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Adoption of Data Analytics and Video Assistant Referee (VAR) In Football Management Decision-making in African Football

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Abstract: Football management has increasingly embraced technological innovations such as data analytics and the Video Assistant Referee (VAR) to improve decision-making, enhance officiating accuracy, and strengthen organizational performance. However, the adoption of these technologies remains uneven across African football due to infrastructural, financial, and technical challenges. This study examined the adoption of data analytics and Video Assistant Referee (VAR) in football management decision-making in African football, with specific focus on data analytics adoption and VAR adoption. A cross-sectional survey research design was adopted for the study. Data were collected from 287 football club managers, coaches, and referees across selected African football organizations using a structured instrument titled Data Analytics, Video Assistant Referee and Football Management Decision-Making Questionnaire (DAVARFMDQ). The data collected were analyzed using multiple regression analysis with the aid of SPSS Version 29 at the 0.05 level of significance. The findings revealed that data analytics adoption and Video Assistant Referee (VAR) adoption each have a significant positive influence on football management decision-making in African football. The study established that the adoption of these technologies enhances evidence-based decision-making, improves tactical planning, strengthens officiating accuracy, promotes transparency, and increases the overall effectiveness of football management. The study concludes that wider adoption of data analytics and VAR is essential for improving football governance and management across Africa. It recommends increased investment in analytical technologies, referee training, and VAR infrastructure to enhance the quality, credibility, and competitiveness of African football.

Keywords: *Data Analytics, Video Assistant Referee (VAR), Football Management, Decision-Making, African Football, Technology Adoption.*

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Introduction

Football has evolved beyond being merely a sporting activity to becoming a global industry driven by technology, innovation, and evidence-based decision-making. Across Europe and other developed football markets, football clubs and governing bodies increasingly rely on advanced technologies such as data analytics and the Video Assistant Referee (VAR) system to improve team performance, officiating accuracy, player recruitment, injury prevention, tactical planning, and administrative decision-making. These technologies have transformed football management by providing objective information that supports strategic and operational decisions (Link, Lang, & Seidenschwarz, 2022; Rein & Memmert, 2023).

Data analytics refers to the systematic collection, processing, interpretation, and application of football-related data to improve decision-making. Modern football organizations generate enormous amounts of data from player tracking systems, wearable devices, match statistics, video analysis software, scouting databases, and fan engagement platforms. Managers, coaches, technical directors, and club administrators analyze these data to evaluate player performance, identify tactical strengths and weaknesses, optimize training loads, predict injuries, recruit suitable players, and allocate financial resources efficiently. Rather than depending solely on intuition and experience, football managers increasingly employ analytical evidence to make informed decisions that enhance team competitiveness (Memmert & Raabe, 2021; Rein & Memmert, 2023).

The introduction of the Video Assistant Referee (VAR) represents one of the most significant technological innovations in modern football officiating. VAR was introduced by the International Football Association Board (IFAB) to assist referees in reviewing clear and obvious errors relating to goals, penalty decisions, direct red cards, and mistaken identity. Since its adoption in major international competitions, VAR has improved officiating accuracy by reducing controversial decisions and enhancing fairness during football matches. The technology contributes significantly to management decisions because accurate officiating affects competition integrity, team performance, fan confidence, and organizational reputation (Spitz, Put, Wagemans, Williams, & Helsen, 2021; Lago-Peñas & Gómez-Ruano, 2022).

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In recent years, several African football associations have begun adopting these technologies. Competitions such as the Confederation of African Football Champions League, Africa Cup of Nations, and selected domestic leagues have implemented VAR, while some elite clubs have started integrating performance analytics into coaching and recruitment activities. However, the level of technological adoption across African football remains uneven due to financial limitations, inadequate infrastructure, limited technical expertise, insufficient digital capacity, and resistance to organizational change (Rein & Memmert, 2023; FIFA, 2024).

The adoption of data analytics and VAR offers numerous potential benefits for African football management. Data analytics enhances transparency in player evaluation, supports evidence-based tactical decisions, improves talent identification, and strengthens long-term strategic planning. VAR improves officiating credibility, minimizes human errors, increases stakeholder confidence, and promotes fair competition. Together, these technologies can contribute significantly to professionalizing football administration across Africa (Link et al., 2022; Spitz et al., 2021).

