



## Challenges and Drivers of AI-Based Electronic Marketing in Sports Industry

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### ABSTRACT

This study aimed to identify the challenges and drivers of AI-based electronic marketing in the sports industry of Iran. The research employed a qualitative approach with thematic analysis. The research population consisted of academic and organizational experts in the sports industry. Sampling was conducted using purposive (judgmental) and snowball methods, and interviews continued until theoretical saturation reached at the twelfth interview. To validate the research, the triangulation of data sources, peer review, and participant review method was utilized. Additionally, to check reliability, inter-coder reliability and test-retest reliability were employed. Data analysis was performed using MAXQDA2020 software in three stages of coding (instance, main theme, sub-theme). The results indicated that the challenges of AI-based electronic marketing in the Iranian sports industry include "service quality assurance, customer rights enforcement, security and privacy protection, inadequate employee knowledge and skills, lack of appropriate statutes and regulations, incorrect audience recognition and needs assessment, lack of focus on disruptive technologies, improper use of AI, increased internet consumption for unsolicited advertisements". The drivers encompass "providing low-interest loans, training and skill development, utilizing digital technologies, applying marketing mix, knowledgeable and informed management, holding briefing sessions, customer communication channels, research development, information dissemination and advertising, standard formulation, governmental support, smart technology development and application, investment, motivation and hope for progress, tax exemptions, culture building, business coaching, academic education, infrastructure and equipment, and branding.

### Introduction

Artificial intelligence and algorithmic decision-making profoundly impact our daily lives. These systems are widely used in various high-impact applications, including healthcare, business, government, education, and justice, moving us toward a more algorithmic society. Over the past few decades, not only has daily life changed due to this, but the trajectory of human society has also been significantly transformed. Currently, people and society are increasingly dependent on AI technologies, with the belief that AI has the potential to lead us toward a future where all humanity can thrive (Bashokouh Ajirlo & Mohammad Khani, 2023). Artificial intelligence (AI) technology has seen rapid advancements in recent years, significantly improving various aspects of individuals' lives. The sports industry is no exception, and AI can bring about extensive changes in sports businesses. AI can positively transform the sports industry and elevate it to an unprecedented level

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of success (Abedi & Mohammadzadeh Vanestan, 2024). Rapid advancements in AI technologies have sparked significant interest across various fields, becoming an unparalleled potential for addressing challenges and fostering development in different areas. AI can enhance performance outcomes related to dominant global issues and contribute to global development (Byon & Phua, 2021). However, while extensive research has been conducted on the use of AI in e-learning processes, very few studies demonstrate how AI is utilized in sports.

The sports industry, a global behemoth, is undergoing a digital revolution. Artificial intelligence (AI), with its capacity to analyze vast datasets and make intelligent decisions, is at the forefront of this transformation. As fans demand more personalized experiences, and competition among sports organizations intensifies, the adoption of AI-powered electronic marketing strategies has become imperative (Bai & Li, 2021).

In today's sports industry landscape, sports fans worldwide are connected through various means and for different purposes (Evans et al., 2022). AI technologies have the potential to significantly enhance organization and systematic operations. Since sports have always been a part of societies, influencing social and economic relationships beyond mere games, they can drive economic growth through relationship marketing strategies and industry development tactics in sports (Fowler et al., 2022). In this regard, sports marketing, as a branch of marketing, can promote sports programs and teams and also advertise other goods and services through sports programs and teams.

The role of AI technologies in electronic marketing for sports businesses is significant. For example, Gallivan (2001) addressed the role of AI in football player training, highlighting that this method of training is an attractive approach that has been well-received by football players (Hradecky et al., 2022). Additionally, Li and Xu (2021) explored the role of AI in basketball, noting that in recent years, the use of AI technology in basketball has garnered much attention. Most studies have shown that AI technology can improve basketball players' training levels, help coaches develop suitable game strategies, prevent sports injuries, and enhance the enjoyment of games (Huang & Ding, 2021). However, it should be noted that the application of AI in basketball is still in its early stages, and related industries need to increase their research investments in this area to elevate the level of basketball and make the game more exciting with its growing global popularity (Lv et al., 2022). On the other hand, sport is a social and cultural phenomenon that is constantly evolving. By relying on conventional theories, concepts, and methods, it can contribute to the crystallization of discourse in traditional sports marketing, potentially limiting knowledge and value creation. Technological advancement continues to expand, creating numerous opportunities for all sectors in various industries. Technology, particularly AI, helps individuals improve the efficiency, quality, and affordability of services provided by businesses (Jabbari et al., 2020). AI is one of the technologies transforming our lives as it integrates into almost every aspect, reducing human interactions by 90% in the context of e-commerce (Karimian et al., 2022). Most transactions and exchanges are conducted electronically, with industries and markets shifting towards online purchases. This shift increases speed, variety, competition, and the advantages of buying for customers. In most markets, "personalization" has become an expected norm, allowing customers to demand a specific personal need with unique features from various markets or industries and receive an appropriate response (Mastromartino et al., 2022).

