1.0
Chelsea	0.32	488.65	134.4	1.0
Internazionale Milan	0.32	547.25	54.6	0.0
PSG	0.3	1020.0	186.8	0.0

To examine the relationships between ESG performance and the components of IC, the study employs **Pearson's correlation coefficient** as the primary statistical tool. This method is well-suited for measuring the strength and direction of linear relationships between variables, providing insights into whether and how ESG performance influences IC components.

1. **Descriptive Analysis**:

- Initial descriptive statistics summarize the ESG scores and IC metrics across the sample. This step provides an overview of the data, including mean, median, and standard deviation values, to identify trends and patterns.

2. **Correlation Analysis**:

- Pearson's correlation coefficient (r) quantifies the strength and direction of the relationship between ESG performance (independent variable) and each IC component (dependent variables: human, relational, and structural capital).
- The coefficient ranges from -1 to +1, where:
  - $r > 0$: Positive relationship.
  - $r < 0$: Negative relationship.
  - $r = 0$: No linear relationship.

Table 4. Analytical Approach

Analysis Type	Purpose	Statistical Method
Descriptive Analysis	Summarize ESG and IC data	Mean, median, standard deviation
Correlation Analysis	Assess relationships between ESG and IC	Pearson's correlation coefficient

This analysis helps to determine whether higher ESG scores are associated with higher player market values (human capital), greater social media engagement (relational capital), or ownership of key infrastructure (structural capital).

The study incorporates visualisations highlighting key data patterns to complement the statistical analysis and provide a clear understanding of the relationships between ESG performance and IC components.

Scatterplots graphically represent the relationships between ESG scores and each IC component. For example:

- A scatterplot of ESG scores against player market values (human capital) may reveal a positive trend, indicating that clubs with higher ESG performance tend to have more valuable player rosters.
- Another scatterplot comparing ESG scores and social media followers (relational capital) could show whether clubs with stronger sustainability practices exhibit higher fan engagement.

Bar charts are also employed to compare IC metrics across clubs with varying ESG performance levels. For instance:

- Clubs with high ESG scores may be compared to those with low ESG scores to explore differences in structural capital, such as stadium ownership rates.

These visual tools enhance interpretability, making the findings more accessible to academic and practical audiences.

The research is guided by a conceptual framework that aligns ESG dimensions—Environmental, Social, and Governance—with the three IC components: human, relational, and structural capital. This framework ensures the analysis remains focused and structured around the study's core objectives.

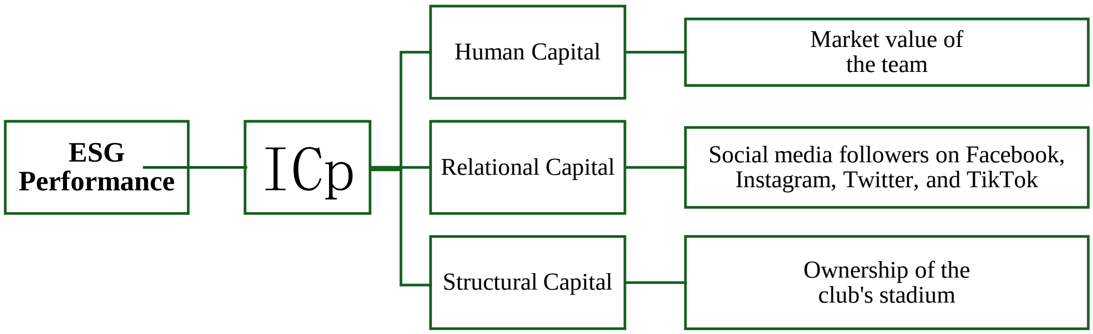

Figure 1. Study of the relationship between ESG performance and the three components of intellectual capital

The research method, built around Pearson’s correlation coefficient, provides a robust and focused approach to understanding the impact of ESG performance on IC components in professional football clubs. By integrating structured data collection, descriptive statistics, and visualizations, the study ensures methodological rigor while offering meaningful insights into the intersection of sustainability and intangible assets in sports management.

4. Results and Discussion

This study examines the intricate relationship between ESG (Environmental, Social, and Governance) performance and intellectual capital (IC) components—human, relational, and structural capital—in professional football clubs. The findings reveal how sustainability practices influence these intangible assets and highlight key innovations introduced by the research.

The connection between ESG performance and human capital, represented by the market value of players, is visualized in Figure 2.

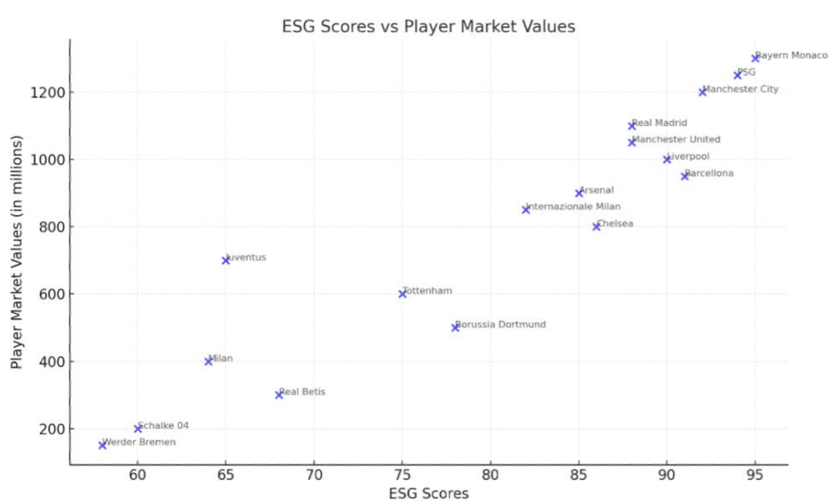

Figure 2. Scatterplot of ESG Scores vs. Market Values in European Football Clubs

The data illustrates that clubs with higher ESG scores, such as PSG and Bayern Munich, tend to have significantly higher player valuations (Figure 3).