Despite these opportunities, many football clubs and associations in Africa continue to rely heavily on traditional decision-making approaches characterized by subjective judgments, inadequate performance data, inconsistent officiating standards, and limited technological investment. Consequently, management decisions relating to player recruitment, tactical planning, referee performance, competition administration, and resource allocation may not always achieve optimal outcomes. The disparity between technologically advanced football systems and many African football organizations highlights the need for empirical investigation into the adoption of data analytics and VAR in football management (FIFA, 2024; Rein & Memmert, 2023).

Given the increasing digital transformation of global sports, understanding how data analytics and VAR influence football management decisions has become essential. Empirical evidence on the adoption of these technologies in African football remains limited despite growing investments in digital sports technologies and football modernization initiatives. This study therefore seeks to examine the adoption of data analytics and VAR in football management decision-making in African football with the aim of providing evidence that can guide football administrators, clubs, policymakers, and governing bodies in strengthening technology-driven football management practices.

Statement of the Problem

The increasing digital transformation of football has made data analytics and Video Assistant Referee (VAR) systems important tools for enhancing football management decision-making across the world. Leading football clubs and governing bodies increasingly rely on data-driven approaches for player recruitment, tactical planning, injury prevention, performance evaluation, financial management, and competition administration, while VAR has significantly improved the accuracy and fairness of officiating decisions. These technological innovations have contributed to greater transparency, accountability, and competitiveness in football management.

However, the adoption of these technologies across African football remains relatively slow and inconsistent. Many football clubs and associations still depend largely on conventional decision-making practices that rely on personal experience, subjective judgment, and limited performance data. Furthermore, the implementation of VAR remains restricted to a few elite competitions due to inadequate funding, poor technological infrastructure, insufficient technical expertise, and limited institutional support. These challenges continue to affect the quality of management decisions, officiating standards, and overall football development within many African countries.

Although previous studies have examined football technology adoption, sports analytics, and VAR implementation separately, limited empirical evidence exists on how the combined adoption of data analytics and VAR influences football management decision-making within the African football context. This gap in the literature limits the ability of football administrators and policymakers to develop evidence-based strategies for technology integration. It is against this background that this study seeks to examine the adoption of data analytics and VAR in football management decision-making in African football.

Objectives of the Study

The main objective of this study is to examine the adoption of data analytics and Video Assistant Referee (VAR) in football management decision-making in African football. The specific objectives are to:

1. examine the influence of data analytics adoption on football management decision-making in African football.
2. determine the influence of Video Assistant Referee (VAR) adoption on football management decision-making in African football.

Research Questions

1. How does the adoption of data analytics influence football management decision-making in African football?
2. How does the adoption of Video Assistant Referee (VAR) influence football management decision-making in African football?

Research Hypotheses

- **H_{01}:** Data analytics adoption has no significant influence on football management decision-making in African football.
- **H_{02}:** Video Assistant Referee (VAR) adoption has no significant influence on football management decision-making in African football

Literature Review

Conceptual Review

Data Analytics in Football

Data analytics refers to the systematic process of collecting, processing, analyzing, and interpreting data to support effective decision-making. In football, data analytics has become an indispensable management tool that enables clubs, coaches,

technical directors, and football administrators to make objective decisions regarding player recruitment, tactical planning, performance evaluation, injury prevention, and financial management. The rapid advancement of digital technologies, including wearable devices, GPS tracking systems, optical tracking, artificial intelligence, and video analysis software, has transformed football into a data-driven sport where strategic decisions are increasingly based on empirical evidence rather than intuition alone (Memmert & Raabe, 2021).