Previous research has explored the broader applications of AI in marketing, highlighting its potential to enhance customer segmentation, personalize marketing campaigns, and optimize pricing strategies (Nadikattu, 2020). However, the specific application of AI in the sports industry remains relatively under-explored. While studies have touched on topics like fan engagement (Chen et al., 2018) and athlete performance analysis (Pu et al., 2024), there is a dearth of comprehensive research examining the overall impact of AI on electronic marketing within the sports context.

Combining AI technologies is likely a transformative force in the e-commerce industry, facilitating rapid analysis of consumer behaviors and becoming a fundamental goal for businesses in the marketing sector. In this process, measuring the success of e-commerce strategies to maximize customer satisfaction is crucial (Ramkumar et al., 2022). As a data-driven technology, AI can create a more suitable interactive experience with customers. Accordingly, business managers

and owners can make more precise and intelligent data-based decisions by adopting new marketing and sales practices (Sabharwal et al., 2022). The result of using AI can play a positive role in developing the sports industry (Wei, 2021). The emergence of advanced technologies like AI and big data, and the application of new instances continuously change consumption patterns, leading to the emergence of new consumption models (Wang & Siau, 2019). Aligning with new consumption patterns requires creating new structures and adapting technology and necessitates cultural institutionalization to accept and correctly use technology (Saatchian et al., 2022). AI represents the fourth industrial revolution aiming to transform the sports field. In this journey, there are ambiguous points and unclear paths; thus, a broad understanding of fundamental principles and the acceptance of emerging applications are still forming. Researchers have shown significant potential for this technology to contribute to the development of various industries, including sports (Santos et al., 2019). Future activities of sports experts and specialists require practical and fundamental knowledge about the strengths, limitations, and use of AI-based tools to guide untapped insights and make substantial improvements in the sports industry (Sarlab et al., 2022). Therefore, this study examines the challenges and drivers of AI-based electronic marketing in the sports industry.

This research aims to fill this gap by investigating the factors influencing the adoption and effectiveness of AI-based electronic marketing strategies in the sports industry. Specifically, this study seeks to answer the following research questions:

1. What are the key drivers of AI adoption in sports marketing?
2. What are the primary challenges faced by sports organizations in implementing AI-based marketing strategies?
3. How does the use of AI impact customer engagement, brand loyalty, and revenue generation in the sports industry?

By addressing these questions, this study contributes to the existing literature on digital marketing, AI, and the sports industry. The findings of this research can provide valuable insights for sports organizations seeking to leverage AI to enhance their marketing efforts and gain a competitive advantage.

## Methodology

This research employs a qualitative methodology based on interviews. For data collection, both documentary studies and interviews were utilized. In the qualitative section, the thematic analysis method was employed. The statistical population comprised academic and organizational experts in the sports industry and sport modern technologies, who were selected using purposive (judgmental) and snowball sampling methods. Interviews continued until reaching theoretical saturation, which was achieved in the twelfth interview. The table below illustrates the demographic features of the interviewees.

**Table 1.** Interviewees' demographic features

Participants	Position	Education	Field of Activity	
			Executive	Academic
P2	University Faculty Member	Phd in Sport Management	*	*
P1	University Faculty Member	Phd in Computer-AI	*	*
P3	University Faculty Member	Phd in Sport Management	*	*
P4	University Faculty Member	Phd in Sport Management	*	*
P5	University Faculty Member	Phd in Sport Management	*	*

<b>P6</b>	University Faculty Member	Phd in Sport Physiology		*
<b>P7</b>	Postdoctoral Student in AI in Sports and Lecturer	Phd in Sport Management	*	
<b>P8</b>	University Lecturer	Phd in Sport Management	*	*
<b>P9</b>	University Lecturer	Phd in Sport Management	*	*
<b>P10</b>	Entrepreneur and University Lecturer	Phd in Entrepreneurship	*	*
<b>P11</b>	Entrepreneur	MSc in Mathematics & Image Processor & Researcher in AI	*	
<b>P12</b>	Entrepreneur	MSc in Sport Management	*	

