International Journal of Communication 19(2025), Forum 1821–1827 1932–8036/2025FRM0002

Kicking Error Out of the Game: Video Assistant Referee as Technosolutionism

PRATIK NYAUPANE
ALEJANDRO ALVARADO ROJAS
University of Southern California, USA

The integration of Video Assistant Referee (VAR) technology into professional football (soccer) surfaces concerns about the nature and consequences of errors. VAR is designed to mitigate errors and enhance accuracy by verifying real-time on-field decisions through communication, video review, and automated tracking sensors. As a remedy, VAR attempts to enhance the objectivity of refereeing decisions by implementing a technosolutionist approach. Yet, the failures of VAR have created their own magnitude of error that some claim harms the essence of *the beautiful game*. Despite VAR's aim to rectify "clear and obvious errors," recent controversies highlight the subjectivity in characterizing errors. These enduring misjudgments surrounding VAR implementation have shifted the complex sociotechnical dynamics of the sport. In this study, we trace the production and responses of VAR to highlight the politics of "good enough" as technology reconfigures sport without complete error absolution. Given the global implementation of VAR, there is a reckoning for error to exist without the interference of technosolutionism, where joy is meant to be imperfect and not *overturned* because of technicality.

Keywords: sociotechnical error, soccer, football, procedural objectivity, technosolutionism

"Football is a game that never stops," said Sepp Blatter, a hardline luddite and former head of the Fédération Internationale de Football Association (FIFA) that believed the use of technology in sport would ruin its human essence (Ziegler, 2010, para. 13). After a multitude of refereeing errors at the 2010 FIFA World Cup in South Africa, Blatter retracted his statement, publicly announcing that FIFA would reconsider its debate on *Goal Line Technology* (Ziegler, 2010). This system places cameras and sensors around the stadium to notify the referee when a ball has entirely cleared the goal line. Goal Line Technology was one of the first instances of technological intervention to judication in football, implemented at scale at the 2014 FIFA World Cup in Brazil. Just four years later, FIFA would implement a more invasive technology that offers the promise to correct errors that could have occurred without the referee witnessing it in real time. The introduction of Video Assistant Referee (VAR) to the world's most popular sport would be revolutionary.

We define VAR as a sociotechnical process embedded in a layer of errors. VAR was conceived out of a recurring series of refereeing errors consequentially affecting the outcomes of matches. Most notably, when Frank Lampard of England struck the ball toward Germany's goal during the 2010 FIFA World Cup

and the ball hit the underside of the crossbar, entirely crossed the line, and then bounced back out. In the split seconds that this all occurred, neither the referee nor the assistant referees were able to verify that the ball completely crossed the line, and the goal was never given. England's loss against Germany eliminated them from the tournament. This category of goals that were never given, or inversely no-goals that were counted as goals, have been culturally demarcated as *ghost goals*, a phenomenon with its own Wikipedia page.

VAR implementation varies at every level, with each nation's football governing body and league decide whether they integrate the technology. Specifically, VAR procedures are outlined by the International Football Association Board (IFAB), who define and establish *The Laws of the Game* (International Football Association Board, n.d.). In VAR-eligible competitions, the technology is triggered only under four in-game conditions that appear as "clear and obvious error" or (serious missed incident) in relation to a: (1) *Goal or no goal,* (2) *Penalty or no penalty,* (3) *Direct red card, and* (4) *Mistaken identity.* Table 1 illustrates these principles and respective guidance.

Table 1. Reviewable Match-Changing Decisions/Incidents.

Error	Guidance
1) Goal or no goal	• attacking team offence in the buildup to or scoring of the goal (handball, foul, offside, etc.) • ball out of play prior to the goal • goal/no goal decisions • offence by goalkeeper and/or kicker at the taking of a penalty kick or encroachment by an attacker or defender who becomes directly involved in play if the penalty kick rebounds from the goalpost, crossbar, or goalkeeper
2) Penalty or no penalty	• attacking team offence in the buildup to the penalty incident (handball, foul, offside, etc.) • ball out of play prior to the incident • location of offence (inside or outside the penalty area) • penalty kick incorrectly awarded • penalty kick offence not penalized
3) Direct red card	• DOGSO (especially position of offence and positions of other players) • serious foul play (or reckless challenge) • violent conduct, biting, or spitting at another person • using offensive, insulting, or abusive action(s)
4) Mistaken identity	If the referee penalizes an offence and then gives the wrong player from the offending (penalized) team a yellow or red card, the identity of the offender can be reviewed; the actual offence itself cannot be reviewed unless it relates to a goal, penalty incident, or direct red card.

