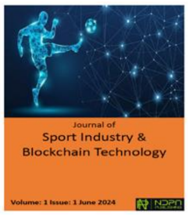
Journal of
Sports Industry & Blockchain Technology

e-ISSN: 3023-8528
https://ndpapublishing.com/index.php/sibt



Evaluating the Predictive Performance of AI in Football Match Forecasting: A Statistical and Comparative Analysis Across European Leagues

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Article Info
Received: 24 April 2025
Revised: 08 May 2025
Accepted: 16 May 2025
Published: 30 June 2025

Keywords
AI-based Football
Explainable AI In Sports
Machine Learning
Sports Analytics
Statistical Modeling In Football
Predictive Performance Evaluation

ABSTRACT

This study evaluates the predictive accuracy of an AI-based model in forecasting football match outcomes and in-game statistics, specifically ball possession and pass accuracy. A total of 200 matches from top-tier leagues in ten European countries and two international club competitions were analyzed. Predictions were collected on match-day mornings using real-time web searches and compared with actual results. The AI model correctly predicted 55.5% of match outcomes, including 25 exact scorelines. Prediction accuracy varied by league, with the highest rates in Italy (70.6%) and the UEFA Champions League (66.7%), and the lowest in England (16.7%) and Portugal (17.6%). A Chi-Square test indicated a statistically significant association between AI predictions and actual results (χ^2 = 46.520, df = 4, p < 0.001), suggesting predictions were not random but reflected underlying patterns. Pearson correlation analysis revealed moderate relationships between predicted and actual in-game statistics, particularly for pass accuracy (r = 0.626 for away teams) and ball possession (r = 0.591 for away, r = 0.581 for home teams). Findings indicate that while AI can offer valuable insights, its reliability is inconsistent across leagues and metrics. AI models tend to perform better in structured, data-rich contexts, while unpredictable leagues present greater forecasting challenges. Future research should integrate real-time match data, advanced machine learning techniques, and sentiment analysis from social media and expert commentary to enhance predictive performance and bridge the gap between computational models and real-world football dynamics.

1. INTRODUCTION

The predictive capabilities of artificial intelligence (AI) in football match forecasting have gained significant attention in sports analytics. While AI models often outperform naive benchmarks and sometimes even human experts, their accuracy remains inconsistent due to the complexity and unpredictability of football. Studies have reported moderate success, with AI models achieving prediction accuracies in the 50–70% range for balanced competitions [1,2]. However, models that simplify the problem—such as excluding draws—can present inflated accuracy rates. For instance, a study on the 2006 FIFA World Cup achieved 76.9% accuracy in a binary win/loss scenario, but accuracy drops when including the three-outcome prediction (win–draw–loss) [2]. These findings illustrate that football's dynamic and low-scoring nature poses a major challenge for AI-driven forecasting models.

Beyond raw accuracy, researchers assess AI predictions using advanced probabilistic metrics. Baboota & Kaur [2] evaluated Ranked Probability Scores (RPS) and found that their best machine learning model (a gradient boosting classifier) achieved an RPS of 0.2156, closely matching professional betting odds (RPS 0.2012). While this suggests that AI models can approximate the predictive skill of market-driven betting models, they do not consistently outperform oddsmakers or account for all real-world variables. The literature broadly agrees that AI-based forecasts are not random but influenced by identifiable patterns, yet model performance varies across leagues and match conditions, highlighting the importance of high-quality, structured input data [3].

The effectiveness of AI-driven football predictions is highly dependent on data sources and

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*This study was presented as an oral presentation at the 6th International Recreation and Sports Management Congress.

How to cite this article

Subak, G. E. (2025). Evaluating the Predictive Performance of AI in Football Match Forecasting: A Statistical and Comparative Analysis Across European Leagues . J Sport Industry & Blockchain Tech, 2(1), 30-38.

Research Article/ DOI: 10.5281/zenodo.15677823

feature selection. Traditional prediction models rely on historical match statistics, team form, and performance metrics [4], while more recent approaches incorporate player-level data (e.g., pass accuracy, shots on target), contextual factors (e.g., weather conditions, injuries), and bookmaker odds to refine predictions [4,5]. Feature selection plays a crucial role in AI-based forecasting, as dimensionality reduction techniques improve model generalization by filtering out irrelevant predictors [3]. However, integrating real-time, unstructured data remains an ongoing challenge in AI-driven sports analytics [6].