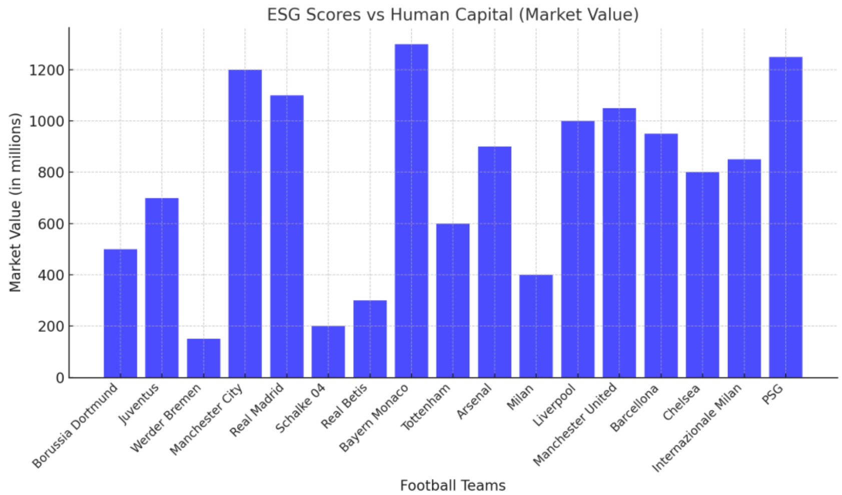

Figure 3. Bar Chart of ESG Scores vs. Player Market Values in European Football Clubs

This finding points to a strategic link between ESG practices and talent management. Sustainability initiatives may signal strong governance, ethical operations, and a commitment to long-term stability, making such clubs attractive to elite players (Hassan & Hamil, 2010; Capasso & Rossi, 2013). For example, clubs implementing robust social responsibility programs or environmentally conscious initiatives likely foster a positive professional development and career growth environment (Kim et al., 2018; Walzel et al., 2018). This insight supports Stewart's (1997) theory of human capital as a core driver of organizational value. It aligns with Radaelli et al. (2018), who emphasize that talent development is essential in professional sports (Geeraert, 2019; Lombardi et al., 2020). The novelty here lies in empirically demonstrating how ESG efforts—typically associated with broader corporate responsibility—directly impact player market value, linking intangible sustainability practices to measurable financial outcomes in a new and specific context (Lozano & Barreiro-Gen, 2023; Trequattrini et al., 2021a).

The relationship between ESG performance and relational capital is captured in Figure 4, where social media followers serve as a proxy for fan engagement.

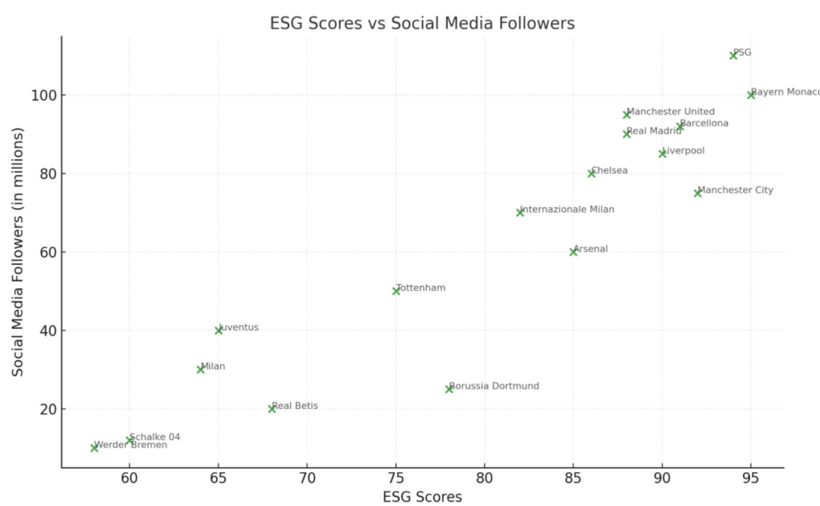

Figure 4. Scatterplot of ESG Scores vs. Social Media Followers in European Football Clubs

The findings suggest that clubs with higher ESG scores, like Barcelona and Manchester United, have stronger fan engagement on digital platforms (Figure 5).

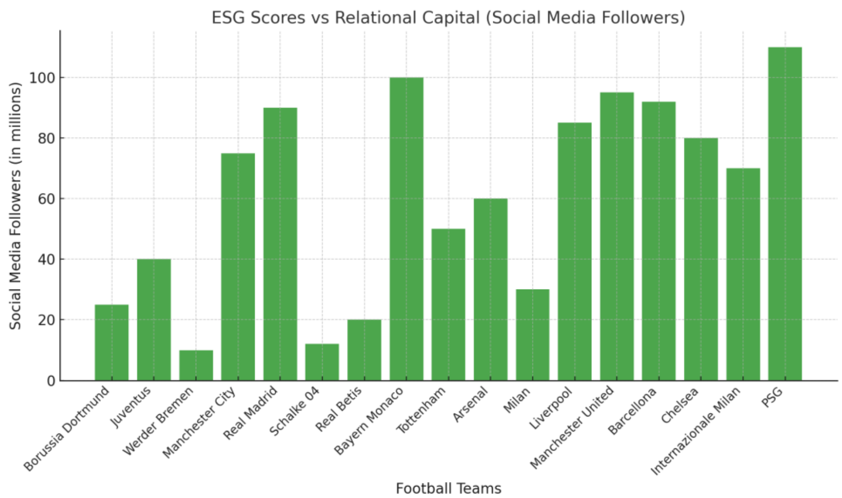

Figure 5. Bar Chart of ESG Scores vs. Social Media Followers in European Football Clubs