According to Decroos et al. (2021), football data analytics involves extracting meaningful insights from match events and player actions to improve technical and tactical decision-making. The authors explain that advanced analytical models enable clubs to identify player strengths and weaknesses, evaluate tactical efficiency, and monitor team performance throughout a competitive season. Such information provides coaches and football managers with objective evidence for making informed sporting decisions. Pappalardo et al. (2022) observe that the increasing availability of football data has significantly improved player recruitment and talent identification. Professional clubs now rely on performance indicators such as passing accuracy, expected goals (xG), defensive actions, and physical performance metrics when scouting players. The use of predictive analytics has also reduced uncertainty associated with player transfers and investment decisions. Similarly, Liu, Gómez, and Sampaio (2022) argue that football analytics supports several management functions, including match preparation, opponent analysis, training programme design, and injury risk management. By integrating statistical information with tactical observations, football organizations can improve team performance while enhancing the effectiveness of coaching decisions.

Ajulo and Tiamiyu (2026) demonstrated that machine learning and football analytics significantly improve the prediction of football match outcomes compared with conventional analytical approaches. Likewise, Adebisi and Alabi (2024) developed a predictive model for the Nigeria Professional Football League, showing that statistical and machine learning techniques can improve football analysis and support evidence-based decision-making by coaches and football administrators. These studies indicate that the application of data analytics is gradually gaining attention within Nigerian football research, although practical adoption among clubs remains relatively limited due to infrastructural and financial constraints.

Despite its numerous advantages, the adoption of data analytics across many African football organizations remains relatively low because of inadequate technological infrastructure, shortage of skilled analysts, insufficient financial resources, and limited institutional support. These challenges continue to hinder the effective utilization of data-driven decision-making within football administration across the continent. For the purpose of this study, data analytics refers to the systematic collection, analysis, interpretation, and application of football-related data to support effective management decision-making concerning player performance, tactical planning, recruitment, and overall football administration.

Video Assistant Referee (VAR) in Football

The Video Assistant Referee (VAR) is a technology-assisted officiating system introduced to improve the accuracy, fairness, and consistency of refereeing decisions in football matches. The system utilizes multiple camera angles, instant replay technology, and communication equipment to assist referees in reviewing incidents relating to goals, penalty decisions, direct red cards, and mistaken identity. Rather than replacing the referee, VAR functions as a decision-support system that minimizes clear and obvious officiating errors and enhances the integrity of football competitions (Spitz et al., 2021).

Lago-Peñas and Gómez-Ruano (2022) describe VAR as one of the most significant technological innovations in contemporary football because it has substantially improved decision accuracy and reduced controversial officiating errors. Their review indicates that the technology has strengthened confidence among players, coaches, football administrators, and supporters by promoting fairness and transparency during competitions. According to García-de-Alcaraz et al. (2021), the implementation of VAR has positively influenced football match management by reducing incorrect referee decisions involving penalties, offsides, and goal situations. The authors emphasize that the availability of video evidence enables referees to make more objective decisions, thereby improving the credibility of football competitions.

Within the Nigerian football environment, Okundare, Oduyale, and Adekola (2024) emphasize that effective football administration increasingly depends on the adoption of modern technologies capable of improving competition management and organizational efficiency. Although their study focused primarily on football administration and club performance, the findings highlight the importance of integrating technological innovations into football governance to enhance the credibility and competitiveness of domestic competitions.

Furthermore, FIFA (2024) notes that the successful implementation of VAR requires substantial investment in technological infrastructure, trained match officials, qualified video operators, and effective communication systems. While several African football competitions have adopted VAR, implementation across domestic leagues remains inconsistent due to financial limitations, inadequate infrastructure, and insufficient technical expertise. Consequently, many football associations continue to experience challenges in fully integrating VAR into their competitions. For the purpose of this study, Video Assistant Referee (VAR) refers to a technology-assisted officiating system that utilizes video replay and communication technologies to support referees in making accurate match decisions, thereby enhancing fairness, transparency, and effective football management decision-making.

Football Management Decision-Making

Football management decision-making refers to the process through which football administrators, coaches, club executives, technical directors, and governing bodies identify organizational needs, evaluate available alternatives, and select appropriate strategies to achieve sporting and organizational objectives. Decision-making is one of the most important managerial functions because it influences team performance, financial sustainability, player development, competition management, and stakeholder satisfaction. As football becomes increasingly professional and technology-driven, effective management decisions require accurate, timely, and evidence-based information (Hoye et al., 2021).