Various machine learning techniques have been employed for football outcome prediction, with artificial neural networks (ANNs), decision trees, ensemble models, and support vector machines (SVMs) being widely used [6]. Gradient boosting models have emerged as top performers in comparative studies, particularly for league-based forecasting [2]. Recent research also explores deep learning methods, such as long short-term memory (LSTM) networks, which model sequential match events, though their predictive improvements remain modest [1]. AI applications are evolving towards hybrid models, integrating multiple algorithms to leverage their complementary strengths, further improving robustness and accuracy [3].

Despite advancements, several challenges persist in AI-driven football forecasting. Football's unpredictability, the presence of draw outcomes, data quality limitations, and model interpretability issues all hinder the ability of AI models to produce consistently reliable predictions [7]. The use of explainable AI (XAI) techniques is increasingly emphasized to enhance model transparency for coaches, analysts, and bettors [6]. Ethical concerns regarding data biases and fairness in AI-driven sports analytics also remain key topics of discussion [6].

This study investigates the predictive performance of an AI-based model in forecasting football match outcomes, analyzing variations in prediction accuracy across different leagues and tournaments. By assessing the AI model's success rates in various football competitions, the study aims to identify factors influencing prediction accuracy. Notably, the AI model's higher success rates in certain leagues may be attributed to differences in data availability, structural variations between leagues, and the presence of unquantifiable match-related variables.

Through a comprehensive evaluation of AI-generated football predictions, this study seeks to highlight the strengths and limitations of AI-driven forecasting models. The findings will contribute to the development of more advanced AI prediction frameworks by offering insights into areas where AI performs well and where improvements are needed. Ultimately, this research aims to provide a foundation for future enhancements in AI-based football prediction systems, bridging the gap between computational models and real-world sports analytics applications.

2. MATERIALS AND METHODS

2.1. Study Design and AI Prediction Process

This study aimed to assess the predictive accuracy of an artificial intelligence (AI) model in forecasting football match outcomes based solely on publicly available online data. A total of 200 football matches were analyzed, covering the top-tier leagues of ten European countries—Germany, France, the Netherlands, England, Spain, Italy, Portugal, and Turkey—as well as international club competitions, including the UEFA Champions League and the UEFA Europa League. The AI tool used for prediction was ChatGPT premium version (latest model), which was prompted to conduct a real-time web search before generating its forecasts.

To ensure that predictions were based on the most up-to-date information, AI-generated predictions were collected on the morning of each match day. For every match, the AI was provided with the following prompt: "Home Team Name - Away Team Name. Please conduct an in-depth web search on recent developments and provide your predictions accordingly." Each prediction was recorded systematically before the match took place to prevent bias in data collection.

2.2. Data Collection and Variables

For each match, the AI-generated outputs included four key predictions: the expected match outcome, the predicted scoreline, ball possession percentage for both teams, and pass accuracy percentage for both teams. The predicted match outcome was coded as 1 for a home win, 0 for a draw, and 2 for an away win. After each match concluded, the actual results were retrieved and recorded in the same structured format. This included the actual match outcome, actual scoreline, and the real ball possession and pass accuracy percentages for both teams. The dataset was structured and coded in SPSS 26 for statistical analysis.

This study was conducted in accordance with ethical research guidelines, and approval was obtained from the Scientific Research and Publication Ethics Committee of Iğdır University (Meeting Date: 14.03.2025; Meeting No: 2025/8).

2.3. Statistical Analysis

To evaluate the AI's predictive performance, descriptive statistics were first applied to determine the number of correctly predicted match outcomes and exact score predictions. Additionally, results were analyzed based on different leagues and competitions to explore whether the AI demonstrated variation in predictive accuracy across different football environments.

To assess the relationship between AI-predicted and actual match results, a chi-square test was conducted. This test aimed to determine whether AI's match outcome predictions were significantly different from random chance or exhibited a meaningful alignment with real-world outcomes. Furthermore, to examine AI's ability to estimate in-game performance metrics, a Pearson correlation analysis was performed to compare AI-generated and actual values for ball possession percentage and pass accuracy percentage. This analysis assessed whether AI's statistical estimations of match dynamics corresponded with real match data.