In this study, the statistical population for the qualitative component includes experts, policymakers, and managers within the sports industry. The sample was selected using purposive and snowball sampling techniques, with interviews conducted until theoretical saturation was achieved. The sample size for the interviews was determined by the study's objectives, encompassing 12 individuals—comprising experts, managers, and academics specializing in the sports industry. To gather background information and literature for the research, as well as to design the interview questions, a comprehensive review of relevant resources, including books, theses, articles, and foreign databases, was conducted. Several interview methodologies can be employed to collect rich and valuable data, with in-depth interviews being the chosen method in this research. In-depth, or unstructured, interviews aim to explore the quality and depth of the issue under study, rather than focusing on its quantity. A key component of this method is the act of comparison. Validity refers to the extent to which a method accurately measures the study's objectives, reflecting how well the researcher's observations capture the phenomenon or variables under investigation (Jw, 1998). To ensure the validity of the research, the researcher employed several techniques, including member checking, data triangulation, and peer review, as outlined below. Triangulation involves examining a specific question from multiple sources and employing different research methods. This approach helps assess the accuracy of the results by gathering findings through various channels. Triangulation, or multi-perspective analysis, utilizes diverse data sources in a single analysis to mitigate biases that might arise from relying on a single source, method, observer, or theory. Triangulation can be categorized into four types: data source triangulation, researcher triangulation, theory triangulation, and method triangulation (Tabatabaei et al., 2017). In this study, the researcher applied data source triangulation. Data source triangulation involves using multiple data sources to analyze the same phenomenon. For this study, three primary sources were employed: experts, managers, and academics with expertise in urban railways and knowledge-based companies. These sources provided comprehensive insights into the subject, enhancing the breadth and depth of the collected data. Additionally, the theoretical and research literature was incorporated as a supplementary source to enrich the information on the studied phenomenon, ensuring effective triangulation and thorough examination from diverse perspectives. Furthermore, the process of data analysis and the resulting findings were shared with specialists and colleagues involved in the research for feedback on the validity and accuracy of the analysis. If they expressed satisfaction with the findings, confidence in the validity of the analysis was established. Peer review promotes interaction between the researcher and experienced researchers, providing valuable guidance on research design, data collection, and analysis (Tabatabaei et al., 2017). Accordingly, the researcher also sought feedback from advisors and shared the data analysis and results with several specialists. Member checking serves as a quality control process aimed at confirming or re-examining the findings by revisiting the interviewees. After analyzing the data, the researcher summarized the findings and presented them to selected interviewees for review. The goal at this stage was to verify whether the interpretation of their comments was accurate, and to examine whether the findings were consistent with their intended meaning and logically sound. Interviewees were also invited to highlight any discrepancies in the researcher's interpretations for correction (Karimkhani et al., 2017). In this study, all three validity techniques were utilized.

Finally, to assess test-retest reliability, two interviews were selected from the data set and coded twice by the researcher, with a 20-day interval between coding. The results of these coding are presented in the table below:

**Table 2.** Calculation of test-retest reliability

Row	Total Number of Codes	Number of Agreements	Number of Disagreements	Test-Retest Reliability (%)
1	22	9	4	92%
2	24	11	2	82%
<b>Total</b>	46	20	6	87%

As can be seen in the above table, the total number of codes over the two 20-day intervals is 46, with a total number of agreements between codes of 20 and a total number of disagreements of 6. The test-retest reliability of the interviews conducted in this study, using the aforementioned formula, is 87%. Given that this level of reliability exceeds 0.60 (Coyle, 2000), the validity of the coding is confirmed. Agreement between coders refers to the consensus among two or more coders regarding the codes used for a portion of the interview text (indicating that another coder codes the text with the same or similar code(s)) (Gibbs, 1988). To calculate the reliability of the interviews using the method of intraclass agreement between two coders, a PhD student was asked to participate as a research assistant (coder) in the study. The necessary training and coding techniques were provided to them (despite their prior familiarity with coding). The researcher, along with this individual, coded four interviews, and the percentage of intraclass agreement (agreement between the two coders) was calculated using the following formula (Coyle, 2000):

**Table 3.** Calculation of inter-coder reliability

Row	Total Number of Codes	Number of Agreements	Number of Disagreements	Reliability Between Coders (%)
1	21	9	3	84%
2	19	8	3	86%
<b>Total</b>	40	17	6	85%

As observed in the above table, the total number of codes recorded by the researcher and the research assistant is 40, with a total number of agreements between these codes being 17 and a total number of disagreements being 6. The reliability between coders for the interviews conducted in this study, using the specified formula, is 85%. Given that this level of reliability exceeds 0.60 (Coyle, 1996), the validity of the coding is confirmed, and it can be claimed that the reliability of the analysis of the current interviews is adequate. The method of data analysis is theoretical coding with a thematic analysis approach, performed using the powerful MAXQDA software version 2020. It is worth mentioning that the new version of this software includes a states window to systematically enhance qualitative analyses and reduce statistical errors, allowing correlations within the data to be identified if necessary. Additionally, this new version can consider data overlap based on Shannon's formula. In fact, it can be stated that the validity of the research is consolidated through four means at this stage:

1. Overlap through MAXQDA software version 2020
2. Statistical assistance provided by this software
3. Expert opinions
4. Researcher engagement

## Results

Based on the aspects examined in this study, a general and abstract theory about the process of action or interaction between individuals can be derived from the perspectives of the research participants. This process includes the use of various stages of data collection, refinement, and the reciprocal relationship between informational categories. In content analysis (thematic analysis), and based on the identification (indicators, sub-themes, main themes), the main axes are formed, and ultimately, the final research model is delineated and presented. Table 4 presents the coding relevant to the challenges of applying AI in e-marketing within the sports industry.

**Table 4.** Coding challenges in AI application

Main Theme	Sub-Theme	Indicator
Challenges of Applying AI in E-Marketing within the Sports Industry	<b>Assurance of services quality</b>	AI can help identify issues and weaknesses in marketing and sports service processes.
		AI can create significant improvements in customer interactions. This technology can assist in identifying customer needs and preferences and provide personalized recommendations.
		AI can help improve inventory management of sports products and services.
	<b>Customer rights advocacy</b>	AI can offer personalized recommendations and discounts based on detailed analysis of customer data.
		AI can help quickly and automatically identify customer needs and complaints.
		AI can bring significant improvements in providing customer support.
	<b>Security and privacy protection</b>	AI assists in the collection and analysis of customer data.
		Companies should establish clear policies and standards for protecting customer privacy and carefully manage sensitive information.
		AI can help detect fraud and scams related to sports tickets, counterfeit products, and tampering with product feature combinations.
	<b>Staff's superficial knowledge and skills</b>	AI can assist staff in using various AI-related tools.
AI provides staff with the opportunity to enhance their automation skills.		
AI requires knowledge in data analysis, and staff can enhance their ability to analyze data accurately through training in this field.		
<b>Lack of proper statutes and regulations</b>	Given the rapid growth of the AI industry, there may be a continuous need to develop new laws and regulations regarding the use of AI in sports marketing.	
	The absence of proper statutes and regulations may lead to various legal issues.	
	The use of AI may require transparency regarding the processes and algorithms employed.	
<b>Inaccurate understanding of the audience and their needs</b>	AI may struggle to accurately identify which types of messages and information appeal to the audience and which types may be perceived as intrusive or bothersome.	
	AI may lead to incorrect recommendations regarding sports products and services for the audience.	
	AI may challenge meaningful connections with audiences. Human interaction and meaningful engagement with customers are crucial.	
<b>Lack of focus on disruptive technologies</b>	AI may struggle to accurately predict market changes and emerging audience needs. This issue could lead to reduced competitiveness and difficulties in adapting to market changes.	
	The use of AI may lead to overlooking important social and cultural aspects in sports marketing.	

When AI is used as a primary tool in electronic marketing within the sports industry, there may be an excessive focus on technology and algorithms, potentially neglecting the human impacts and the true assessment of audience engagement.

<b>Inappropriate use of AI</b>	AI may struggle to accurately determine which types of messages and information are appropriate for audiences and which might cause discomfort.
	Misuse of AI may lead to a decrease in human connection with audiences and fans.
	Misuse of AI may result in inappropriate and intrusive advertising.
<b>Increased internet consumption due to unwanted advertising</b>	Unwanted advertising can lead to audience dissatisfaction.
	Unwanted advertising may lead to a decrease in trust towards the brand or sports team.
	Unwanted advertising can lead to increased internet data consumption by users.
	Unwanted advertising may cause audience distraction and divert their focus from important and useful content related to sports.
	Increased internet data consumption due to unwanted advertising may lead to a diminished user experience on sports websites and applications.

Figure 1 presents the coding related to challenges of AI application in e-marketing in the sports industry:

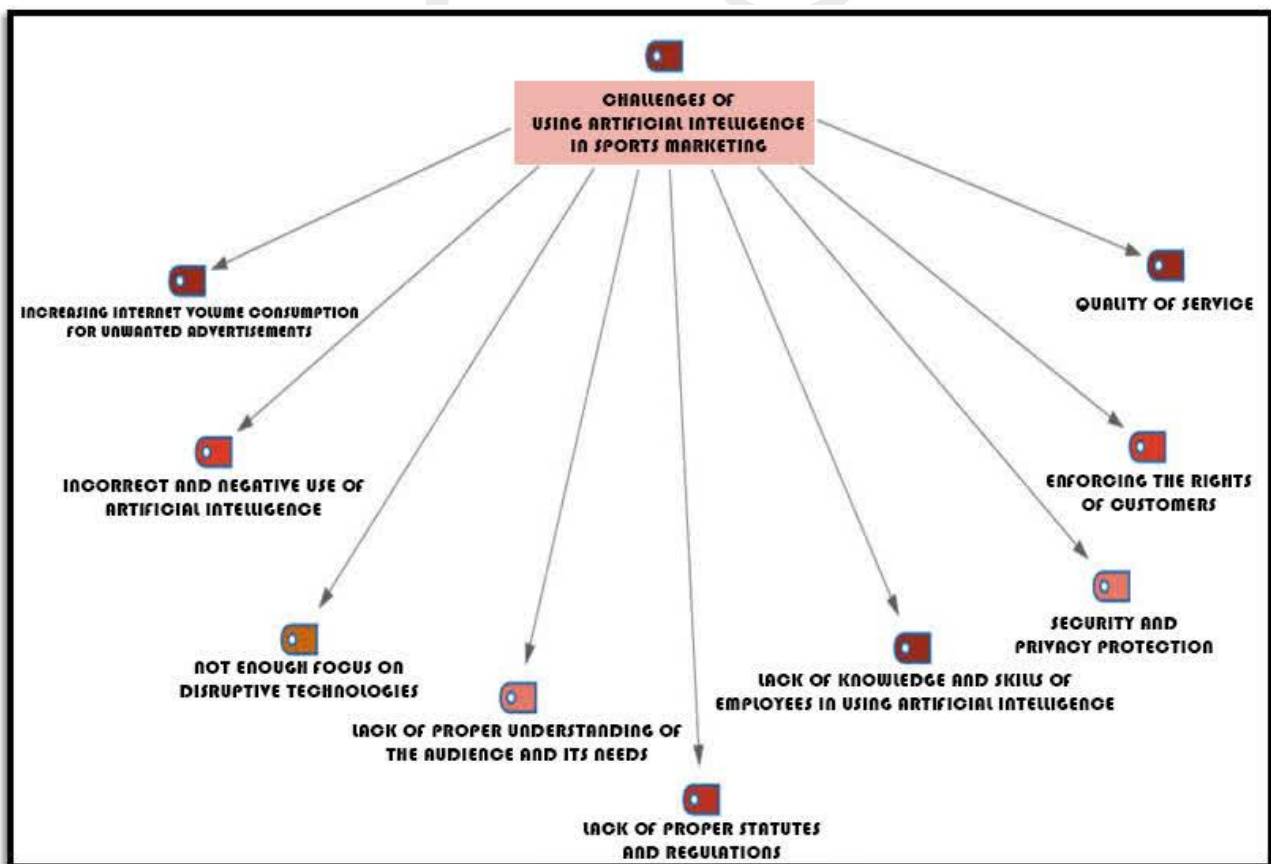


Figure 1. Coding Related to the Challenges of Applying AI in Sports Marketing

In Table 5, the coding related to the drivers of applying AI in e-marketing is provided:

**Table 5.** Coding drivers of AI application in E-marketing

Main Theme	Sub-Theme	Example
Drivers of Applying Artificial Intelligence in Electronic Marketing in Sports Industry	<b>Providing low-interest facilities</b>	Instead of manually reviewing customer credit, you can employ AI to analyze their credit more accurately. This approach can help reduce the risk of providing facilities.
		AI can help you allocate financial and human resources more efficiently. For example, you can use machine learning algorithms to predict the financial facility needs of each customer.
		AI can assist you in making meaningful improvements in the methods and conditions of granting facilities. Use predictive models to determine the productivity and profitability of sports projects.
	<b>Training and skill development</b>	AI can personalize educational experiences for each individual by analyzing data and customer information. This means providing educational materials, content, and activities tailored to each person's needs.
		AI can identify individuals' educational needs through precise data analysis. This leads to the optimization of resources and training time.
		AI-based tools can act as responsive entities to address questions and needs in interactions with students and participants in educational programs.
	<b>Use of digital technologies</b>	AI can assist in managing tickets, entries, and traffic during sports events. This includes automatic detection of counterfeit tickets and preventing unnecessary congestion in sports venues.
		AI can assist in the player transfer process and analyze the transfer market. This helps teams make better decisions regarding player transfers.
		Digital technologies and AI can enhance the spectator experience at live sports events. From virtual reality to voice and image recognition technologies, they can transform how spectators experience the event.
	<b>Use of marketing mix</b>	AI can deliver personalized marketing content by analyzing customer data accurately. This means providing content and messages that are tailored to each customer's needs and interests.
		AI can provide more targeted advertising by analyzing data accurately and using predictive algorithms. This reduces waste in advertising resources and increases the effectiveness of campaigns.
		AI can act as responsive entities in customer interactions. From chatbots and interactive robots to customer support systems, AI can answer customer queries and provide assistance.
	<b>Informed and literate management</b>	Informed and literate managers should have a deep understanding of AI technologies. This includes fundamental concepts of AI, algorithms, machine learning models, and data processing techniques.
		Literate managers should be able to develop data-driven strategies using AI. This includes accurate data analysis, predictions, and data-based decision-making.
		Managers should be able to select and decide to implement AI-related projects. These projects are executed with the help of specialized AI teams.
	<b>Conducting briefing sessions</b>	First, the objective and target audience for the briefing session should be determined. Will the session be held for sports industry managers and decision-makers, marketers and advertisers, students, or the general public?
		Selecting important and engaging topics relevant to AI and sports marketing is crucial. You can choose topics such as customer experience personalization, sports data analysis, the use of robots in sports marketing, and similar subjects.
		Inviting recognized experts in the fields of AI and sports marketing as keynote speakers for the briefing session is important. They should have the ability to teach and convey knowledge effectively to the audience.
	<b>Customer communication channels</b>	AI can be used to process audio and visual data related to sports events. This allows customers to gain more information and experiences from the events.
		AI can enhance the spectator experience at sports events. From virtual reality to ticket recommendations and team-related products, AI can transform how spectators engage with the event.