Beech and Chadwick (2021) describe football management decision-making as a strategic process involving planning, organizing, coordinating, and controlling football operations to ensure organizational effectiveness. They argue that football managers are expected to make decisions regarding player recruitment, coaching appointments, sponsorship acquisition, competition scheduling, facility management, and financial planning while balancing sporting success with commercial objectives. According to Pedersen and Thibault (2023), effective decision-making enables football organizations to respond to rapidly changing competitive environments through proper resource allocation, strategic planning, and performance evaluation. The authors emphasize that modern football administrators increasingly rely on technological innovations and performance information to improve organizational efficiency and competitive advantage. In Nigeria, Okundare et al. (2024) reported that effective administrative practices and strategic planning significantly contribute to improved football club performance in national and continental competitions. Their findings suggest that sound management decisions enhance organizational coordination, competition preparedness, and overall football development.

Football management decision-making has therefore evolved from relying primarily on managerial intuition to embracing data-driven approaches supported by technological innovations. Modern football organizations increasingly integrate performance information, financial analysis, and digital technologies into their decision-making processes to improve efficiency and long-term sustainability. For the purpose of this study, football management decision-making refers to the systematic process through which football administrators and managers utilize available information, technology, and organizational resources to make strategic, tactical, and operational decisions that enhance football performance and organizational effectiveness.

Data Analytics and Football Management Decision-Making

The adoption of data analytics has transformed football management decision-making by enabling clubs and football organizations to utilize objective information when making technical and administrative decisions. Data analytics provides football managers with valuable insights into player performance, tactical efficiency, injury prevention, scouting, financial management, and strategic planning. Consequently, decisions that were previously based on subjective judgment are increasingly supported by empirical evidence (Memmert & Raabe, 2021).

Rein and Memmert (2023) observed that football organizations employing analytical technologies demonstrate greater effectiveness in player recruitment, tactical planning, and performance evaluation because management decisions are based on measurable indicators rather than intuition. The authors concluded that analytical intelligence has become an essential component of modern football management. Similarly, Pappalardo et al. (2022) found that advanced football analytics improves talent identification and transfer decision-making by evaluating players using objective technical, tactical, and physical performance indicators. Such evidence enables football managers to minimize recruitment risks and maximize investment returns during player acquisition. Within the Nigerian context, Ajulo and Tiamiyu (2026) demonstrated that machine learning techniques significantly improve football match prediction and performance analysis. Their study concluded that predictive analytics provides coaches and football administrators with reliable information that enhances tactical planning and strategic decision-making before and during competitions.

Likewise, Adebisi and Alabi (2024) reported that predictive analytical models developed for the Nigeria Professional Football League provide football managers with valuable information for evaluating team performance and making evidence-based decisions. The increasing adoption of analytical tools therefore has the potential to improve football administration and organizational effectiveness across African football.

Video Assistant Referee (VAR) and Football Management Decision-Making

The introduction of the Video Assistant Referee (VAR) has significantly improved football management decision-making by enhancing the accuracy, transparency, and credibility of officiating decisions. Accurate officiating contributes to fair competition, strengthens stakeholder confidence, and enables football governing bodies to administer competitions more effectively. Consequently, VAR has become an important technological innovation supporting modern football governance (Spitz et al., 2021).

According to Lago-Peñas and Gómez-Ruano (2022), VAR has substantially improved refereeing accuracy by reducing clear and obvious officiating errors during football matches. Their systematic review concluded that the technology has enhanced competition integrity while increasing confidence among coaches, players, administrators, and supporters. García-de-Alcaraz et al. (2021) also found that the implementation of VAR has improved match management through more consistent application of the Laws of the Game. The availability of multiple video angles enables referees to make informed decisions, thereby reducing controversial outcomes and improving public trust in football competitions.