2.4. Scope and Limitations

This study exclusively focused on top-tier football leagues and international club competitions, selecting matches where AI could potentially access more reliable and structured online data sources. The analysis was conducted match-by-match rather than in bulk to ensure that the AI system retrieved the most recent developments before making each prediction. However, this study did not evaluate external factors such as injuries, last-minute tactical changes, or psychological aspects influencing match results.

Through these methodological approaches, this study aimed to provide insights into the effectiveness of AI-based football match predictions and explore potential variations in accuracy across different leagues and competitions.

3. RESULTS

This study aimed to evaluate the predictive accuracy of an artificial intelligence (AI) model in forecasting football match outcomes using publicly available online data. The analysis was conducted on 200 matches from top-tier leagues across ten European countries and two international club competitions, with AI-generated predictions compared against actual match results.

The overall accuracy of AI in predicting match outcomes was 55.5%, with 111 out of 200 matches correctly predicted. However, when considering exact score predictions, the AI successfully forecasted the precise final score in 25 matches. The predictive performance varied across different leagues and competitions, highlighting potential differences in data availability and league-specific factors (Table 1).

Table 1. AI prediction accuracy across different leagues and competitions

Category	Correct Predictions	Incorrect Predictions	Accuracy (%)	Score Accuracy
Total	111	89	55.5	25
Italy	12	5	70.6	3
Champions League	12	6	66.7	1
Spain	7	5	58.3	0
Netherlands	10	8	55.6	3
France	11	10	52.4	0
Turkey	10	12	45.5	2
Europa League	8	10	44.4	1
Germany	9	12	42.9	4
Portugal	3	14	17.6	0
England	3	15	16.7	0

Among the analyzed leagues, the highest prediction accuracy was observed in Italy (70.6%) and the UEFA Champions League (66.7%), suggesting that AI may have better access to structured and comprehensive data for these competitions. Conversely, the lowest accuracy rates were recorded in England (16.7%) and Portugal (17.6%), where AI struggled to generate reliable match outcome forecasts. In terms of exact score predictions, Germany (19.0%), Italy (17.6%), and

Turkey (9.1%) showed relatively better alignment between AI-predicted and actual scores, though overall score prediction accuracy remained considerably lower across all leagues.

These findings indicate that while AI-based models can achieve moderate success in predicting match outcomes, they exhibit substantial variability across different leagues and competitions. The observed disparities may stem from differences in the availability of pre-match data, the unpredictability of certain leagues, or structural differences in football competitions. A more detailed breakdown of AI's predictive accuracy across different leagues and competitions is presented in Table 1.

To further assess the predictive accuracy of the AI model, a crosstabulation analysis was conducted to compare AI-generated match predictions with actual match outcomes. The figure (Figure 1) provides a detailed breakdown of how AI predictions were distributed across different match results. The AI predicted a draw in 45 matches, a home win in 91 matches, and an away win in 64 matches. However, actual match results showed that 41 matches ended in a draw, 93 matches were home wins, and 66 matches were away wins. This distribution reveals some alignment between AI predictions and real outcomes but also highlights noticeable deviations in certain match categories.