	AI can assist in customer support. This includes automatic detection and resolution of issues, as well as providing quick solutions to customers.
<b>Research development</b>	Conducting research can examine the impact of using AI on advertising strategies, content personalization, and sports event management.
	Conducting research can use algorithms and machine learning models to predict team performance in sports competitions.
	Conducting research can explore improving the ticket purchasing process for sports events using AI technologies.
	Identifying the causes of successful sports advertising with AI: Research in this area can analyze the factors that contribute to successful sports advertising, evaluate the strengths and weaknesses of these ads, and provide recommendations for improvement.
<b>Communication and advertising</b>	AI, by analyzing data precisely, can deliver more personalized advertisements to each audience member. This increases the response rate to ads, as audiences feel the advertisements are tailored to their individual needs and interests.
	AI can analyze customer data with high accuracy and identify their behavioral patterns. This information can be effective in aligning advertising strategies with customers' needs and preferences.
	AI can help predict customer behavior. This includes forecasting when customers are most likely to respond to advertisements and anticipating their future interests.
<b>Developing standards</b>	Initially, the primary objective and validity period of the standard should be defined. It must be clear for what purposes the standard will be applied and for how long.
	Forming a specialized team for developing standards is essential. This team should consist of individuals with expertise in AI and sports marketing.
	Standards can provide reference patterns and models for use in sports marketing with AI. These models should be practical and applicable in real-world scenarios.
<b>Governance support</b>	Governance support can establish laws and regulations related to the use of AI in sports marketing and oversee compliance with these rules. These regulations can include aspects such as customer privacy protection and the prevention of fraudulent advertising.
	Governance support can ensure the security of customer data in the use of AI in sports marketing. This can help prevent cyber intrusions and unauthorized access to sensitive information.
	Governments can establish protocols and standards for the use of AI in sports marketing. These standards can help align AI technologies more effectively with the needs and demands of the sports community.
<b>Development and application of smart technology</b>	AI can assist in the precise analysis of sports-related data. This includes analyzing player and team performance, as well as audience insights. This information can be valuable for team management decisions and effective marketing strategies.
	AI can improve the prediction of sports event outcomes by analyzing historical data and current game conditions. This information can be used in betting and related event advertising.
	AI can deliver advertisements in a smarter and more personalized manner. This increases the response rate to ads, as audiences feel that the advertisements are tailored to their individual needs and preferences.
<b>Investment</b>	Financial investment supports the development of AI in sports marketing. This investment can lead to research and development of new AI technologies to enhance customer experience and efficiency in sports marketing.