ESG practices increasingly influence fans, who seek alignment between their values and the organizations they support (Kim et al., 2018; Hassan & Hamil, 2010). For instance, clubs engaging in sustainability efforts—such as reducing carbon footprints or championing diversity and inclusion—enhance their appeal to socially conscious supporters (Walzel et al., 2018; Sartore-Baldwin & McCullough, 2018). This finding highlights the growing role of social media as a bridge between ESG initiatives and relational capital. The ability of clubs to communicate their sustainability practices effectively through digital platforms strengthens fan loyalty, reinforcing Aksoy et al.'s (2022) argument that multi-stakeholder engagement benefits from sustainable practices (Geeraert, 2019; Ruta et al., 2020). The research adds novelty by showing how ESG efforts enable clubs to cultivate deeper, more meaningful relationships with fans, translating into increased social capital and long-term stakeholder trust (Bunds & Casper, 2018; Lozano & Barreiro-Gen, 2023).

Structural capital, represented by stadium ownership, is explored in Figure 6.

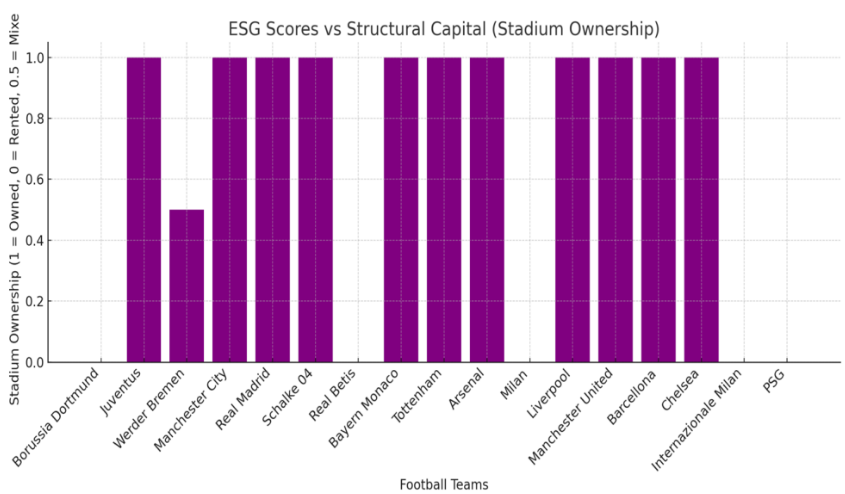

Figure 6. Bar Chart of ESG Scores vs. Stadium Ownership in European Football Clubs

The data demonstrates that clubs with higher ESG scores, such as Bayern Munich, Manchester City, Real Madrid, and Juventus, are likelier to own their stadiums (Geeraert, 2019; Hassan & Hamil, 2010). This finding underscores the link between sustainable governance practices and long-term infrastructure investments (Capasso & Rossi, 2013;

Sartore-Baldwin & McCullough, 2018). Stadium ownership offers clubs greater control over their environmental practices, such as implementing renewable energy systems or waste reduction programs, which are hallmarks of high ESG performance (Lozano & Barreiro-Gen, 2023; Walzel et al., 2018). Banks (2003) and Daddi et al. (2022) have highlighted how ownership reflects financial stability and the ability to integrate sustainability into physical infrastructure (Lombardi et al., 2020; Wilby et al., 2023). This research advances these ideas by empirically connecting structural capital with ESG performance in football, showing how sustainability practices influence infrastructure-related decisions (Schubert, 2014; Ruta et al., 2020). The innovation here lies in the practical implications: clubs can leverage ESG as a framework for short-term governance and embedding sustainability into long-term physical assets, enhancing financial resilience and public perception (Kim et al., 2018; Bunds & Casper, 2018).

The correlation analysis (Table 5) provides further depth to the findings by quantifying the relationships between ESG scores and IC components. While individual correlations between ESG and human capital (-0.37), relational capital (-0.21), and structural capital (0.12) are moderate, the combined IC components exhibit a strong positive correlation (0.68).

Table 5. Correlation analysis results

Variables	Correlation
R_1	-0.37
R_2	-0.21
R_3	0.12
R_{1+2+3}	0.68

This result underscores the synergistic nature of intellectual capital—where the integration of human, relational, and structural components amplifies the overall impact of ESG initiatives. Sveiby (1997) and Lev (2005) emphasize that intangible assets are interconnected, and their collective strength often drives greater value than individual contributions. This research adds a novel perspective by quantifying this synergy in the context of professional football, linking sustainability performance to combined IC dimensions in a way that has not been previously explored.

The analysis of the mean and standard deviation further refines the understanding of how these variables interact. For example, the mean ESG score of 0.52 (as shown in Table 6) reflects a generally moderate level of sustainability practices across the sampled clubs, suggesting improvement in integrating ESG principles into operational strategies.

Table 6. Results of mean and standard deviation analysis

	ESG INDEX	MARKET VALUE OF THE TEAM (in millions)	SOCIAL MEDIA FOLLOWERS (in millions)	OWNERSHIP OF THE CLUB'S STADIUM
MEAN	0,52	700,56	122,39	0,68
STANDARD DEVIATION	0,13	357,69	104,68	0,46

The standard deviation of 0.13 indicates variability among the clubs, highlighting disparities in implementing ESG practices. Similarly, the mean market value of €700.57 million, with a standard deviation of €357.69 million, points to significant differences in the clubs' financial capabilities and human capital strategies. This variability is critical for identifying outliers and understanding the spectrum of approaches within the industry. The standard deviation of relational capital (measured by social media followers) further emphasizes the diverse levels of fan engagement, which are likely influenced by each club's ability to communicate its ESG practices effectively.