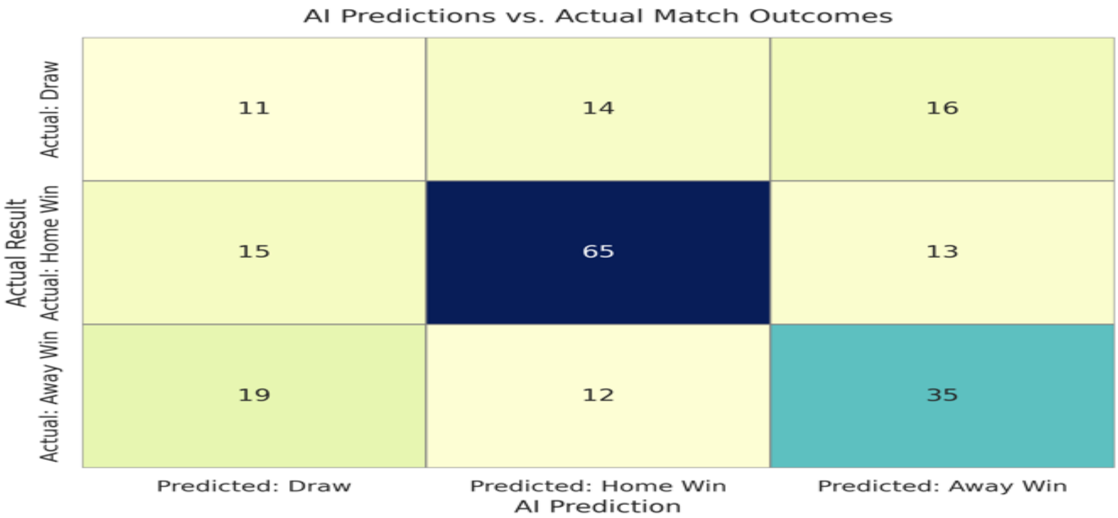

Figure 1: Confusion matrix of ai predictions vs. actual match outcomes

To statistically evaluate whether the AI's predictions were significantly associated with actual match results, a Chi-Square test was performed. The Pearson Chi-Square test result (χ^2 = 46.520, df = 4, p < 0.001) indicates a statistically significant relationship between AI predictions and actual match outcomes, suggesting that AI's forecasts were not entirely random but exhibited some level of predictive accuracy (Table 2). The Likelihood Ratio test (χ^2 = 49.174, df = 4, p < 0.001) further supports this finding. However, the Linear-by-Linear Association test (χ^2 = 1.329, df = 1, p = 0.249) does not indicate a strong linear trend, implying that while AI demonstrated predictive ability, its accuracy may vary across different types of match outcomes.

Table 2. Chi-Square test results for ai predictions and actual match outcomes

Test Statistic	Value	Degrees of Freedom (df)	Significance (p-value)
Pearson Chi-Square	46.52	4	0.000***
Likelihood Ratio	49.174	4	0.000***
Linear-by-Linear Association	1.329	1	0.249

Beyond match outcomes, the AI's ability to predict key in-game statistics, such as ball possession and pass accuracy, was also examined. A Pearson correlation analysis was conducted to determine the relationship between AI-predicted values and actual match statistics, providing insight into the AI model's effectiveness in estimating in-game performance metrics. The correlation coefficients and significance levels are summarized in Table 3.

The results indicate that AI-predicted and actual ball possession percentages exhibited moderate positive correlations for both home teams (r = 0.581, p < 0.001) and away teams (r = 0.591, p

< 0.001). This suggests that AI-based predictions captured general trends in possession statistics, though not with absolute precision. Similarly, pass accuracy predictions were also moderately correlated with real match data, with correlation coefficients of $r = 0.524$ (home teams, $p < 0.001$) and $r = 0.626$ (away teams, $p < 0.001$).

These findings highlight that while AI predictions aligned to some extent with actual match statistics, there were noticeable discrepancies. The correlations suggest that AI effectively identifies general patterns in team performance, yet its estimates are not entirely accurate at the granular level. This may be due to the AI's reliance on pre-match information rather than real-time match dynamics, which can significantly influence ball possession and pass accuracy outcomes.

Table 3. Correlation analysis between ai predictions and actual match statistics

Variables	Pearson Correlation Coefficient (r)	Significance (p-value)	Sample Size (N)
Predicted Home Ball Possession vs. Real Home Ball Possession	581	0.0	200
Predicted Away Ball Possession vs. Real Away Ball Possession	591	0.0	200
Predicted Home Pass Accuracy vs. Real Home Pass Accuracy	524	0.0	200
Predicted Away Pass Accuracy vs. Real Away Pass Accuracy	626	0.0	200

Overall, these results indicate that AI models have potential for forecasting key football performance metrics, but further refinement—such as incorporating real-time data or additional contextual factors—could enhance their predictive accuracy. A detailed summary of these correlation values is presented in Table 3.