Note: Adapted from International Football Association Board, n.d.

Technosolutionism and Procedural Objectivity in Sport

The implementation of VAR exemplifies a technosolutionist approach to address potential misjudgments by the referee. Etymologically, technology means the "systematic treatment" or study (*logia*) of the craft-making (*techne*) (Oxford University Press, n. d.). Our approach to studying this sporting technology involves how the development of instruments enable actions informed by knowledge about situations that require solutions. Engaging with technology directs us to "the way we navigate through the world; overcoming barriers by identifying solutions through manipulating our environment" (Ryall, 2013, p. 132). Indeed, technologies are developed and used to address problematic situations.

However, Morozov (2014) has critiqued the reliance on "technosolutionist" thinking as the means to address society's pressing problems. He draws from design theorist Michael Dobbins to define solutionism as the ideology that "presumes rather than investigates the problems that it is trying to solve" (p. 6); what counts as a problem is contingent on the technical ability to solve it. Moreover, technosolutions to problems are often deemed apolitical, devoid of social context to narrowly respond to situations (Wajcman, 2002). Technosolutions are solutions in so far as they provide a provisional *fix*; they restrict definitions of problems based on whether these can be successfully addressed. Thus, technosolutionist approaches comprise collections of technological fixes that are "partial, reductionist responses to complex problems" (Hughes, 2004, p. 208).

Technosolutionism complicates the relationship between errors and solutions in sport. As Ryall (2013) contends, "sports is in essence, a technological enterprise. It is an evolution from play and recreation because it imposes arbitrary rules that limit the means to reach an arbitrary end" (p. 133). Here, the rules of a sport are technologies materialized in artifacts that structure participation to achieve the objective of the sport. For football, the ball is a technological artifact that engages players into motion by kicking it into the net, but it is only by accepting the rules of the sport that such action counts as a goal. Deviations from the accepted rules where a player fails to score, or a referee fails to call for a foul can be considered errors or mistakes. VAR provides the instrumental means to engage with these errors in the pursuit of solving them. Here, defining problems and solutions depends on the technological approach as it is constrained by the rules of the sport.

This emphasis on rules and technosolutionism surfaces implications for defining the epistemic status errors and solutions. Technosolutions to errors are predicated on knowledge about what is a non-error or situations that fall within the scope of the rules; they establish a sense of objectivity in order to make knowledge claims. Megill (1994) refers to this rules-based approach to knowledge determination as procedural objectivity. This is "a rule-bound mode of action [that] requires the construction of subjects appropriate to it-subjects, that is, who can apply and live by the rules" (Megill, 1994, p. 10). Furthermore, procedural objectivity requires standards to distance from personal judgment or bias to institute agreement among differing perspectives (Megill, 1994). Rules dictate actions, rendering knowable objects and subjects in relation to those actions. From this perspective, VAR reconfigures the relations between participants in the sport and their actions, particularly the referee and their judgement. Thus, not only do refereeing practices increasingly rely on technosolutions to manage erroneous situations, but the sociocultural significance of the sport shifts based on technology as an intrusive mediator.