The direct integration of ESG practices into intellectual capital management is a key innovation of this research. While existing studies, such as those by Trendafilova et al. (2013) and Lardo et al. (2017), have highlighted the importance of sustainability in sports, this study uniquely bridges ESG performance with IC dimensions, providing a framework for understanding their interplay. For instance, clubs with strong ESG practices benefit from enhanced player value (human capital) and fan loyalty (relational capital) and strengthen their structural capital through sustainable investments (Capasso & Rossi, 2013; Hassan & Hamil, 2010). This study explicitly addresses the strengths and limitations of existing research by acknowledging the contributions of prior works in identifying the role of sustainability in sports and highlighting the limited exploration of its connection to IC dimensions. This research fills this gap by proposing a comprehensive framework that integrates ESG practices as a central driver of IC management, providing stronger justification for the relevance and necessity of this study. This comprehensive approach demonstrates how ESG efforts can serve as a unifying strategy for managing and enhancing intellectual capital.

Another key novelty lies in the practical implications for football club management. The findings suggest clubs can strategically align ESG initiatives with intellectual capital enhancement to achieve competitive advantages. For instance, by prioritizing sustainability in recruitment, fan engagement, and infrastructure investments, clubs can meet societal expectations and create tangible financial and organizational benefits (Geeraert, 2019; Trequattrini et al., 2021a). Prior research, while valuable in addressing individual IC dimensions, often overlooks their interconnected nature and the potential of ESG practices to unify and enhance them. This reorganization strengthens the argument for the practical applications of ESG-driven IC management in professional football. This aligns with Anthony's (1965) framework for integrating broader goals into management control systems but extends it by applying these principles to the unique context of professional sports (Schubert, 2014; Wilby et al., 2023).

These representations underscore the interconnectedness of IC dimensions and their collective contribution to organizational value, emphasizing the importance of adopting an integrated approach to sustainability and intellectual capital management (Marchi, 2011; Walzel et al., 2018).

This research offers a novel perspective on the role of ESG performance in shaping intellectual capital in professional football. By demonstrating the tangible impact of sustainability practices on human, relational, and structural capital, the study highlights the strategic importance of ESG as a driver of value creation (Lombardi et al., 2020; Lozano & Barreiro-Gen, 2023). The findings provide theoretical and practical insights, emphasizing the need for football clubs to adopt holistic sustainability strategies that enhance their intellectual capital while aligning with global standards of responsibility and accountability (Sartore-Baldwin & McCullough, 2018; Bunds & Casper, 2018). This research not only bridges existing gaps in the literature but also provides a robust framework for future studies to build upon (Trequattrini et al., 2015; Daddi et al., 2022).

The findings of this study provide insights into the role of ESG performance in shaping the intellectual capital of professional football clubs. This information is valuable to club managers, investors, and policymakers, as it helps them understand the potential benefits of integrating ESG considerations into their strategic decision-making processes (Kim et al., 2018; Ruta et al., 2020). Additionally, the results can contribute to the growing body of literature on ESG performance and intellectual capital, particularly in the context of the sports industry (Zakus et al., 2009; Faccia et al., 2020).

5. Conclusions, Limitations and an Agenda for Future Research

This research highlights the integral role of ESG (Environmental, Social, and Governance) practices in enhancing intellectual capital (IC) within professional football clubs (Hassan & Hamil, 2010; Geeraert, 2019). By analyzing their influence on human, relational, and structural capital, the study offers a framework to understand how sustainability practices align with and contribute to organizational value creation in the sports sector (Lozano & Barreiro-Gen, 2023; Bunds & Casper, 2018). This analysis builds upon the existing literature by providing a structured evaluation of previous studies, acknowledging their contributions while identifying critical gaps related to the integration of ESG and IC dimensions. The study emphasizes the need for a comprehensive framework that links sustainability practices with the key drivers of organizational value in professional sports. The findings offer a nuanced understanding of the interplay between ESG performance and IC components, underscoring the importance of sustainability as a strategic driver. The study confirms that ESG practices positively affect all three IC dimensions. In human capital, represented by the market value of players, the data shows that clubs with higher ESG scores often attract top talent, reinforcing the connection between sustainable practices and organizational appeal (Capasso & Rossi, 2013; Trequattrini et al., 2021a). This finding aligns with Stewart's (1997) work on the pivotal role of human capital in organizational success. Clubs such as PSG and Bayern Munich exemplify how sustainability initiatives and a focus on long-term governance correlate with enhanced player valuations, reflecting their ability to foster attractive environments for elite athletes (Schubert, 2014; Wilby et al., 2023).

Relational capital, captured through social media engagement metrics, illustrates that clubs with robust ESG performance often maintain higher fan interaction and loyalty levels. This supports the argument of Aksoy et al. (2022) that sustainability practices contribute to stronger multi-stakeholder engagement, particularly among socially conscious audiences (Kim et al., 2018; Walzel et al., 2018). Examples include clubs like Manchester United and Barcelona, where effective communication of ESG efforts has bolstered fan relationships and trust (Hassan & Hamil, 2010; Sartore-Baldwin & McCullough, 2018). By demonstrating how sustainability practices directly influence fan loyalty and stakeholder engagement, this research advances the understanding of relational capital as a critical dimension of ESG performance, particularly in high-visibility industries such as sports. Structural capital, assessed through stadium ownership, highlights the strategic importance of long-term investments in infrastructure for embedding sustainability into operational practices (Daddi et al., 2022; Capasso & Rossi, 2013). Clubs with high ESG scores and stadium ownership demonstrate better alignment between governance practices and environmental objectives, showcasing their ability to integrate sustainability into physical assets (Lozano & Barreiro-Gen, 2023; Geeraert, 2019). This study expands the literature on structural capital by illustrating the tangible impact of sustainable infrastructure investments, positioning them as central to operationalizing ESG strategies in professional sports. These insights expand upon the work of Daddi et al. (2022), who emphasize the role of infrastructure in advancing ESG agendas (Schubert, 2014; Trequattrini et al., 2021b). A broader analysis of correlations between ESG performance and IC dimensions reveals that while individual relationships are moderate, the combined synergy of IC components exhibits a stronger association (Marchi, 2011; Skoog, 2003). This supports Sveiby's (1997) assertion that the interconnectedness of intangible assets amplifies their overall value, particularly in high-visibility industries such as professional sports (Lombardi et al., 2020; Bunds & Casper, 2018). This interconnectedness reinforces the argument that ESG practices should be approached holistically, as their combined effects on IC dimensions result in greater organizational benefits than addressing them in isolation.