4. DISCUSSION

The comparative analysis of AI models across multiple European football leagues in this study underscores the growing capabilities of artificial intelligence in predicting match outcomes. Our results indicate that advanced machine learning techniques can achieve competitive predictive accuracy, aligning with previous research that reported successful applications of AI for match forecasting [8]. Notably, whereas many prior studies pursued predictive modeling primarily to beat betting markets [8], our findings emphasize a different outlook: the strategic value of these predictions for football teams themselves. By evaluating models in diverse league contexts, the study reveals how prediction performance can vary with league characteristics – an observation consistent with the notion that each competitive context has unique patterns and data features [9]. These findings build on the literature that recognizes match outcome prediction as one of several key AI application areas in football [6]. In the broader scope of sports analytics, our work contributes to shifting the focus from wagering outcomes to leveraging AI insights for team planning and performance optimization, a perspective that addresses calls in recent surveys to utilize AI as a coaching aid rather than purely a gambling tool [10].

A central theme emerging from our results is that AI-driven match predictions can serve as strategic tools for teams and coaches. The ability of AI models to ingest myriad performance indicators and output probabilistic forecasts offers clubs a form of advanced scouting and planning support. For example, if a model consistently flags certain match conditions or opponent profiles that reduce the team's win probability, coaching staff can proactively adjust training focus or game strategy to address those weaknesses. This aligns with the view that artificial intelligence in football can function like an "assistant coach," augmenting human decision-making with data-driven insights [11]. Rather than providing deterministic outcomes, the models highlight factors and patterns underlying match results. Such information is invaluable for team planning: coaches might tailor their tactical preparations for an upcoming opponent if the AI forecasts trouble in specific areas (e.g., defensive aerial duels or midfield turnovers). By identifying subtle trends that might escape human observers, AI models help clubs anticipate game scenarios and allocate resources (training time, player rotation, etc.) optimally. These strategic benefits directly address the need for objective decision-support in modern football, as emphasized by recent work on empowering sports practitioners with analytics and AI tools [12]. In essence, our study's predictive models are not an end in themselves, but a means to inform and refine the planning process for matches and tournaments.

Importantly, this approach diverges from the gambling orientation by focusing on performance implications of predictions. While a betting analyst might use predictions to maximize profit, a coach uses them to maximize points and player development. Prior literature highlights that many AI prediction studies target betting accuracy (often measuring success by profit or odds-beating rates) [8]. By contrast, our discussion centers on how a club's sporting strategy can benefit. This represents a meaningful shift in the application of AI: from predicting for prediction's sake to using predictions to drive actionable tactics and decisions on the field [10]. Such a shift is supported by the sports science community, which increasingly advocates for harnessing data analytics for competitive performance gains [13].

Our findings also suggest that the interpretability of AI models can illuminate team dynamics that contribute to winning or losing outcomes. By analyzing feature importances and model outputs across different leagues, we can discern which aspects of play are most influential. For instance, if a model finds that variables related to defensive organization (e.g. average spacing between defenders, or pressing intensity) strongly affect match predictions, this confirms the critical role of those tactical dynamics in performance. Such insights echo the results of Forcher et al. (2024), who used machine learning on player tracking data to identify key defensive principles – like pressing the ball-carrier and maintaining a compact team shape – that significantly increase the likelihood of regaining possession [14]. Their study, focused on predicting defensive success, demonstrated how AI can reveal actionable tactical knowledge embedded in complex spatiotemporal data [14]. Similarly, our predictive models, applied over an entire season's matches, implicitly capture each team's style and cohesion, offering a lens into the collective behaviors that yield success. These quantitative patterns complement the qualitative assessments coaches make about team dynamics.

It is noteworthy that a recent systematic review identified nine distinct application areas of AI in football, ranging from athlete performance evaluation to event detection and match outcome prediction [6]. Our work sits at the intersection of several of these areas: while primarily about match outcome forecasting, it inherently touches on event importance (through feature analysis) and evaluation of team performance factors. By integrating our findings with such literature, we reinforce the idea that team dynamics – the coordinated actions and interactions of players – can be quantified and understood through AI models. Prior research on tactical analysis using big data underscores both the potential and the challenges of interpreting these dynamics [9,15]. We contribute to this discourse by showing that even models aimed at prediction can double as analytical tools to study how factors like team formation consistency, offensive aggressiveness, or defensive stability influence outcomes across different European leagues. This dual utility of AI models – predictive and explanatory – is a major strategic benefit, as clubs gain a deeper understanding of their own team's behavior and that of their opponents.