VAR as Sociotechnical Error

Stadia are important sites for technological innovation, being referred to as smart laboratories and networks that trace sociotechnical change (Robertson & Nyaupane, 2024; Yang & Cole, 2022). Here, we use this framing to focus on in-stadium technologies that offer a layered approach to error that intersects with cultures of sociotechnical implementation. We find that VAR is simply not a solution to error but rather is enmeshed in a layer of errors, problematizing the constitution of error contingent on rules-based or procedural objectivity. First, the very foul that occurs in a game can be categorized as an error of sorts, one that disrupts the flow via illegal and improper conduct. Second, the referee's adjudication of the foul can sometimes be erroneous, or possibly the referee can deem a play a foul when it never occurred. In response to many notable referring errors, VAR technology represents an objective solution that promises fans, players, and referees alike to be able to rectify errors. While VAR implementation greatly depends on human (referee) agency, we find that there is another level of error that sits on top of these layers: VAR itself produces its own errors associated with not only the technology itself but also due to the cultures of adjudication around VAR being presented as a technosolutionist ideal. Indeed, VAR implementation has resulted in human errors in communication between reviewers and the referee, further demystifying the promise to correct the sport.

Arguably one of the most disliked actors during a match, the referee exists already in a precarious position of scrutiny. There are typically 23 individuals on the field during a match, 11 players from each team and a center referee, who holds the sole authority for the decision-making on the field, with assistance from assistant referees. Referees, because of the stakes of their decision, experience high amounts of scrutiny not limited to verbal abuse, physical abuse, and death threats by players, fans, and the media (Webb, Dicks, Thelwell, van der Kamp, & Rix-Lievre, 2020). As the adjudicator, the referee's objective during a match is to be passive, to not be visible, and to remain absent from the memories of those who played or watched. Because of the burden placed on these officials, VAR has a promise of alleviating the referee of the burden of making costly errors. However, the operationalization of VAR creates additional labor to engage with the technological process. In effect, the rules-based approach instituted through VAR renders an objective account of error that has the potential to displace the subjectivity of the referee, not only in terms of their judgment but also their affective experience. We find that because this process of technological adjudication is put in place, the promise of objectivity adds an increased burden on the referee while taking away the affordances to make mistakes, only increasing the scrutinization of refereeing practices.

Is VAR "Good Enough?": Embracing Error

VAR was conceived out of a need to correct human error in an arena where these errors have the potential to be costly. However, VAR is not a separate tool to address these conditions, rather it is embedded in the traditional sociolegal framework that is enacted during sporting events. Sport law refers to the distinction that sporting events are governed outside of a traditional legal framework, where striking someone in the head will not necessarily get you charged for battery or assault, and in some cases, might be the proper things to do, gaining applause from spectators (James, 2017). While the utmost burden, responsibility is placed on the refereeing process, and often these spaces do now allow for expressions of criticism against refereeing decisions, which can lead to fines and suspensions.

While overall errors in refereeing are decreasing with the use of VAR (Fisher, 2024), is error something we may affectively seek? According to a study on perceptions of VAR, the very obsession of perfecting decisions through technical objectivity is *ruining* the nature of the sport. The cultural and visceral response to sport is one that is in real time, it is authentic, raw, and organic. Supporters claim that rather than being correct, they would rather maintain the cultural authenticity rejecting VAR, which we claim is an attitude of *embracing error*.

Despite the varied cultural responses, VAR remains a controversial tool. After a major VAR error in the English Premier League in 2023, British Airways has been enlisted to "hone the art of communicating under pressure" and to "improve precision of language" (Winter & Ziegler, 2023, para. 3). Club managers and officials are increasingly publicly questioning the integrity of the technology, as these errors lead to costly outcomes for their teams. After several complaints and the misuse of VAR, Premier League teams voted on whether or not to permanently eliminate VAR from the Premier League. Ultimately, the Premier Legue elected to continue its use, citing that more transparency alongside more automated tracking will be used for the "benefit of the game and supporters" (Premier League, 2024, para. 2).

The introduction of VAR is a technosolutionist attempt that both anticipates and solves errors in refereeing. However, the errors that VAR aims to solve are defined a priori from the rules that trigger its implementation. By leveraging technicality and objectivity in addressing errors and solutions, VAR reconfigures the sport itself. We find that the implementation of VAR as a "good enough" solution to refereeing errors is political. First, while VAR addresses errors pertinent to actual and potential judgements made by the referee, it introduces the possibility of errors in the communication of in-game errors among the referee team. This new layer of *meta-error* emerges from the VAR system but cannot be resolved through it. Second, the heightened sense of procedural objectivity from the VAR positions the referees in a burdensome situation as their judgment is further open for scrutiny when making an erroneous call. However, under some circumstances, the referee can refute recommendations made by the (human) video assistant referee. Here, the referee's decisions can be scrutinized for *lack of objectivity*. Third, the values instituted by relying on VAR are at odds with the values of the football fan community (Scanlon, Griggs, & McGillick, 2022). As such, the politics concerning VAR as a "good enough" technological solution involve epistemological and cultural issues that are dismissed in its implementation.