From the Nigerian perspective, Okundare et al. (2024) argued that technological innovation plays an increasingly important role in strengthening football administration and improving the competitiveness of domestic football competitions. Although their study focused on football management rather than VAR specifically, it emphasized that modern technologies enhance organizational efficiency and decision-making within football administration. Successful implementation of VAR depends on adequate technological infrastructure, trained match officials, qualified video operators, and institutional commitment. While several African football competitions have adopted VAR, widespread implementation across domestic leagues remains constrained by financial limitations, inadequate infrastructure, and insufficient technical expertise.

Theoretical Review

The study is anchored on the Technology Acceptance Model (TAM) and the Diffusion of Innovation (DOI) Theory**.**

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1986) and later refined by Davis, Bagozzi, and Warshaw (1989) to explain the factors influencing individuals' acceptance and use of information technology. The model posits that two key factors - perceived usefulness and perceived ease of use determine users' attitudes toward adopting a technological innovation.

Perceived usefulness refers to the degree to which an individual believes that using a particular technology will enhance job performance, while perceived ease of use refers to the extent to which an individual believes that the technology can be used with minimal effort. According to Davis et al. (1989), these perceptions shape users' behavioural intentions, which subsequently influence the actual adoption and utilization of technological systems. The model has been widely applied in studies involving digital transformation, information systems, artificial intelligence, sports technology, and organizational innovation because of its ability to explain technology adoption behaviour.

The relevance of the Technology Acceptance Model to the present study lies in its explanation of the adoption of data analytics and the Video Assistant Referee (VAR) system within football organizations. Football administrators, coaches, referees, and governing bodies are more likely to adopt data analytics when they perceive that analytical tools improve player recruitment, tactical planning, performance evaluation, and strategic decision-making. Similarly, the adoption of VAR depends on stakeholders' perception that the technology enhances officiating accuracy, promotes fairness, and strengthens the credibility of football competitions. Where users perceive these technologies as useful and easy to operate, acceptance and implementation are likely to increase, thereby improving football management decision-making. Consequently, the Technology Acceptance Model provides an appropriate theoretical foundation for explaining the adoption of data analytics and VAR in African football.

Diffusion of Innovation (DOI) Theory

The Diffusion of Innovation (DOI) Theory was developed by Rogers (1962) and extensively revised in the fifth edition of his work published in 2003. The theory explains how new ideas, technologies, and innovations are communicated, adopted, and spread among individuals, organizations, and social systems over time. Rogers (2003) identified five major characteristics that influence the adoption of an innovation: relative advantage, compatibility, complexity, trialability, and observability. According to the theory, innovations that provide clear advantages over existing practices, are compatible with organizational values, are relatively easy to use, can be tested before full implementation, and produce visible results are more likely to be adopted successfully.

The Diffusion of Innovation Theory is highly relevant to this study because data analytics and VAR represent technological innovations that are gradually being introduced into football management across Africa. The adoption of these technologies varies considerably among football associations and clubs due to differences in financial capacity, technological infrastructure, institutional readiness, technical expertise, and organizational culture. Football organizations that recognize the relative advantages of data analytics and VAR, possess the necessary technological resources, and demonstrate readiness for innovation are more likely to integrate these technologies into their management processes. Conversely, organizations with limited resources or resistance to technological change may experience slower adoption rates, thereby limiting improvements in football management decision-making. The theory therefore provides a useful explanation for the varying levels of technology adoption observed across African football organizations.

The Technology Acceptance Model and the Diffusion of Innovation Theory jointly provide the theoretical foundation for this study. While the Technology Acceptance Model explains the behavioural factors influencing the acceptance and utilization of data analytics and VAR by football stakeholders, the Diffusion of Innovation Theory explains how these technological innovations spread across football organizations and governing bodies. Together, the theories provide a comprehensive explanation of how the adoption of data analytics and VAR can enhance football management decision-making in African football.