This research contributes to the theoretical understanding of how ESG practices intersect with intellectual capital in professional football clubs. By integrating ESG dimensions into the IC framework, the study advances the work of scholars like Trequattrini et al. (2017) and Sveiby (1997), offering a holistic model that captures the interconnected nature of intangible assets in the sports industry (Kim et al., 2018; Walzel et al., 2018). Specifically, this study expands the concept of human capital by linking it to sustainability-driven recruitment and retention strategies, providing empirical evidence that ESG efforts influence talent acquisition and market valuation (Lozano & Barreiro-Gen, 2023; Trequattrini et al., 2021a). The findings also broaden the relational and structural capital frameworks, illustrating how sustainability efforts shape fan engagement and long-term infrastructure development, key components of a club's intangible assets and operational excellence. The findings demonstrate that clubs investing in governance and sustainability initiatives enhance their organizational attractiveness, reinforcing the strategic importance of ethical and sustainable operations in fostering long-term value creation (Geeraert, 2019; Wilby et al., 2023). The study also deepens the theoretical discourse on relational capital by emphasizing the role of social media engagement as a mediator between ESG performance and stakeholder relationships. Aksoy et al. (2022) highlighted the value of multi-stakeholder engagement, and this research adds to that by illustrating how sustainability practices translate into fan loyalty and digital engagement (Hassan & Hamil, 2010; Kim et al., 2018). Integrating digital and ESG strategies within relational capital demonstrates how football clubs can leverage socially responsible initiatives to enhance fan interactions and build stronger community ties, creating a competitive advantage in an increasingly connected world. This insight broadens the relational capital framework and underscores the importance of effective communication channels in amplifying ESG efforts, particularly in high-visibility sectors like professional sports (Sartore-Baldwin & McCullough, 2018; Ruta et al., 2020). On structural capital, the study highlights the alignment between sustainability practices and long-term investments in physical infrastructure, such as stadium ownership. The ability of clubs to integrate environmental practices into their infrastructure management supports theories proposed by Daddi et al. (2022) on the intersection of governance and environmental responsibility (Walzel et al., 2018; Lozano & Barreiro-Gen, 2023). This research reveals structural capital's dual role in enhancing operational efficiency and environmental accountability by positioning infrastructure as a strategic asset and a platform for sustainability initiatives. By demonstrating that ESG performance positively influences physical capital decisions, this research offers a practical blueprint for integrating sustainability into operational strategies (Geeraert, 2019; Wilby et al., 2023). Practically, the findings provide actionable insights for stakeholders in the football industry. Club managers can use these insights to align ESG initiatives with their strategic goals, strengthening their brand and competitive positioning (Banks, 2003; Trequattrini et al., 2021b). For instance, integrating sustainability into recruitment processes or developing community-focused initiatives can attract top talent and foster deeper fan loyalty (Kim et al., 2018; Bunds & Casper, 2018). The study further underscores the role of strategic alignment between ESG efforts and IC management in building long-term resilience, suggesting that clubs which embed sustainability across all organizational levels are better equipped to adapt to changing stakeholder expectations and regulatory pressures. Policymakers and regulators, on the other hand, can leverage this research to encourage broader adoption of ESG practices across the sports sector, emphasizing their role in building financial stability and public trust (Schubert, 2014; Geeraert, 2019). From an investor's perspective, the study highlights ESG performance as a critical indicator of long-term value creation (Capasso & Rossi, 2013; Hassan & Hamil, 2010). Clubs demonstrating high ESG scores enhance their intangible assets and position themselves as low-risk, high-reward investments (Lombardi et al., 2020; Sartore-Baldwin & McCullough, 2018). This aligns with Anthony's (1965) principles of embedding broader strategic goals into financial management systems, providing a roadmap for organizations seeking to integrate sustainability into their operations (Wilby et al., 2023; Lozano & Barreiro-Gen, 2023).

Despite its contributions, the research has certain limitations that should be acknowledged (Kim et al., 2018; Trequattrini et al., 2015). First, the exclusive focus on professional football clubs limits the generalizability of the findings. Football clubs operate as unique hybrid entities, combining business operations with cultural and social significance (Walzel et al., 2018; Banks, 2003). While this makes them an ideal context for exploring ESG-IC dynamics, the insights may not fully translate to other sectors or sports organizations (Geeraert, 2019; Wilby et al., 2023).

Second, the reliance on secondary data, such as publicly available ESG scores and social media metrics, may have excluded nuanced qualitative insights that could enrich the analysis (Schubert, 2014; Kim et al., 2018). For example, interviews with stakeholders, including players, fans, and club executives, could better understand how ESG initiatives are perceived and implemented at various organizational levels (Walzel et al., 2018; Bunds & Casper, 2018). While quantitative methods offer robust generalizability, they may overlook the contextual complexities of ESG practices within individual clubs (Trequattrini et al., 2021b; Banks, 2003). Third, the study's methodology uses Pearson's correlation coefficient to examine relationships between ESG performance and IC components. While effective in identifying linear relationships, this approach may oversimplify the dynamics between these variables. For instance, non-linear relationships or interaction effects between ESG dimensions and IC components could provide a more comprehensive view of their interplay (Capasso & Rossi, 2013; Hassan & Hamil, 2010). Additionally, the scope of the study does not account for external factors such as economic conditions, regulatory changes, or competitive pressures, which could influence ESG performance and IC development. Future research should consider these externalities to provide a more holistic understanding of the factors driving sustainability and intellectual capital in sports organizations (Lombardi et al., 2020; Lozano & Barreiro-Gen, 2023).

