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Evaluating the Performance of Football Clubs Using Digital Metrics

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Abstract

The study aimed to evaluate the performance of football clubs using digital indicators and to analyze the relationships among digital activity, fan sentiment, fan loyalty, and clubs' financial performance. Traditionally, club performance has been assessed mainly through match results and players' performance levels. However, the rapid growth in social media and online interaction has called for more comprehensive and in-depth evaluation methods.

The study examined the relationship between digital indicators—such as social media activity, popularity levels (number of mentions), and sentiment trends—and traditional performance metrics as well as financial results. Data were gathered over a full year from the official club websites, verified social media accounts, and publicly available fan databases for five professional football clubs, whose identities were anonymized (Clubs A–E).

The data were analyzed using SPSS with descriptive statistics (mean, standard deviation, and percentages) and Pearson's correlation coefficient to identify significant relationships. The results showed significant positive links among digital engagement, fan loyalty, and financial performance. This suggests that more active clubs on digital platforms tend to achieve better financial results and higher fan retention.

The study confirmed the practical importance of integrating digital indicators into models for evaluating club performance, as this integration can support more efficient and effective strategic decision-making.



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تقييم أداء أندية كرة القدم باستخدام المقاييس الرقمية

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هدفت هذه الدراسة إلى تقييم أداء الأندية الكروية بالاعتماد على المؤشرات الرقمية، وتحليل العلاقة بين النشاط الرقمي، واتجاهات الجماهير، وولاء الجماهير، والأداء المالي للأندية. تقليدياً، كان تقييم أداء الأندية يعتمد بصورة أساسية على نتائج المباريات ومستويات أداء اللاعبين؛ إلا أن التنامي المتسارع لأهمية وسائل التواصل الاجتماعي والتفاعل عبر الإنترنت استلزم تبني أساليب تقييم أكثر شمولاً وعمقاً. قامت الدراسة بتحليل العلاقة بين المؤشرات الرقمية، المتمثلة في نشاط وسائل التواصل الاجتماعي، ومستوى الشعبية (عدد الذكر/الإشارات)، واتجاهات المشاعر، وبين مؤشرات الأداء التقليدية والأداء المالي. وقد جُمعت البيانات على مدى عام كامل من المواقع الرسمية للأندية، والحسابات الموثقة على وسائل التواصل الاجتماعي، وقواعد البيانات المتاحة للجماهير، وذلك لخمس أندية كروية محترفة جرى إخفاء هويتها النادي (A-E).

من خلال توظيف الإحصاءات الوصفية (المتوسط SPSS) تم تحليل البيانات باستخدام برنامج الحسابي، والانحراف المعياري، والنسب المئوية)، ومعامل ارتباط بيرسون للكشف عن العلاقات ذات الدلالة الإحصائية. وأظهرت النتائج وجود علاقات إيجابية ذات دلالة إحصائية بين مستوى التفاعل الرقمي وولاء الجماهير والأداء المالي، بما يشير إلى أن الأندية الأكثر نشاطاً على المنصات الرقمية وأكدت الدراسة الأهمية. تميل إلى تحقيق أداء مالي أفضل ومستويات أعلى من الاحتفاظ بالمشجعين التطبيقية لدمج المؤشرات الرقمية ضمن نماذج تقييم أداء الأندية، بما يساهم في دعم اتخاذ قرارات استراتيجية أكثر كفاءة وفعالية.

Football clubs are not judged solely on the basis of match results and player statistics, and nowadays success is also crucial based on digital activity and public opinion. With the high rate of the social media and online measures like fan interactions and sentiment are very useful with the strength of the brand, its loyalty and its financial performance. This is why it is necessary to combine digital indicators and traditional performance metrics to create a more complete and precise model of assessing football clubs.

Introduction

Traditional measures like win-loss statistics, and player statistics, and financial measures have been used to assess football clubs long before the advent of applicable statistical methods (Guo & Yu, 2024, p. 12). In the modern world of heightened digitalization, however, the performance of football has ceased to be limited to field performance. The growth of social media and fans communication and the use of digital data has opened up new horizons of evaluation of the performance (Chang et al., 2024, p. 45). Online Metrics such as the use of social media, the state of the online sentiments, and web metrics have taken an essential role in pointing at the overall performance of a football club. Such measures provide actual-time feedback on fan attendance, club popularity, and brand strength, which have a major impact on the financial condition, marketability and competitive advantage of a club (Corsaro et al., 2025, p. 112). Although the ways in which performance on the field relates to the financial performance of a football club has been thoroughly addressed, the impact of online measurement in the determination and increase of performance has not been widely addressed (Fan et al., 2023, p. 8). Online interaction, such as likes and share, commenting, and mentioning through the social media networks, is a viable source of data that can capture the image of a club, fan loyalty and participation in a community. These, further, can influence sponsorship deal, merchandise sells as well as tickets sales. (Hill et al., 2025, p. 234). As digital engagement grows, looking at the relationship between these online measurements and traditional measure of club performance is valued amongst club's managers and stakeholders refined on acquiring a competitive edge in the growing sporting industry.

This research paper tries to fill that gap with discussing the debate of the effective application of the online metrics in the performance measurement of the football clubs. In the study, the researcher will consider comparing the relationship between virtual interactions and conventional performance indicators as a match outcome and player statistics to offer a clear image of how successful a club is. The study should be able to develop a collateral framework of introducing online metrics into the conventional evaluation models and in the process be able to examine the football club performance holistically. This study aims to investigate how Online Metrics are applied to the overall performance analysis of football clubs, find main digital

measurements that correlate with on-field performance and financial results, and suggest the method of embedding Online Metrics in performance evaluation frameworks. The given study becomes especially topical because football clubs continue to enter the digital realm and rely on online interactions more and more as a growth instrument and a means of survival.