One of the most practical advantages of AI-driven forecasts, as evidenced by our study, is their capacity to inform and adjust tactical decisions. Coaches can use prediction outputs and model explanations to perform a form of scenario analysis. For example, if the AI predicts a low probability of success with the current game plan against a forthcoming opponent, the coaching staff might experiment with alternate tactics (such as a different formation or style of play) in practice and observe how the predicted outcome changes. Over the course of the season, this iterative process helps in fine-tuning tactics. Our results align with the growing body of work that demonstrates how data-driven insights can influence tactical choices: AI systems have been used to detect patterns like effective passing networks, optimal pressing times, and space creation which directly translate into tactical adjustments on the pitch [9,14].

In particular, explainable AI approaches allow teams to pinpoint why a model favors one team over another in a given match. For instance, a model might implicitly value a team's past performance in away games, or the recent form of the attacking line, as tipping the balance. Recognizing these factors can prompt tactical tweaks – perhaps a coach decides to reinforce midfield control if the model suggests that losing midfield battles is a predictor of defeat. These applications resonate with case studies where clubs have begun to integrate machine learning into their tactical analysis workflows. As noted by Munoz-Macho et al. [12], AI-powered performance analysis is increasingly influencing coaching decisions, bridging the gap between raw data and on-field strategy. Our study's comparative approach further suggests that tactical insights from AI may need to be context-specific: a tactic that improves predictions in one league might be less impactful in another due to different play styles or competitive balance. This nuance reinforces the importance of combining domain knowledge with AI outputs – something that multidisciplinary collaborations have emphasized when applying analytics to sport [9]. Ultimately, by using AI as a tactical advisor, teams can iterate and respond more quickly to the demands of each match, continually optimizing their approach as new data (and predictions) become available.

Beyond team-level tactics, our analysis sheds light on the implications of AI forecasts for player performance assessment and training optimization. The predictive models inherently rate the contributions of individual and collective performance metrics to match outcomes; thus, they indirectly evaluate player impact. For example, if certain player-related features (like a striker's recent goal conversion rate or a defender's successful tackles) significantly sway the match predictions, these models validate those metrics as key performance indicators (KPIs) for the team. Coaches and performance analysts can leverage this information in player evaluations – corroborating or questioning their subjective assessments with data-driven evidence. This approach reflects a broader trend in which AI is used to identify and weight KPIs that truly matter for success [12]. By focusing training efforts on improving those high-impact metrics, teams can optimize player development in areas most likely to enhance overall performance. For instance, if the model highlights that a team's chances of winning rise dramatically when their fullbacks contribute more to offense (e.g. crosses or key passes), a coach may implement training drills to improve overlapping runs and crossing accuracy for those players.

AI models also contribute to monitoring and managing player fitness and workload, which is a critical aspect of performance optimization. Although our study concentrated on match outcomes, it aligns with research using machine learning to predict player fatigue and readiness. Diouron et al. [16], demonstrated that individualized AI models can accurately predict a player's rate of perceived exertion (RPE), outperforming generic group-based models in managing training load. Such findings are highly relevant to team performance: by integrating an RPE-prediction model, clubs can tailor training intensity for each player to prevent overtraining and injuries, ensuring that players are in optimal condition for important matches. This notion is supported by the scoping review of Munoz-Macho et al. [12], which highlights how AI is increasingly applied in both performance and healthcare analysis for elite teams – for example, using machine learning to forecast wellness or injury risk based on workload data. The synergy between our outcome-focused models and these player-centric models lies in a common goal: improving competitive performance. A healthier, well-prepared squad is likely to perform closer to the AI's best-case predictions. Conversely, if our match forecasting model begins to predict a downturn in results, it could prompt an examination of player conditioning or fatigue levels as potential underlying causes. In this way, AI-driven forecasting and AI-driven performance management complement each other, offering a holistic framework for performance optimization.

The strategic benefits highlighted by this study suggest several implications for football clubs and avenues for future research. First, teams should consider integrating AI prediction systems into their regular analytical toolkit. Just as video analysis and biometric tracking are now standard, predictive modeling can become a routine part of pre-match preparation and training periodization. To facilitate adoption, emphasis must be placed on the interpretability of these models. Practitioners are more likely to trust and use AI insights if they can understand the rationale – hence the importance of explainable AI, which our study and others have shown to be feasible in the sports context [14]. Educating coaches and analysts in basic data science or employing specialized sports data analysts could help bridge the gap between complex models and actionable insights [10]. Moreover, clubs could use AI forecasts in a feedback loop, evaluating the accuracy of predictions and the efficacy of decisions made from those predictions, thereby continuously improving both the model and the decision-making process.