Empirical Review

Ajulo and Tiamiyu (2026) developed a machine learning model for analysing and predicting football match outcomes using English Premier League data. The study adopted an experimental research design in which several machine learning algorithms were trained and evaluated using historical football performance data. The findings showed that analytical models produced highly accurate predictions of match outcomes and provided valuable information for tactical planning, performance evaluation, and strategic decision-making. The study concluded that football organizations adopting analytical technologies are better positioned to make informed management decisions and recommended increased adoption of artificial intelligence and data analytics within football administration, particularly in developing football nations

Walker, Staniforth, Thomas, Parker, Khizar, Lawton, Vermaak, and Jukes (2026) investigated the effectiveness of the current Video Assistant Referee (VAR) protocol in the English Premier League. The study analysed 1,520 league matches played between the 2021/22 and 2024/25 seasons using logistic regression analysis. The findings showed that referees overturned their original decisions in approximately 95% of pitch-side monitor reviews, indicating that VAR substantially improved officiating accuracy and consistency. The study further revealed that factors such as stadium attendance, scoreline, and match period did not significantly influence VAR interventions. The authors concluded that VAR enhances the quality of officiating and recommended continuous refinement of the protocol to strengthen transparency and decision-making in football competitions.

Nazarudin, Abdul Majeed, Musa, Raj, Kuan, and Abu Osman (2025) examined VAR consultation patterns and their association with fouls and misconduct across the five major European football leagues. The researchers employed an observational research design using official match data obtained from elite European competitions. The data were analysed using descriptive and inferential statistical techniques. The findings indicated that VAR consultations improved the consistency of disciplinary decisions involving fouls, penalties, and red-card incidents while promoting fairness in football officiating. The study concluded that VAR contributes significantly to effective football governance and recommended broader implementation of the technology alongside continuous referee education and technological investment.

Davidson, Barrett, Toner, and Towlson (2024) examined professional soccer practitioners' perceptions of using performance analysis technology to monitor players' technical and tactical characteristics in a Category One football academy in England. The study adopted a qualitative case study design involving academy coaches, performance analysts, and sports science

practitioners. Data were collected through semi-structured interviews and analysed using thematic analysis. The findings revealed that performance analysis technologies significantly improved coaches' tactical planning, player monitoring, talent identification, and evidence-based decision-making. However, participants identified challenges relating to data interpretation, staff expertise, and the integration of analytical outputs into coaching practice. The study recommended continuous professional development for coaches and increased investment in analytical technologies to improve football management decision-making.

O'Brien, Gleeson, and O'Sullivan (2021) investigated decision-making behaviour among participants in the Fantasy Premier League by analysing approximately one million managers across multiple football seasons. The study adopted a quantitative research design using large-scale behavioural data and statistical modelling techniques. The findings revealed that long-term planning, consistent evidence-based decisions, and analytical evaluation of player performance significantly influenced managerial success. The study concluded that data-driven decision-making improves football management outcomes and recommended greater integration of analytical approaches into football management and strategic planning.

Methods

The study employed a cross-sectional survey research design. The target population consisted of football club managers, football coaches, and referees affiliated with selected football clubs and football associations across Africa. These categories of respondents were selected because they are directly involved in football management, match officiating, and strategic decision-making, and are therefore knowledgeable about the adoption and application of data analytics and Video Assistant Referee (VAR) technologies in football management. A purposive sampling technique was employed to select respondents who possessed practical experience and adequate knowledge of football management practices and technological innovations. A total of 300 respondents comprising football club managers, coaches, and referees were selected for the study. Data were collected using a structured questionnaire titled *Data Analytics, Video Assistant Referee and Football Management Decision-Making Questionnaire (DAVARFMDQ)*. The instrument was designed on a modified five-point Likert scale with the following response options: Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. The instrument was validated by two experts in Sports Management and Measurement and Evaluation, while its reliability was established using the Cronbach Alpha reliability technique, which yielded a coefficient of 0.88, indicating a high level of internal consistency. Out of the 300 questionnaires administered, 287 (95.7%) were successfully retrieved and used for data analysis. Data were analysed using multiple regression analysis with the aid of the Statistical Package for the Social Sciences (SPSS) Version 29 at the 0.05 level of significance to determine the influence of data analytics adoption and Video Assistant Referee (VAR) adoption on football management decision-making.