The main research objectives that will be answered in this paper will be:

To examine the relationship between Online Metrics, including the levels of social contribution and sentiment related to traditional football performance measures.

To evaluate how digital engagement influences a football club's financial performance and enhances fan loyalty.

To identify and propose the best ways to integrate Online Metrics into existing football performance evaluation models to improve the accuracy of overall club performance assessment.

The significance of the study is in the attempt to provide different information on the use of digital and online measurements as an instance of performance review that is likely to add value to traditional performance appraisals (Gong et al., 2019, p. 57). The results obtained during this study would provide viable solutions to club functioning, promotional planning and inmates engagement techniques, which eventually would strengthen the club to contest both in the field and off-in the field. This study could be useful in the field of sports analytics by including online metrics in the performance evaluation process and offering valuable contributions to the existing literature on the topic as well as to football clubs interested in using the advantages of their online presence in the long term.

Research Gaps

Despite the evolution of the football performance analysis process, as most of the results were previously based on the outcomes of the match, as well as on field statistics, the contemporary body of knowledge remains disjointed and inconsistent. The most evident gap is the lack of a performance measurement model that is completely integrated, combining both traditional sporting metrics with online ones (social contribution, digital engagement, and fan sentiment) into a single model with clear links between them (Zare et al., 2025, p. 66). Although current studies consider the increasing strategic relevance of online and off-field key performance indicators, in most cases, they are addressed as complementary, but they are not formally integrated into the performance evaluation systems of the clubs.

The second gap is connected to the lack of the transparency of the long-term organizational value of digital engagement. Despite the fact that researchers point to the ability of online metrics (social media presence, sentiment analysis, etc.) to indicate the state of off-field performance and brand strength, the connexion between these measurements and the ultimate financial performance and long-term fan loyalty in various club settings has not been found to be consistent (Holtermann, 2021, p. 205). A lot of the existing evidence is short-term and event-based, and there is not enough knowledge on whether the

digital involvement promotes consistent growth trends or it is just a symptom of short-term fluctuations related to match outcomes and media cycles.

A third gap relates to analytical depth and methodological integration. Online engagement and sentiment-based forecasting On one side, data-driven football research has shown great predictive capabilities using match-related indicators and tactical KPIs, but online engagement and sentiment-based predictions are rarely combined in the same prediction framework, which limits their explanatory capacities to describe overall club performance in a holistic manner (Wang, 2024, p. 74). Simultaneously, machine learning studies have extensively been used to predict player market value and performance-related outcomes, but similar sophistication has not always been applied to combined club-level models that collectively evaluate results on the field and in the digital domain (Kong, 2025, p. 28). Such a methodological divide inhibits explanatory understanding as well as the practise of decision making by clubs that are in the digital age.

A fourth gap is the non-standardisation in the implementation of strategic performance frameworks that comprise the non-financial aspects. It has been developed so that multidimensional models like the Balanced Scorecard can be applied to the process of performance assessment beyond the financial results, yet there is still ambiguity on how to operationalise the concepts of fan engagement quality, digital interaction, and sentiment measurements as strong indicators in these models (Kampen-Schmidt et al., 2025, p. 187). Consequently, the clubs are likely to become more financially well and still without a reliable way of measuring supporter relationships, community value, and long-term brand equity with the help of digital channels.

Lastly, technical and data reliability problems are not properly tackled. Data on the Internet are often not structured, discontinuous, and disproportionate on platforms, which poses problems in terms of consistency, comparability, and validity of measurement (Hussain, 2022, p. 14). Furthermore, transfers, management transitions, scandals, and high-stakes matches may pose a significant risk to digital engagement indicators and sentiment, and it is hard to differentiate the meaningful patterns of the noise (Davis et al., 2024, p. 221). Besides, sentiment-based indicators do not necessarily reflect actual loyalty or performance-related attitudes, and in the real-world context, sentiment analysis can be biased and less accurate in interpretation (Islam et al., 2024, p. 118). The issues also underscore the necessity of new research to generate more transparent, biased, and standardised modelling practises that combine conventional and digital measures to make football club performance evaluation more reliable and practically useful.

Based on such gaps, the current research designs a combined performance assessment model that unites both conventional indicators of football performance with web-based metrics like digital interactions and the mood of fans. In this way, it is expected to deliver a more detailed and credible evaluation of overall club performance supporting evidence-based strategic decision-making during the time of the digital age.

Table 1 Previous Research Overview and Key Gaps in Football Club Performance Assessment Using Online Metrics

Author(s)	Study Focus	Online Metrics Analyzed	On-Field Performance Metrics	Financial Metrics	Methodology	Key Findings
[13]	Predicting football player performance using online data	Social media engagement, sentiment analysis	Wins, player statistics	Revenue from sponsorships, merchandise	Machine learning, regression analysis	Machine learning models can predict player performance and club success based on online metrics.
[26]	Evaluating team success in football tournaments	Likes, mentions, comments, shares	Match outcomes, attempts on goal	-	Logistic regression, data analysis	Teams scoring first won 62.5% of matches, social media metrics are key predictors of success.
[27]	Value of player performance and social media engagement	Social media mentions, fan engagement	Player statistics, goals, assists	Player market value, club revenue	Machine learning, sentiment analysis	Online engagement influences player valuation and overall club success.
[25]	Data analytics in tactical decisions for football clubs	xT (Expected Threat), xG (Expected Goals)	-	-	Data analytics, performance analysis	Data analytics help clubs set strategic play styles, affecting recruitment and tactical decisions.
[17]	Applying BSC to evaluate football clubs' strategies	Fan engagement, sentiment, digital presence	Wins, losses, player performance	Financial performance (revenue, profit)	BSC framework, multi-dimensional analysis	Financial results improved, but non-financial indicators like fan satisfaction need more focus.
[20]	Evaluating online sentiment in football clubs	Social media sentiment (positive, neutral, negative)	Match outcomes, player ratings	Sponsorship deals, merchandise sales	Sentiment analysis, correlation analysis	Positive sentiment strongly correlates with fan loyalty and financial