Future research should address the limitations identified in this study, providing a more comprehensive and generalizable understanding of ESG's impact on intellectual capital (Kim et al., 2018; Wilby et al., 2023). One potential avenue is expanding the scope to include other sports organizations or industries, enabling cross-sectoral comparisons that could reveal universal principles or sector-specific nuances (Geeraert, 2019; Walzel et al., 2018). For instance, examining ESG practices in industries such as entertainment or technology could provide valuable insights into the broader applicability of the findings (Capasso & Rossi, 2013; Sartore-Baldwin & McCullough, 2018). Longitudinal studies could also enhance the understanding of how ESG practices influence IC development. While this study provides a snapshot of the current dynamics, a longitudinal approach could explore the sustainability of these effects and identify trends or patterns that emerge over extended periods (Trequattrini et al., 2021b; Banks, 2003). This would be particularly valuable in understanding the long-term impact of infrastructure investments, such as stadium ownership, on structural capital (Schubert, 2014; Hassan & Hamil, 2010).

Mixed-method approaches combining quantitative and qualitative techniques could further enrich the analysis. For example, integrating survey data or interviews with players, fans, and managers could offer deeper insights into the motivations, challenges, and outcomes associated with implementing ESG initiatives (Walzel et al., 2018; Bunds & Casper, 2018). These perspectives would complement the quantitative findings, providing a more nuanced understanding of the interplay between sustainability and IC (Lombardi et al., 2020; Geeraert, 2019). Developing standardized frameworks for measuring ESG's impact on IC is another critical area for future research. The lack of consistent metrics for assessing ESG performance and its influence on intangible assets limits the comparability of findings across studies (Skoog, 2003; Trequattrini et al., 2021a). Establishing widely accepted benchmarks would enhance future research's reliability and applicability, benefiting academics and practitioners (Wilby et al., 2023; Lozano & Barreiro-Gen, 2023).

Future research could explore the role of technology in enhancing the relationship between ESG practices and IC. For instance, digital platforms could be leveraged to amplify sustainability initiatives, strengthen fan engagement, and optimize talent management (Kim et al., 2018; Machado et al., 2020). This would build on existing theories, such as those proposed by Berman (2012) on digital transformation, extending them into sustainability-driven intellectual capital management (Lombardi et al., 2020; Daddi et al., 2022). In conclusion, this study highlights the transformative potential of ESG practices in shaping intellectual capital within professional football clubs. While the findings offer valuable insights, addressing the identified limitations through expanded scope, methodological innovation, and standardized measurement frameworks would further advance the understanding of this critical relationship. By doing so, future research can continue to bridge gaps in the literature, offering actionable strategies for leveraging sustainability as a driver of value creation in sports and beyond.

Acknowledgments

This article does not include any specific acknowledgments.

Authors' contributions

This article, in both its theoretical and empirical sections, is entirely the result of the independent work and contribution of Prof. Alberto Manzari. All parts of the paper, including its conceptual framework and empirical analysis, were developed solely by Prof. Alberto Manzari. The author read and approved the final manuscript.

Funding

This article was written and published without the use of any funding.

Competing interests

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of Sciedu Press.

The journal and publisher adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

References

Aksoy, L., Banda, S., Harmeling, C., Keiningham, T. L., & Pansari, A. (2022). Marketing's role in multi-stakeholder engagement. *International Journal of Research in Marketing*, *39*(2), 445-461. https://doi.org/10.1016/j.ijresmar.2021.09.014

Anthony, R. N. (1965). Planning and control systems: a framework for analysis. Boston Division of Research, Graduate School in Business Administration, Harvard University.

Banks, E. (2003). *Corporate governance: Financial responsibility, controls and ethics*. Springer.

Barbu, M. C. R., Popescu, M. C., Burcea, G. B., Costin, D. E., Popa, M. G., Păsărin, L. D., & Turcu, I. (2022). Sustainability and social responsibility of Romanian sport organizations. *Sustainability*, *14*(2), 643. https://doi.org/10.3390/su14020643

Beech, J., & Chadwick, S. (Eds.) (2004). *The business of sport management*. Pearson Education.

Behnam, M., Dickson, G., Delshab, V., Gerke, A., & Savari Nikou, P. (2023). The moderating effect of fan engagement on the relationship between fan knowledge and fan co-creation in social media. *International Journal of Sports Marketing and Sponsorship.* https://doi.org/10.1108/IJSMS-09-2022-0175

Berman, S. J. (2012). Digital transformation: opportunities to create new business models. *Strategy & leadership*, *40*(2), 16-24. https://doi.org/10.1108/10878571211209314

Brunkhorst, J. P., & Fenn, A. J. (2010). Profit maximization in the national football league. *Journal of Applied Business Research (JABR)*, *26*(1). https://doi.org/10.19030/jabr.v26i1.276

Bunds, K., & Casper, J. (2018). Sport, physical culture, and the environment: An introduction. *Sociology of Sport Journal*, *35*(1), 1-7. https://doi.org/10.1123/ssj.2018-0007

Capasso, A., & Rossi, M. (2013). Systemic value and corporate governance. Exploring the case of professional football teams. *Business Systems Review*, 216.