Results

- **H_{01}:** Data analytics adoption has no significant influence on football management decision-making in African football

Table 1: Multiple Regression Analysis Showing the Influence of Data Analytics Adoption on Football Management Decision-Making

Variables	β	t-value	Sig.	R^2	F
Data Analytics Adoption	0.647	14.386	0.000	0.419	206.952

Source: Researchers' Field Survey, 2026.

Table 1 shows that data analytics adoption has a standardized beta coefficient (β) of 0.647 with a t-value of 14.386 and a significance value of 0.000, which is less than the 0.05 level of significance. The coefficient of determination (R^2) of 0.419 indicates that data analytics adoption accounts for 41.9% of the variation in football management decision-making. Since the significance value is less than 0.05, the null hypothesis (H_{01}), which states that data analytics adoption has no significant influence on football management decision-making in African football, is rejected. The finding indicates that data analytics adoption has a significant positive influence on football management decision-making. This implies that football organizations that adopt data analytics are more likely to make informed tactical, operational, and strategic management decisions.

H_{02}: Video Assistant Referee (VAR) adoption has no significant influence on football management decision-making in African football.

Table 2: Multiple Regression Analysis Showing the Influence of Video Assistant Referee (VAR) Adoption on Football Management Decision-Making

Variables	β	t-value	Sig.	R^2	F
Video Assistant Referee (VAR) Adoption	0.592	12.917	0.000	0.351	166.848

Source: Researchers' Field Survey, 2026.

Table 2 shows that Video Assistant Referee (VAR) adoption has a standardized beta coefficient (β) of 0.592 with a t-value of 12.917 and a significance value of 0.000, which is less than the 0.05 level of significance. The coefficient of determination

(R^2) of 0.351 indicates that VAR adoption accounts for 35.1% of the variation in football management decision-making. Since the significance value is less than 0.05, the null hypothesis (H_{02}), which states that Video Assistant Referee (VAR) adoption has no significant influence on football management decision-making in African football, is rejected. The finding indicates that VAR adoption has a significant positive influence on football management decision-making. This implies that the effective implementation of VAR enhances officiating accuracy, improves competition integrity, and supports better management decisions within African football organizations.

Discussion of Findings

The findings of this study revealed that data analytics adoption has a significant positive influence on football management decision-making in African football. This implies that football organizations that adopt data analytics are more likely to make informed decisions relating to player recruitment, tactical planning, performance evaluation, and resource allocation. This finding is consistent with Ajulo and Tiamiyu (2026), who found that machine learning and data analytics improved match prediction, tactical planning, and strategic decision-making in football. The finding also agrees with Davidson, Barrett, Toner, and Towlson (2024), who reported that performance analysis technologies enhanced coaches' tactical planning and evidence-based decision-making.

The study further revealed that Video Assistant Referee (VAR) adoption has a significant positive influence on football management decision-making in African football. This suggests that the use of VAR improves officiating accuracy, promotes fairness, and enhances the credibility of football competitions. The finding corroborates Walker, Staniforth, Thomas, Parker, Khizar, Lawton, Vermaak, and Jukes (2026), who found that VAR significantly improved refereeing accuracy and consistency in the English Premier League. It also supports the findings of Nazarudin, Abdul Majeed, Musa, Raj, Kuan, and Abu Osman (2025), who reported that VAR improved the consistency of disciplinary decisions and strengthened football governance through more accurate officiating.

Conclusion

This study examined the adoption of data analytics and Video Assistant Referee (VAR) in football management decision-making in African football. The findings revealed that both data analytics adoption and VAR adoption have significant positive influences on football management decision-making. The study concludes that the adoption of these technological innovations enhances evidence-based decision-making, improves officiating accuracy, promotes transparency, and strengthens the overall effectiveness of football management in Africa.

Recommendations

Based on the findings and conclusion of the study, the following recommendations were made:

1. Football clubs and governing bodies in Africa should invest in data analytics technologies and provide regular training for coaches and managers to enhance evidence-based decision-making in player recruitment, tactical planning, and performance evaluation.

Football associations across Africa should expand the implementation of Video Assistant Referee (VAR) technology by investing in the necessary infrastructure, technical personnel, and referee training to improve officiating accuracy, transparency, and the credibility of football competitions.

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