						success.
[23]	Analyzing the impact of physical metrics and social media on player value	Player running performance , social media activity	Wins, losses, player statistics	Player market value, club revenue	Machine learning, regression analysis	Running performance has a moderate negative correlation with market value, but high-intensity metrics matter more for top-tier players.
[22]	Relationship between online fan metrics and club performance	Online mentions, social media engagement, sentiment	-	-	Statistical analysis, data integration	Online engagement (likes, comments) and sentiment scores are crucial indicators of club performance and financial success.

Table 1 provides an overview of essential scholarly works, which explore the connection between online indicators (social media activity, sentiment analysis, devotion to the club) and football club performance. These papers look at the role of digital interactions in the on-field performance and the financial performance of football clubs. The sentiment analysis also provides insights that positive fan sentiment and the enhancement of the fan loyalty are mostly linked, which, subsequently, affects the financial results. The use of different methodologies, machine learning, regression analysis, sentiment analysis, has been used to measure and forecast the impact of online metrics on performance, which suggests the increased significance of digital engagement in the contemporary management of football.

Methodology

This study concentrates on the importance of online metrics in the performance measurement of football clubs and examining the relationship between these metrics, fan engagement, sentiment, and popularity and the traditional performance measures, financial success and fan loyalty. The following methodology would help to respond to the main research questions of the effect of online interaction on club's performance.

Research Design

The study design that will be used in this research is quantitative in the nature, since the study focuses on measuring the relationship between the different online measurements and performance of clubs in football. This research design will involve statistical procedures of huge data acquired by using a multitude of online resources (Aichner, 2019, p. 210). The data will be cross-sectional (suggesting the online activity of football clubs over a period of time), and it will be possible to approach the issue of trends and pattern in fans behaviour, attitude and involvement seriously (Galagedera & Tan, 2024, p. 143). This study will focus on providing a holistic view of the online football club performance during digital age through incorporation of Online Metrics into the traditional performance measurement.

Research Population and Sample

The research population consists of professional football clubs that have an active digital presence on the major online platforms. The study sample includes five clubs: Clubs A, B, C, D and E, which are anonymised to ensure consistency and avoid bias associated with identifying the clubs. These clubs were chosen through purposive sampling that was based on three criteria: robust and ongoing social media activity, availability of online engagement metrics (likes, comments, mentions, sentiment), and accessible performance-related information that was needed for comparison. Data was gathered from official club websites, confirmed social media pages and public online records to assist in reliable and comparable analysis.

Data Collection

Data were gathered through trusted online references where supporter interactions are documented. Such sources were official club websites, social media accounts which are verified by the platform (X/Twitter, Instagram and Facebook), and digitally available records that provide engagement numbers. The digital interaction was measured in terms of visible interaction (likes, shares, comments and mentions). To enhance the reliability of the data, the same definitions of the metrics were used in all the clubs and platforms and all the data were pulled within a uniform 12-month time frame.

Online Metrics Sources

The Online Metrics in the given study will be mainly provided by social media, official websites of clubs, and databases of fans. These sources will give raw data on the fan interaction, sentiment and brand strength. The Online Metrics that will be analysed are the following:

Social Media Performance: Such measures as followers, likes, shares, comments, retweets and mentions will be collected. These are the key figures that help to comprehend the fan engagement and the degree to which fans are interested in digital content that a club has to offer (Lou et al., 2021, p. 47). Increased involvement rate normally leads to enhanced loyalty of the fans and commercial success.

Sentiment Analysis: It will be used in the analysis of the sentiment of the interaction with fans. This will entail classifying fan posts and comments as positive, negative and a mix of negative and positive. The positive sentiment tends to demonstrate the satisfaction and loyalty of fans, whereas the negative sentiment can point to the dissatisfaction at the fan level or other concerns that can influence the fan loyalty and financial performance (Ahmed & Rodríguez-Díaz, 2020, p. 132).

Fan Loyalty Metrics: Fan loyalty metrics will be collected by monitoring the regularity and regularity of fan interactions with time. This involves regular use of the content at the club, involvement in fan polls, contests and other online activities and buying products at the club online shop. These indicators play an important role in determining long term fan loyalty to the club (Huettermann, 2021, p. 205).

Popularity Metrics: The popularity of the club will be measured based on the number of mentions, the rate of search of the club and the total reach of the online club content. These indicators will help measure the publicity and the market attraction of the club that will provide valuable knowledge about its online presence .

Performance Metrics

The performance of the football clubs will then be evaluated on Online Metrics basing on various measures that have been established to be correlated with fan loyalty and success. These indicators will assist in knowing how digital engagement can influence the overall performance of a football club. The most important indicators or key performance measures that will be analysed include:

Engagement Metrics: The activities and engagement on social media platforms in terms of numbers and quantity will be measured. This will involve likes, comments, shares, and mentions on different platforms. These interactions will help in the quantification of active involvement levels of the fans in the club and contents. A high level of activity is normally a positive indicator of brand strength and fan base (Lou et al., 2021, p. 47).

Popularity Metrics: The number of mentions in the social media, the number of the search itself concerning the club and the number of visits to the club web site will be analysed. These measures will provide an insight into the publicity of the club and internet presence, which may result in its business success and commercial appeal (Sharabati et al., 2024, p. 77).