While VAR will continue to exist in different forms and venues, its very existence is one of sociotechnical error. As outlined, this error exists in many layers from cultural to technological to legal. By tracing VAR, we were able to explore a unique case of sociotechnical error through an object that penetrates many discourses but not yet through a sociotechnical lens. This analysis of VAR highlights that error isn't simply a problem to be solved but a crucial component within a broader culture of technology and society that recursively builds on epistemological understandings of objectivity and solutionism. While embracing error, do we gain collective joy? The stakes of these decisions push the bounds of technological objectivity, where joy is meant to be messy and imperfect and not *overturned* because of technicality.

References

Fisher, B. (2024, May 15). "Erosion of trust": Wolves trigger vote to scrap VAR in Premier League. *The Guardian*. Retrieved from https://www.theguardian.com/football/article/2024/may/15/erosion-of-trust-wolves-trigger-vote-to-scrap-var-in-premier-league

Hughes, T. P. (2004). Afterword. In L. Rosner (Ed.), *The technological fix: How people use technology to create and solve problems* (pp. 208–210). New York, NY: Routledge.

International Football Association Board (IFAB). (n.d.). *Video Assistant Referee (VAR) protocol*. Retrieved from https://www.theifab.com/laws/latest/video-assistant-referee-var-protocol/#principles

James, M. (2017). *Sports law*. London, UK: Red Globe.

Megill, A. (Ed.). (1994). *Rethinking objectivity*. London, UK: Duke University Press.

Morozov, E. (2014). *To save everything, click here: The folly of technological solutionism*. New York, NY: PublicAffairs.

Premier League. (2024, June 6). *Premier League Statement on VAR*. Premier League. Retrieved from https://www.premierleague.com/news/4034112

Robertson, C., & Nyaupane, P. (2023). The stadium as sociotechnical change. *International Journal of Communication*, *18*, 793–799.

Ryall, E. (2013). Conceptual problems with performance enhancing technology in sport. *Royal Institute of Philosophy Supplements*, *73*, 129–143. doi:10.1017/S1358246113000234

Scanlon, C., Griggs, G., & McGillick, C. (2022). "It's not football anymore": Perceptions of the Video Assistant Referee by English Premier League football fans. *Soccer & Society, 23*(8), 1084–1096. doi:10.1080/14660970.2022.2033731

Technology. (n.d.). In *Oxford English Dictionary*. Retrieved from https://www.oed.com/dictionary/technology_n?tab=etymology

Wajcman, J. (2002). Addressing technological change: The challenge to social theory. *Current Sociology, 50*(3), 347–363. doi:10.1177/0011392102050003004

Webb, T., Dicks, M., Thelwell, R., van Der Kamp, J., & Rix-Lievre, G. (2020). An analysis of soccer referee experiences in France and The Netherlands: Abuse, conflict, and level of support. *Sport Management Review*, *23*(1), 52–65.

Winter, H., & Ziegler, M. (2023, November 23). Pilots help Premier League referees end VAR communication gaffes. *The Times*. Retrieved from https://www.thetimes.co.uk/sport/football/article/pilots-help-premier-league-referees-end-var-communication-chaos-8c8fv2p27

Yang, C., & Cole, C. L. (2022). Smart stadium as a laboratory of innovation: Technology, sport, and datafied normalization of the fans. *Communication & Sport*, *10*(2), 374–389.

Ziegler, M. (2010, June 29). Blatter apologises over Lampard "goal." *The Independent*. Retrieved from https://www.independent.co.uk/sport/football/international/blatter-apologises-over-lampard-goal-2013388.html