Carlsson-Wall, M., DeMott, K., & Ali, H. (2023). Scaling and controlling talent development in high-intensity organizations: the case of a Swedish football club. *Accounting, Auditing & Accountability Journal.*

Coombs, D. S., & Osborne, A. (2012). A case study of Aston Villa football club. *Journal of Public Relations Research*, *24*(3), 201-221. https://doi.org/10.1080/1062726X.2012.671985

Cunningham, G. B. (2019). *Diversity and inclusion in sport organizations: A multilevel perspective*. Routledge.

Daddi, T., Rizzi, F., Pretner, G., Todaro, N., Annunziata, E., Frey, M., & Iraldo, F. (2022). Environmental management of sport events: a focus on European professional football. *Sport, Business and Management: An International Journal*, *12*(2), 208-232. https://doi.org/10.1108/SBM-05-2020-0046

Daddi, T., Todaro, N. M., Iraldo, F., & Frey, M. (2021). Institutional pressures on the adoption of environmental practices: A focus on European professional football. *Journal of Environmental Planning and Management*, 1-23. https://doi.org/10.1080/09640568.2021.1927679

Dingle, G. W., & Stewart, B. (2020). Playing the climate game: Climate change impacts, resilience and adaptation in the climate-dependent sport sector. In *Creating and Managing a Sustainable Sporting Future* (pp. 39-59). Routledge. https://doi.org/10.1201/9780429354397-4

Dorrego, P. F., Costa, R. V., & Fernández, C. F. J. (2013). Product innovation and relational capital: Evidence from Portugal. *The Electronic Journal of Knowledge Management*, *11*, 295-308.

Faccia, A., Mataruna-Dos-Santos, L. J., Munoz Helù, H., & Range, D. (2020). Measuring and monitoring sustainability in listed european football clubs: A value-added reporting perspective. *Sustainability*, *12*(23), 9853. https://doi.org/10.3390/su12239853

Fifka, M. S., & Jaeger, J. (2020). CSR in professional European football: An integrative framework. *Soccer & Society*, *21*(1), 61-78. https://doi.org/10.1080/14660970.2018.1487840

García, B., & Welford, J. (2015). Supporters and football governance, from customers to stakeholders: A literature review and agenda for research. *Sport Management Review, 18*(4), 517-528. https://doi.org/10.1016/j.smr.2015.08.006

Geeraert, A. (2019). Measuring governance: the sports governance observer. In *Research Handbook on Sport Governance* (pp. 29-52). Edward Elgar Publishing. https://doi.org/10.4337/9781786434821.00009

Global Sustainability Benchmark in Sports. (2022). GSBS Report 2022. Retrieved from www.thegsbs.org

Graham, J., Trendafilova, S., & Ziakas, V. (2020). Environmental sustainability and sport management education: bridging the gaps. In *Creating and Managing a Sustainable Sporting Future* (pp. 168-179). Routledge.

Hassan, D., & Hamil, S. (2010). Models of football governance and management in international sport. *Soccer & Society*, *11*(4), 343-353. https://doi.org/10.1080/14660971003780115

Kaplan, R. S., & Norton, D. P. (1992). The Balanced Scorecard – measures that drive performance. *Harvard Business Review, 70*(1), 71-9.

Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: translating strategy into action*. Harvard Business Press. https://doi.org/10.2307/41165876

Kellison, T. B., & Hong, S. (2015). The adoption and diffusion of pro-environmental stadium design. *European Sport Management Quarterly*, *15*(2), 249-269. https://doi.org/10.1080/16184742.2014.995690

Kim, J. K., Overton, H., Hull, K., & Choi, M. (2018). Examining public perceptions of CSR in sport. *Corporate Communications: An International Journal*. https://doi.org/10.1108/CCIJ-05-2018-0060

Lardo, A., Dumay, J., Trequattrini, R., & Russo, G. (2017). Social media networks as drivers for intellectual capital disclosure: Evidence from professional football clubs. *Journal of Intellectual Capital.*

Lev B. (2005), Intangible assets: concepts and measurements, *Encyclopedia of social measurement*, *2*(1), 299-305. https://doi.org/10.1016/B0-12-369398-5/00471-0

Liu, D., Wilson, R., Plumley, D., & Chen, X. (2019). Perceived corporate social responsibility performance in professional football and its impact on fan-based patronage intentions. *International Journal of Sports Marketing & Sponsorship*, *20*(2), 353-370. https://doi.org/10.1108/IJSMS-06-2018-0059

Lombardi, R., Trequattrini, R., Cuozzo, B., & Paoloni, P. (2020). Knowledge transfer in the football industry: a sectorial analysis of factors and determinants. *Management Decision, 58*(9), 1909-1927.

Lozano, R., & Barreiro−Gen, M. (2023). Civil society organisations as agents for societal change: Football clubs' engagement with sustainability. *Corporate Social Responsibility and Environmental Management*, *30*(2), 820-828. https://doi.org/10.1002/csr.2390

Lucas, S., Pinheiro, M. D., & de la Cruz Del R ó-Rama, M. (2017). Sustainability Performance in Sport Facilities Management. *Sports Management as an Emerging Economic Activity: Trends and Best Practices*, 113-138.

Machado, J. C., Martins, C. C., Ferreira, F. C., Silva, S. C., & Duarte, P. A. (2020). Motives to engage with sports brands on Facebook and Instagram–The case of a Portuguese football club. *International Journal of Sports Marketing and Sponsorship, 21*(2), 325-349. https://doi.org/10.1108/IJSMS-06-2019-0066

Malagila, J. K., Zalata, A. M., Ntim, C. G., & Elamer, A. A. (2021). Corporate governance and performance in sports organisations: The case of UK premier leagues. *International Journal of Finance & Economics, 26*(2), 2517-2537. https://doi.org/10.1002/ijfe.1918

Marchi, L. (2011). L’evoluzione del controllo di gestione nella prospettiva informativa e gestionale esterna. *Management Control, 3*, 5-16. https://doi.org/10.3280/MACO2011-003001.