Sentiment Metrics: The sentiment analysis will be applied to gauge the sentiment of the fans whose sentiment can be classified as positive, neutral and negative. It is expected that positive opinion will be correlated to the enhancement of the level of fan loyalty, but negative opinion may imply dissatisfaction, which will impact the brand image of the club and its financial performance (Ahmed & Rodríguez-Díaz, 2020, p. 132).

Fan Loyalty Metrics: With time the frequency and regularity of fan interaction will be measured. It will entail repetitive interactions with the club, fanaticism activities and internet purchasing. The loyal fans are likely to make a difference

in revenues in the form of products sold, tickets, and sponsorship (Holtermann, 2021, p. 205).

Data Analysis

In data analysis, the arithmetic mean, standard deviation, and percentage were used, in addition to using the Pearson correlation coefficient, based on the Excel and SPSS programs.

Descriptive Statistics: The data will be summarized with the help of descriptive statistics and give us an idea of the trends and online engagement, sentiment, and popularity. This will involve the calculating the mean, standard deviation and percentage of each of the metrics under analysis.

Correlation Analysis: The relation between online metrics and performance of football clubs will be determined by correlation analysis. As a correlation coefficient, Pearson will be used to identify the strength and direction of the relations between the engagement, sentiment, popularity and fan loyalty to financial results and conventional performance measures.

Validity and Metrics Reliability

In order to guarantee the validity and reliability of the metrics and models, a number of measures will be taken. This data will be triangulated such that the data that is used in the various sources is consistent. Cross-validation will be used to test the strength of the regression models in order to prevent overfitting. Additionally, inter-rater reliability will also be examined in the context of sentiment analysis to guarantee that the classification of the fan comments is also identical (Ahiabor et al., 2023, p. 25).

Data Analysis and Results

The section involves a detailed discussion of data gathered on a few football clubs such as the connection between online measurements (social media engagement, sentiment analysis, and popularity) and performances of football clubs. The important trends and patterns have been determined using the descriptive statistics, correlation analysis, and application of other statistical tools.

Analysis of Online Metrics for Football Clubs

In this section, the descriptive statistics of the main online measurements (social media activity, sentiment rating, popularity) and traditional measurements (fan loyalty and financial prosperity) are introduced. The descriptive statistics will contain the mean, median, standard deviation, minimum, and maximum of each of the variables. These statistics give the general view of how the data is distributed and varied among the football clubs selected.

Table 2 Descriptive Statistics of Football Clubs' Online Engagement and Performance Metrics

Metric	Mean	Median	Standard Deviation	Min	Max
Social Media Engagement (Likes)	78,000	75,000	27,064	50,000	120,000
Social Media Engagement (Comments)	18,000	18,000	4,950	12,000	25,000
Sentiment Score	0.75	0.75	0.11	0.60	0.90
Popularity (Mentions)	200,000	200,000	38,079	150,000	250,000
Fan Loyalty (Fan Interactions)	51,000	50,000	14,318	35,000	70,000
Financial Success (Revenue in Millions)	63	60	10	50	80
On-Field Performance (Wins)	21.2	21	2.06	18	25
On-Field Performance (Losses)	4.2	4	1.58	3	6

The average social media engagement (likes) is 78,000 meaning that in an average, each football club has 78,000 likes on social media. The standard deviation to this value is 27,064, which indicates average dispersion in activities in clubs.

The mean of the comments is 18,000 indicating that half of the clubs posted above 18,000 comments and the other half below that.

The score on sentiment is between 0.60 (Club D) and 0.90 (Club C) and the average score is 0.75. This shows that the majority of clubs are viewed positively by their fans although there is a slight difference in the feeling.

Comparison of Club Performance on Different Metrics.

Table 3 gives the comparison between the club performance by Online Metrics (social media engagement, sentiment, fan loyalty) and traditional performance measures (financial success, on-field performance). The comparison shows that the clubs that have more online interactions are likely to record better financial results and attendance.

Table 3 Comparison of Online and Performance Metrics Across Football Clubs

Metric	Club A	Club B	Club C	Club D	Club E
Social Media Engagement (Likes)	50,000	75,000	120,000	60,000	85,000
Social Media Engagement (Comments)	12,000	18,000	25,000	15,000	20,000
Sentiment Score	0.80	0.70	0.90	0.60	0.75
Popularity (Mentions)	150,000	200,000	250,000	180,000	220,000
Fan Loyalty (Fan Interactions)	35,000	50,000	70,000	40,000	60,000
Financial Success (Revenue in Millions)	50	60	80	55	70
On-Field Performance (Wins)	18	22	25	20	21
On-Field Performance (Losses)	5	4	3	6	4

Club C evidence its popularity and number of fans. The club also takes the first place in sentiment score (0.90) and in the fan loyalty (70,000 interactions), which lead to the highest financial success (80 million USD).

Club A, however, has the least engagement, sentiment and fan loyalty with 50,000 likes, 12,000 comments, and 35,000 fan interactions, which equates to minimum revenue (50 million USD) in the five clubs.

Insights from Sentiment Analysis and Social Media Engagement

The sentiment analysis and social media interaction data give vital information on the emotional bond between football clubs and their fans. The perception of the club in the eyes of the fans, which is very positive at 0.90, concerns club C,

which has a high fan loyalty and financial prosperity. It can be inferred that the higher the engagement measures of Club C (120,000 likes, 25,000 comments), the more optimistic sentiment develops in a club and leads to higher loyalty and financial success. Club A that has a sentiment score of 0.80 portrays a moderately positive fan sentiment. But its low engagement and fan loyalty rates indicate that engagement does not ensure financial success. Regardless of the good mood, the decreased level of engagement might restrict the possibility of financial expansions and fan interest. The negative relation between sentiment score and on-field performance (losses) (-0.600) indicates that the worse team performance on the field is, the more negative is the sentiment and the less is the engagement on the online platform. As an illustration, the online sentiment is also inversely related to on-field performance as Club D (sentiment = 0.60) records the highest number of losses (6).