From a research perspective, our findings encourage a more holistic approach to AI in sports analytics. Rather than studying predictive performance in isolation, future studies should assess how well these models integrate into real-world team workflows and whether their use tangibly improves performance outcomes (e.g., more points won, better player development, fewer injuries). One promising direction is to combine outcome prediction models with in-game decision models – for example, using reinforcement learning to suggest optimal substitutions or tactical shifts in response to game events, informed by the predicted probabilities [11]. Additionally, expanding the scope beyond match result prediction to include micro-level predictions (such as predicting the success of a particular play or the fatigue level of a player in the 80th minute) could provide even more granular guidance to coaches. Such integrations of AI at multiple levels of decision-making mirror the calls in recent literature for comprehensive, AI-supported frameworks in team sports [6,12].

In conclusion, this study reinforces that AI-driven football match forecasting can be far more than a betting instrument – it is a potent analytical asset for team sports. By aligning our discussion with existing scholarship, we demonstrate that these models, when used appropriately, offer strategic insights into team dynamics, tactics, and player performance that can significantly enhance planning and optimization in professional football. Embracing AI in this manner could give teams a competitive edge, turning data into decisions that improve performance on the pitch [9,14]. The challenge and opportunity moving forward lie in effectively translating predictive power into practical improvements – a goal that will be achieved through ongoing collaboration between data scientists, coaches, and sports researchers in the ever-evolving arena of football analytics.

5. Conclusion

This study explored the predictive accuracy of an AI model in forecasting football match outcomes and in-game performance metrics using publicly available online data. The findings reveal that while AI-generated predictions exhibit moderate success in identifying match trends, their accuracy remains inconsistent across different leagues and performance indicators. The overall match outcome prediction accuracy of 55.5% suggests that AI models can capture general patterns in football matches, but struggle with precise score forecasting, with only 25 exact score predictions out of 200 matches. The variability in AI performance across leagues highlights the significant role of data availability, league-specific characteristics, and football's inherent unpredictability in determining prediction reliability.

The Chi-Square test results confirmed a statistically significant relationship between AI-predicted and actual match results, reinforcing that AI's forecasts are not random but guided by identifiable statistical patterns. However, the lack of a strong linear association indicates that prediction accuracy does not consistently improve across different match types. Additionally, the AI model demonstrated moderate correlations in predicting ball possession and pass accuracy, with slightly stronger correlations observed for pass accuracy metrics. These findings align with previous research, which suggests that AI models can effectively identify structured patterns in football statistics, yet struggle to account for real-time match dynamics, tactical shifts, and unpredictable game-day factors.

Despite these limitations, AI-driven sports analytics remain a promising tool for football forecasting, offering valuable insights for analysts, sports professionals, and bettors. The findings of this study suggest that enhancing AI-driven football prediction models will require integrating real-time match data, leveraging advanced machine learning algorithms, and incorporating sentiment analysis from social media and expert opinions. Research has shown that incorporating social media sentiment analysis into sports predictions can lead to marginal profit gains and improved accuracy in match forecasting, emphasizing the potential of hybrid AI models that blend structured statistical analysis with unstructured human-generated insights.

In conclusion, while AI-based football prediction models demonstrate statistical significance and practical utility, their current limitations prevent them from being solely relied upon for highly accurate forecasting. Future advancements in deep learning, real-time data processing, and contextual intelligence integration will be crucial for improving AI's predictive capabilities. By addressing these challenges, AI-driven football analytics can evolve into more reliable, adaptable, and insightful prediction tools for various stakeholders in the sports industry.

Conflict of Interest

The author declares that there is no conflict of interest. In addition, no financial support was received.

Ethics Committee

The study protocol was approved by the Scientific Research and Publication Ethics Committee (Ethics Committee Approval: 2025/8).

Author Contributions

Study Design, GES; Data Collection, GES; Statistical Analysis, GES; Data Interpretation, GES; Manuscript Preparation, GES; Literature Search, GES. All authors have read and agreed to the published version of the manuscript.

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