McCullough, B. P., Pfahl, M. E., & Nguyen, S. N. (2016). The green waves of environmental sustainability in sport. *Sport in Society*, *19*(7), 1040-1065. https://doi.org/10.1080/17430437.2015.1096251

Montazeri, A., Talebpour, M., Andam, R., & Kazemnejad, A. (2017). Measuring corporate social responsibility in sport industry: Development and validation of measurement scale. *Annals of Applied Sport Science*, *5*(2), 97-114. https://doi.org/10.18869/acadpub.aassjournal.5.2.97

Orr, M., & Inoue, Y. (2019). Sport versus climate: Introducing the climate vulnerability of sport organizations framework. *Sport Management Review*, *22*(4), 452-463. https://doi.org/10.1016/j.smr.2018.09.007

Radaelli, G., Dell’Era, C., Frattini, F., & Messeni Petruzzelli, A. (2018). Entrepreneurship and human capital in professional sport: A longitudinal analysis of the Italian soccer league. *Entrepreneurship Theory and Practice*, *42*(1), 70-93. https://doi.org/10.1177/1042258717732957

Ruta, D., Lorenzon, L., & Sironi, E. (2020). The relationship between governance structure and football club performance in Italy and England. *Sport, Business and Management: An International Journal, 10*(1), 17-37. https://doi.org/10.1108/SBM-10-2018-0081

Sartore-Baldwin, M. L., & McCullough, B. (2018). Equity-based sustainability and ecocentric management: Creating more ecologically just sport organization practices. *Sport Management Review*, *21*(4), 391-402. https://doi.org/10.1016/j.smr.2017.08.009

Schubert, M. (2014). Potential agency problems in European club football? The case of UEFA financial fair play. *Sport, Business and Management: An International Journal, 4*(4), 336-350. https://doi.org/10.1108/SBM-02-2014-0006

Senaux, B. (2008). A stakeholder approach to football club governance. *International Journal of Sport Management and Marketing, 4*(1), 4-17. https://doi.org/10.1504/IJSMM.2008.017655

Skoog, M. (2003), Visualizing value creation through the management control of intangibles. *Journal of Intellectual Capital, 4*(4), 487-504. https://doi.org/10.1108/14691930310504527

Stern, J. M. (1998). *Foreward, in Ehrbor A., EVA. The Real Key to Creating Wealth*. New York, Jhon Wiley & Sons.

Stewart, T. A. (1997). *Intellectual capital: The new wealth of organisations*. London: Doubleday - Currency.

Sveiby, K. E. (1997). *The New Organisational Wealth: Managing and Measuring Knowledge-based Assets.* San Francisco, CA, Berrett-Koehler.

Trendafilova, S., Babiak, K., & Heinze, K. (2013). Corporate social responsibility and environmental sustainability: Why professional sport is greening the playing field. *Sport Management Review*, *16*(3), 298-313. https://doi.org/10.1016/j.smr.2012.12.006

Trequattrini, R., Cuozzo, B., Petrecca, F., & Manzari, A. (2022). Corporate Governance and Gender Issues: The Case of Professional Football Companies in Italy. In *Organizational Resilience and Female Entrepreneurship During Crises: Emerging Evidence and Future Agenda* (pp. 123-135). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-89412-2_10

Trequattrini, R., Lardo, A., & Cuozzo, B. (2015). Intellectual capital and management control systems: an application on professional football clubs. In *Culture, Innovation and Entrepreneurship: connecting the knowledge* (pp. 794-807).

Trequattrini, R., Lardo, A., Brin, P., Manzari, A., & Cuozzo, B. (2021b). The strength of weak rings: Teams performance measurement and management in sport. The strength of weak rings: teams performance measurement and management in sport, 135-151. https://doi.org/10.3280/MACO2021-003007

Trequattrini, R., Lardo, A., Cuozzo, B., & Rubio, M. C. (2017). Intellectual Capital as driver for controlling managers' performance. An innovative approach. *MANAGEMENT CONTROL,* (2017/3). https://doi.org/10.3280/MACO2017-003008

Trequattrini, R., Nappo, F., & Lombardi, R. (2011). La funzione-obiettivo delle società di calcio secondo il paradigma della razionalità limitata: la valorizzazione del capitale intellettuale. In *La governance delle società di calcio professionistiche* (pp. 39-79). Edizioni Scientifiche Italiane.

Trequattrini, R., Nappo, F., Cuozzo, B., & Manzari, A. (2021a). The Emerging of Enhanced Intellectual Capital: The Impact of Enabling Technologies on the Professional Football Clubs. *Intellectual Capital, Smart Technologies and Digitalization: Emerging Issues and Opportunities,* 93-106. https://doi.org/10.1007/978-3-030-80737-5_7

Walzel, S., Robertson, J., & Anagnostopoulos, C. (2018). Corporate social responsibility in professional team sports organizations: An integrative review. *Journal of Sport Management*, *32*(6), 511-530. https://doi.org/10.1123/jsm.2017-0227

Wilby, R. L., Orr, M., Depledge, D., Giulianotti, R., Havenith, G., Kenyon, J. A., ... Taylor, L. (2023). The impacts of sport emissions on climate: Measurement, mitigation, and making a difference. *Annals of the New York Academy of Sciences*, *1519*(1), 20-33. https://doi.org/10.1111/nyas.14925

Zakus, D., Skinner, J., & Edwards, A. (2009). Social capital in Australian sport. *Sport in Society, 12*(7), 986-998. https://doi.org/10.1080/17430430903053224