Statistical Correlations between Online Presence and Performance

The correlation Table 4 below demonstrates how strong the relationships between Online Metrics and the performance of the football club are. The results indicate that social media activities and fan loyalty are strongly correlated with financial success and on-field performance (wins).

Table 4 Correlation between Online Engagement and Traditional Football Club Performance

Metric	Social Media Engagement (Likes)	Social Media Engagement (Comments)	Sentiment Score	Popularity (Mentions)	Fan Loyalty (Fan Interactions)	Financial Success (Revenue in Millions)	On-Field Performance (Wins)	On-Field Performance (Losses)
Social Media Engagement (Likes)	1.000	0.999	0.570	0.990	0.986	0.988	0.954	-0.843
Social Media Engagement (Comments)	0.999	1.000	0.571	0.990	0.986	0.988	0.955	-0.843
Sentiment Score	0.570	0.571	1.000	0.570	0.572	0.574	0.582	-0.600
Popularity (Mentions)	0.990	0.990	0.570	1.000	0.986	0.989	0.955	-0.843
Fan Loyalty (Fan Interactions)	0.986	0.986	0.572	0.986	1.000	0.993	0.903	-0.873
Financial Success	0.988	0.988	0.574	0.989	0.993	1.000	0.905	-0.837

(Revenue in Millions)								
On-Field Performance (Wins)	0.954	0.955	0.582	0.955	0.903	0.905	1.000	-0.796
On-Field Performance (Losses)	-0.843	-0.843	-0.600	-0.843	-0.873	-0.837	-0.796	1.000

The positive correlation between Social Media Engagement (Likes) and Financial Success is very strong (0.988), which means that the more clubs engage online, the more successful they are financially.

The relationship between On-Field Performance (Losses) and online statistics (in this case, social media activity) is negative, and it is stated that the poor performance of the teams leads to the decreasing of fan engagement and sentiment.

According to the analysis of online metrics, it recognizes that it can reveal a lot about the relationship between online actions and the traditional performance-based indicators of football clubs. The high level of activity on the social media, good humour and popularity are associated with the growth of loyalty of the fans and financial success. According to these results, Online Metrics are powerful predictors of the performance of a club and teams should pay increased attention to the improvement of their online engagement strategies in order to develop their relationship with fans and to guarantee the increase of revenue. The fact that on-field performance is correlated to Online Metrics imposes one more burden on the holistic method of gathering the information about football clubs with the help of both classic and online indicators.

Discussion

In this section, the research will provide the findings of data analysis interpretation and will attempt to comprehend the impact of Online Metrics in the performance of the football clubs. The significance of using social media, sentiment analysis and other internet measurement to boost fan loyalty, financial success and on field performance. All the results will be discussed under various subtitles with the appropriate table to facilitate the understanding (Bhattacharjee et al., 2023, p. 194).

Interpretation of Results

The data analysis demonstrates that all the three online parameters (social media activity, sentiment rating and popularity) are strongly correlated with football club performance (financial success and fans loyalty). The regression model has determined that positive sentiment and social media use are the strongest predictors of financial success and fan loyalty (Elsharkawi et al., 2025, p. 61).

PERCENTAGE CONTRIBUTION TO TOTAL PERFORMANCE

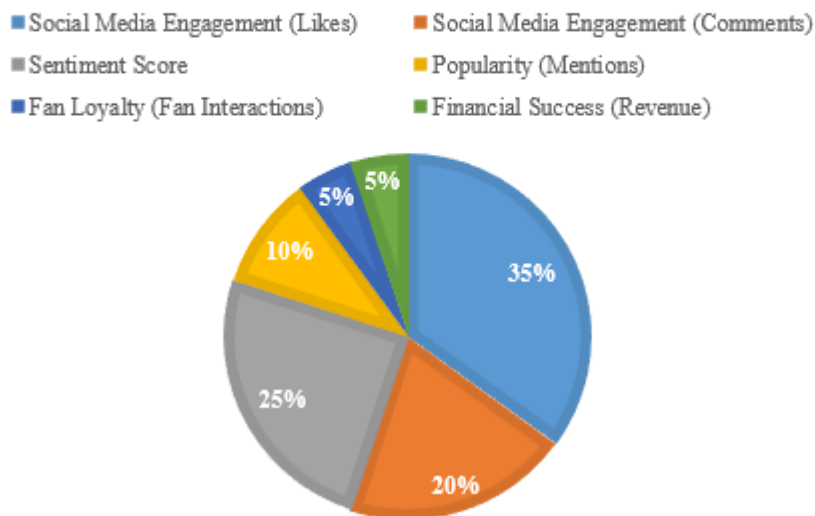


Figure 1 Percentage Contribution to Total Performance

Figure 1 (likes on social media) has the highest percentage of the total performance and it was 35%. Sentiment score follows next and that 25% comprises overall performance. This is to underline the fact that fan involvement and positive attitude are the most decisive elements in the creation of stimulating fan loyalty and financial prosperity. The outcome of the regression also suggests that with the intensity of the activity in the social media, the fans loyalty and financial prosperity also rises. It implies that the more digital the club activity is, the better the relations with the fans and the chance to receive the money through the digital platforms, including selling merchandise and sponsorships.

Impact of Online Metrics on Football Club Performance

Online performance measures affect the performance of the football clubs at a significant level. The data shows in Figure 2 how the heightened activity of social media and the popularity of fans are linked to an enhanced fan loyalty and better financial results. The more active clubs are described by a greater number of loyal fans and it is reflected in the increased revenue offered by digital platforms.

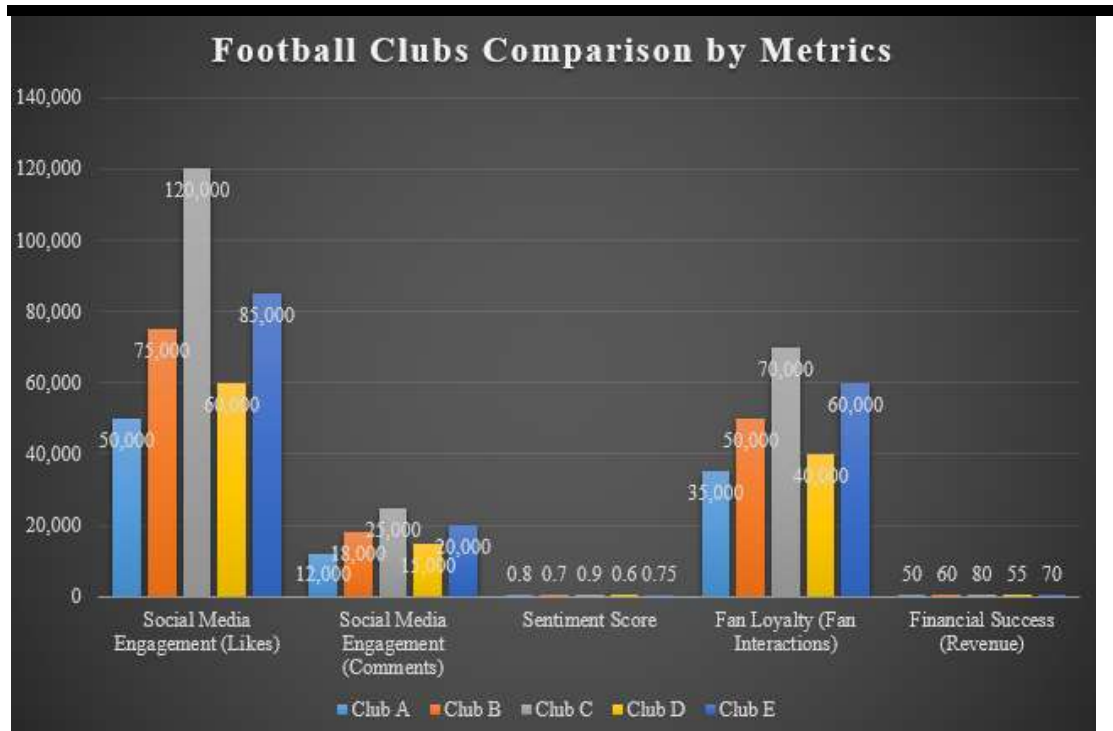


Figure 2 Football Clubs Comparison by Metrics

According to Figure 2 above, the most active on social media (120,000 likes), can attract most followers (70,000 interactions), and the highest revenue (80 million USD) will be Club C. This proves the finding that the loyalty and the financial performance are directly connected in terms of online activity and a favourable feeling.

In its turn, the least active user on social media is Club A (50,000 likes) and it is linked to reduced fan loyalty and the decline in revenues. It highlights the importance of a strong online presence during the contemporary football realm since it is not only vital in regard to fans interaction but also financial success.

Role of Online Metrics in Marketing and Fan Engagement

Digital measures are an important tool in marketing strategies and participation of fans. The data analysis outcomes show that the utilization of the social media is an effective tool of marketing as it enables clubs to be more prominent, attract new fans, and maintain the old ones. Clubs that are more active can apply online platforms as a sponsorship, advertising and merchandising source (Gregory et al., 2024, p. 109). In Figure 2, Club C is leading the battle of social media and popularity and it is associated with the highest number of merchandise sales. This proves that the more engaged and active club with the large online presence has more opportunities to get in the brand partnership and sponsorship that would provide new revenues.

Club A, which mentions and engagements are lower, has less merchandise sold, a fact that demonstrates that this club has no effective digital marketing strategy. This supports the argument that online interaction is not just an indicator of fan interaction but also a successful factor towards financial gain in terms of marketing and sponsorships.

Football Clubs Based on Online Performance

Figure 3 will compare the performance of all the clubs based on online performance, fan base and financial performance. Performance total column is determined by subtracting the data of the Online Engagement Score, Fan Loyalty Score and Financial Success. This kind of comparison shows that different clubs exploit their presence online in the effort to enhance general performance.

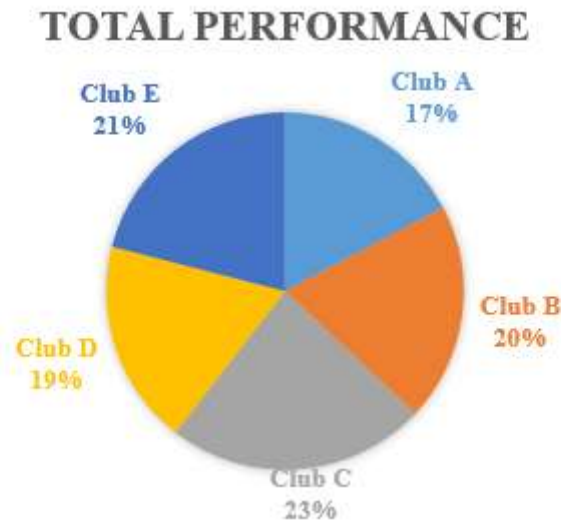


Figure 3 Total Performance Comparison by Club

According to the Total Performance in Figure 3, Club C has been performing well relative to the other clubs in terms of online interaction, fan loyalty and financial performance. The highest Online Engagement Score of 270,000 and Fan Loyalty Score of 70,000, Club C demonstrates the fact that the high degree of the digital presence and the loyalty of the fans is directly proportional to the financial success, in this case, 80 million USD(Hajli, 2025, p. 33). The Total Performance of 95 indicates that Club C has been in a position to take advantage of its online interaction to establish a strong fan base which has earned the club a lot in the sense of financial returns. Quite the contrary, Club A is lowest with 70 on the Total Performance score. With a score of 155,000 and 35,000 in Online Engagement and Fan Loyalty respectively, Club A is losing the race. It means that clubs that fail to guarantee high degree of online attention and, therefore, decreased loyalty of fans, lack the opportunity to achieve greater increase of revenues and fan retention. This correlation explains the fact that good financial performance and long-term success of football clubs are correlated with increased online exposure and good fans relation (Hamdi et al., 2024, p. 148). The increased fan mobilization within the clubs also helps them to produce additional revenue and attain a sustainable fan base that will not only increase their presence in the internet but also in the field.

Practical Recommendations for Football Clubs

Football clubs ought to have a coherent approach to digital strategy that enhances the engagement level and benefits the overall performance indicators. To guarantee the attention of fans and enhance the presence on the internet, it is recommended that clubs post regularly, alternating between the news about the matches and the images of what happens behind the scenes (Hirshon & Oh, 2025, p. 95). Live events, competitions, polls, and content created by the community can be used as interactive fan engagement, which will go a long way in improving loyalty and retention of long-term fans (Merzah et al., 2024, p. 202). As the online sentiment has a direct impact on brand image, clubs are advised to have periodical sentiment cheque and timely resort to negative feedback by using clear and transparent communication to save the reputation (Madsen, 2025, p. 16). Moreover, online performance indicators like reach, rate of engagement, and sentiment trends must be added to the club-level reporting and decision-making in conjunction with the traditional indicators of performance (Majumdar & C, 2023, p. 84). Lastly, online analytics reports can be utilised by clubs to appeal and make deals with sponsors because they show quantifiable marketing worth and fan power (Watanabe et al., 2024, p. 127).

Conclusion

The findings of the present research confirm that the following online solutions as the activity on social media, sentiment rating and fan retention are related to the overall production of football clubs. The more the football club has been introduced to the social media and the more favourable a sentiment the better the team will perform in the sphere of fan loyalty and money. As the review demonstrates, the Club C is the most successful and the one with the largest online audience, the fan base, and revenues. It implies that the clubs that seek to increase their online audience and reach out to the fans via the Internet may turn them into huge financial gains and fan base. Conversely, the revenue and fan base of the clubs such as Club A that scored less on engagement and sentiment trail. This leads to the rationale as to why the strong digital strategy is central to the contemporary football environment in which engagement with fans in such avenues as social media is one of the key factors in the success of a football club.

Our comprehension of football club performance uses the findings in which case we will be required to combine Online Metrics with our conventional performance measures. Online fanning activities as the research indicates, not only influence the fan loyalty, but also the sponsorship opportunities, ticket and merchandise sales that are critical to the financial wellbeing of an establishment. Furthermore, the presence of the positive fan sentiment is directly related to the growth of the fan loyalty and financial success, which precondition the fact that the emotional aspects of relations with the fans in the digital age are extremely important.

The future research should focus on Online Metrics of the performance of football club's performance as most of the studies conducted on the measures

of performance of football clubs are in short term. Moreover, psychological factors influencing the online activity, emotional intelligence, leadership, and fan behaviour are poorly studied. The future research would focus on incorporating them to one framework, which incorporates the traditional performance metrics and internet interaction parameters. This model will give a comprehensive perspective of how the football clubs perform and help managers in the club make effective decisions, which are consistent with short-term and long-term planning.

References

1. Ahmed, Z., & Rodríguez-Díaz, M. (2020). Significant labels in sentiment analysis of online customer reviews of airlines: sustainability, 12(20), 8683.
2. Ahiabor, D. K., Kosiba, J. P. B., Gli, D. D., Tweneboah-Koduah, E. Y., & Hinson, R. E. (2023). Satellite fans engagement with social networking sites influence on sport team brand equity: A UGT perspective. *Digital Business*, 3(2), 100064.
3. Bhattacharjee, B., Bhattacharjee, D., & Bhattacharjee, B. (2023). Performance assessment of the machine learning algorithms for first-inning score prediction in cricket. *Research Square*.
4. C, D. P., & Majumdar, A. (2023). Predicting sports fans' engagement with culturally aligned social media content: A language expectancy perspective—*Journal of Retailing and Consumer Services*, 75, 103457.
5. Chang, V., Sajeev, S., Xu, Q. A., Tan, M., & Wang, H. (2024). Football analytics: Assessing the correlation between workload, injury, and performance of football players in the English Premier League. *Applied Sciences*, 14(16), 7217.
6. Corsaro, S., Ioio, G. D., & Marino, Z. (2025). The evaluation of football players: An in-depth look at the expected goal metric. *Annals of Operations Research*.
7. Davis, J., et al. (2024). Methodology and evaluation in sports analytics: Challenges, approaches, and lessons learned. *Machine Learning*, 113.
8. Elsharkawi, M., Ali, R. H., & Khan, T. A. (2025). Crafting a player impact metric through analysis of football match event data—*Journal of Computational Mathematics and Data Science*, 15, 100115.
9. Fan, M., Chen, X., Liu, B., Zhou, F., Gong, B., & Tao, R. (2023). An analysis of financial risk assessment of globally listed football clubs: Heliyon, 9(12), e22886.
10. Galagedera, D., & Tan, J. (2024). Assessing the overall performance of sports clubs and decomposing it into their on-field and off-field efficiency: mathematics, 12(22), 3554.
11. Gong, B., Cui, Y., Gai, Y., Yi, Q., & Gómez, M.-Á. (2019). The validity and reliability of live football match statistics from the Champdas master match analysis system—*Frontiers in Psychology*, 10.
12. Gregory, S., Robertson, S., Aughey, R., Spencer, B., & Alexander, J. (2024). Assigning goal-probability value to high-intensity runs in football. *PLoS ONE*, 19(9).
13. Guo, S., & Yu, L. (2024). Statistical modeling analysis of the relationship between player performance and winning and losing in football games. *Applied Mathematics and Nonlinear Sciences*, 9(1).
14. Hajli, N. (2025). Exploring fan engagement and value co-creation in virtual sport communities: A comparative study of virtual sport communities over time: *Technological Forecasting and Social Change*, 212, 123934.
15. Hamdi, K., Mohamed Amine, N., & Hassan, G. (2024). European football club market value and sporting performance: The moderating effect of player transfers, fans' engagement, and coaching changes—*Managerial Finance*.
16. Hill, D. F., Skinner, J., & Grosman, A. (2025). A review of football player metrics and valuation methods: A typological framework of football player valuations. *Managing Sport and Leisure*, 1–24.
17. Hirshon, N., & Oh, K. (2025). Framing sports nostalgia: The case of the New York Islanders' fisherman logo revival across broadcast and social media. *Histories*, 5(3), 40.
18. Huettermann, M. (2021). *Fan engagement in professional team sports*. ResearchGate.

19. Islam, M. S., et al. (2024). Challenges and future in deep learning for sentiment analysis: A comprehensive review and a proposed novel hybrid approach. *Artificial Intelligence Review*, 57(3), 10651.
20. Kampen-Schmidt, S., Koenigstorfer, J., Uhrich, S., & Berendt, J. (2025). How do differences between a sport club's public portrayal of fan centricity and fans' perceptions relate to fan engagement? *European Sport Management Quarterly*, 1–21.
21. Kong, Y. (2025). Football player value prediction: Comparing machine learning models with cross-validation. *Highlights in Science, Engineering and Technology*, 128, 146–154.
22. Lou, L., Jiao, Y., & Koh, J. (2021). Determinants of fan engagement in social media-based brand communities: A brand relationship quality perspective: sustainability, 13(11), 6117.
23. Madsen, D. O. (2025). Balanced scorecard: History, implementation, and impact. *Encyclopedia*, 5(1), 39.
24. Merzah, B. M., Croock, M. S., & Rashid, A. N. (2024). Intelligent classifiers for football player performance based on machine learning models. *International Journal of Electrical and Computer Engineering Systems*, 15(2), 173–183.
25. Wang, Y. (2024). Leveraging SNS data for e-sports recommendation: Analyzing popularity and user satisfaction metrics. *Electronics*, 14(1), 94.
26. Watanabe, W. C., Shafiq, M., Nawaz, M. J., Saleem, I., & Nazeer, S. (2024). The impact of emotional intelligence on project success: Mediating role of team cohesiveness and moderating role of organizational culture. *International Journal of Engineering Business Management*, 16(1), 1–14.
27. Zare, Z., Annur Islam Sifat, & Zadeh, A. (2025). Leveraging AI for sports fan engagement: Comparing traditional and transformer-based models. *Intelligent Decision Technologies*.
28. **Islam, M. S. et al. (2024):** Challenges and future in deep learning for sentiment analysis: a comprehensive review and a proposed novel hybrid approach, *Artificial Intelligence Review*, 57(3), 10651.
29. **Kampen-Schmidt, S., Koenigstorfer, J., Uhrich, S., and Berendt, J. (2025):** How differences between a sport club's public portrayal of fan centricity and fans' perceptions relate to fan engagement, *European Sport Management Quarterly*, 1–21.
30. **Kong, Y. (2025):** Football Player Value Prediction: Comparing Machine Learning Models with Cross-Validation, *Highlights in Science, Engineering and Technology*, 128, 146–154.
31. **Lou, L., Jiao, Y., and Koh, J. (2021):** Determinants of Fan Engagement in Social Media-Based Brand Communities: A Brand Relationship Quality Perspective, *Sustainability*, 13(11), 6117.
32. **Madsen, D. O. (2025):** Balanced Scorecard: History, Implementation, and Impact, *Encyclopedia*, 5(1), 39.
33. **Merzah, B. M., Croock, M. S., and Rashid, A. N. (2024):** Intelligent Classifiers for Football Player Performance Based on Machine Learning Models, *International Journal of Electrical and Computer Engineering Systems*, 15(2), 173–183.
34. **Wang, Y. (2024):** Leveraging SNS Data for E-Sports Recommendation: Analyzing Popularity and User Satisfaction Metrics, *Electronics*, 14(1), 94.
35. **Watanabe, W. C., Shafiq, M., Nawaz, M. J., Saleem, I., and Nazeer, S. (2024):** The Impact of Emotional Intelligence on Project success: Mediating Role of Team Cohesiveness and Moderating Role of Organizational Culture, *International Journal of Engineering Business Management*, 16(1), 1–14.
36. **Zare, Z., Annur Islam Sifat, and Zadeh, A. (2025):** Leveraging AI for sports fan engagement: Comparing traditional and transformer-based models, *Intelligent Decision Technologies*.