	<p>Investing in AI tools and platforms can facilitate more precise analysis of sports-related data. This information can be used to make more effective marketing decisions and develop more impactful advertising strategies.</p> <p>Investing in AI-driven advertising can enhance the customer experience. Such advertising can aid in personalizing ads and tailoring them to each customer's needs and preferences.</p>
<b>Motivation and hope for advancement</b>	AI can assist in predicting game outcomes and sports trends. This information aids in strategic and advertising decisions, increasing motivation for more accurate predictions and the development of more effective strategies.
	AI can enhance the spectator experience at sports events. From virtual reality experiences to interactive and personalized content, these technologies increase motivation for attending and engaging in sports events.
	AI can aid in creating engaging and diverse sports content. Such content can attract more customers and spectators, increasing motivation to participate in sports activities.
<b>Tax exemption</b>	Tax exemptions can encourage companies and investors to invest in AI for sports marketing. This can foster the development of new technologies and innovations in the industry, promoting its growth.
	AI can enhance efficiency in sports marketing. Tax exemptions allow companies to invest more in AI tools and related technologies, thereby increasing productivity and effectiveness in utilizing these technologies.
	Tax exemptions can support the development of AI-related startups in sports marketing. Startups often require additional financial resources, and tax breaks can provide them with the opportunity to grow and develop new innovations.
<b>Cultural development</b>	Cultural development regarding AI and its role in sports marketing can raise public awareness. This allows individuals to understand how AI can effectively enhance the sports experience, predict outcomes, and create engaging sports content.
	Cultural development can encourage young people to study and specialize in AI and sports marketing. Fostering this motivation in the community can help provide a skilled workforce in these fields.
	Awareness of the impact of AI on sports marketing can alter consumer behavior. Individuals may be more inclined to use services and products that have been enhanced through AI.
<b>Business coaching</b>	AI can assist in diagnosing injuries and impacts sustained by players. This information allows coaches to make informed decisions about player health and prevent potential risks.
<b>Academic training</b>	AI can encourage coaches and sports businesses to develop new innovations related to training, tactics, and techniques. Academic training can contribute to the development of national technologies in the field of AI for sports marketing. Mastery and advancement of these technologies by skilled individuals can lead to new innovations in the sports industry.
	Students and researchers in universities can conduct advanced research in the field of AI and sports marketing. These studies can help discover new methods and techniques for enhancing the sports experience and improving the performance of teams and athletes.
	Students and individuals receiving education in universities can develop professional networks related to the sports industry and AI technologies. These networks can lead to job opportunities and business collaborations.
<b>Infrastructure and equipment</b>	Reliable and secure storage infrastructure can assist in managing large volumes of data related to sports marketing. This information can be used in future analyses and in enhancing strategic decision-making.

	Advanced communications can aid in sports advertising and marketing. Utilizing communication equipment for television, radio, and online advertising can lead to the development of effective sports promotions.
<b>Branding</b>	AI is capable of analyzing team and player performance in detail. These analyses can help brands highlight the superior performance of their teams and players and use this information in advertising campaigns and branding efforts.
	AI can assist in creating sports marketing content. From automatically generating sports news to producing diverse advertising materials, this technology can aid in brand building.

Figure 2 presents the coding related to the drivers of AI applications in e-marketing in the sports industry:

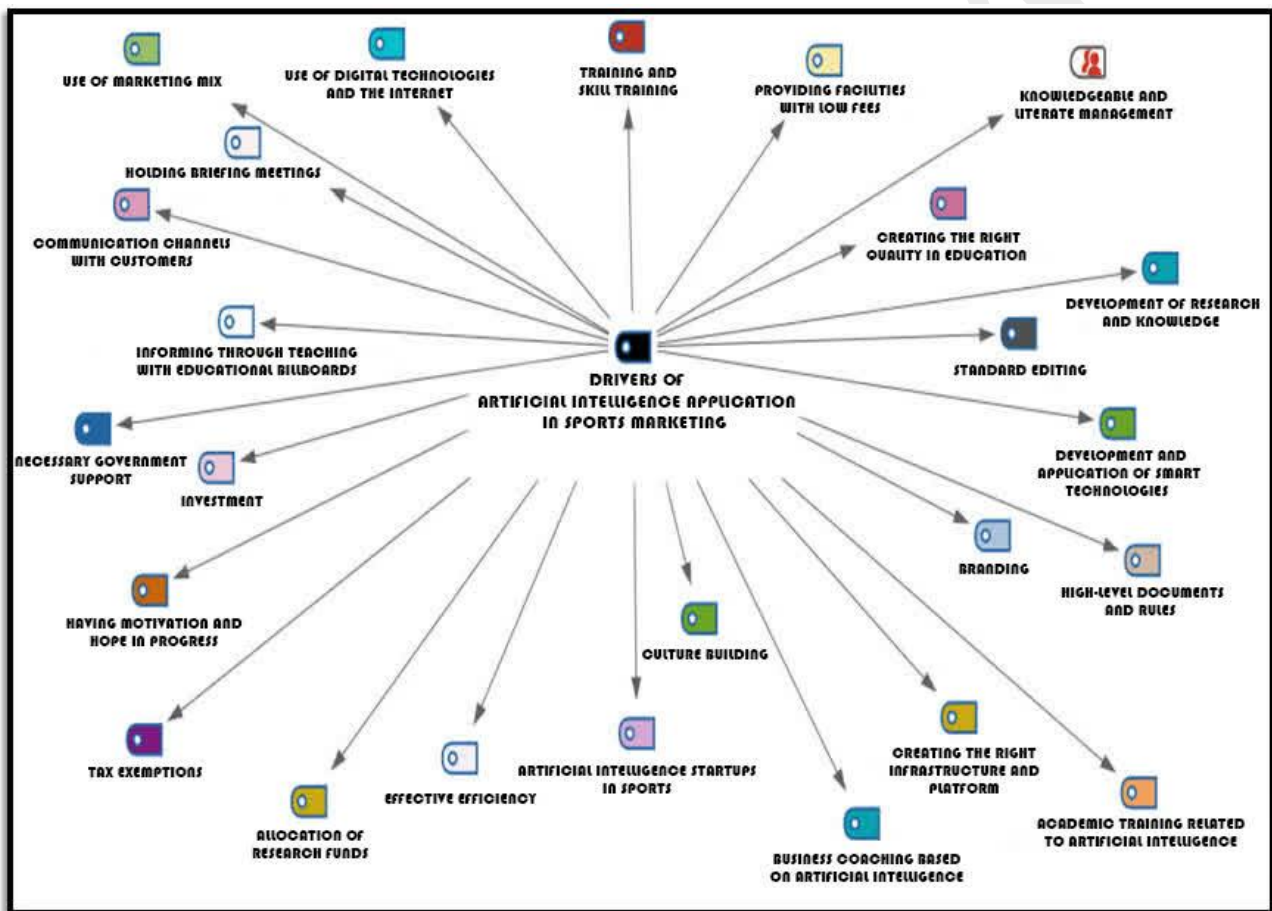


Figure 2. Drivers of AI Application in E-Marketing within the Sports Industry

### Discussion and Conclusion

This study examined and identified the challenges and drivers of artificial intelligence in sports industry marketing. It has successfully improved existing models within the Iranian context and, using data collected from experts, provides a comprehensive overview of the challenges and drivers of AI-based electronic marketing. This model can enhance performance and efficiency in marketing sports products and services, leading to better customer relationships. Accordingly, sports hold special significance in society due to the social and cultural connections they foster among enthusiasts, and they have consistently attracted the attention of researchers in social studies. Indeed, the sports industry is considered one of the largest and most influential sectors in the field

of marketing and entrepreneurship studies. Marcel Mauss, a researcher in the field of anthropology, refers to sports, particularly sporting events like football matches, as social phenomena. From his viewpoint, this phenomenon is comprehensive and complete, closely connected to the structure of society due to its widespread and dynamic nature. Therefore, the group behaviors of fans in stadiums can be regarded as a reflection of the prevailing culture in society. Such events require targeted marketing, deep thought, and reflection to make the best use of this opportunity for modern marketing. Additionally, the necessity of using artificial intelligence is increasingly felt, given its novelty and the numerous capabilities it offers to customers in this industry, as well as to sports fans and marketers. Most previous research has shed light on the advantages of using artificial intelligence in marketing, but the challenges and drivers of this emerging technology had not been thoroughly examined, which is what we addressed in this study. Considering that media literacy education, content management, and the utilization of media industries play a significant role in advancing and driving the use of this emerging technology. One of the key drivers that can be highlighted is education and skill development. Artificial intelligence can assist in analyzing sports data. By using machine learning algorithms, patterns in athletes' performance can be identified, leading to the improvement of existing techniques and strategies. These aspects require a well-structured plan, along with continuous education and skill development, which should be regularly updated in line with the rapid advancement of this technology. Therefore, it can be stated that this research supports previous studies in this field (Sarlab et al., 2022). Another finding of this research concerning the drivers in sports was the focus on communication channels with customers and sports fans. Through process automation, artificial intelligence can enhance communication processes, such as sending automated emails, reminders, and follow-ups, which help improve efficiency and reduce errors. Further, in another part of the study, we highlighted the use of AI-based chatbots, which enable businesses to respond to customer inquiries in real time. These tools can be available 24/7, helping to reduce customer waiting times. The results of the present study confirm the findings of previous research (Taheri et al., 2024). As well, the present study investigates the challenges of artificial intelligence in marketing, one of which is maintaining the security and privacy of data and information of customers and team fans. In this regard, it should be noted that concerns related to data security and customer privacy in online transactions and the use of artificial intelligence create significant challenges. These concerns may not only fail to contribute to better marketing but may also lead to numerous issues and problems in the marketing domain. In a study titled "Design and Explanation of Influencer Marketing Evaluation Model, with Emphasis on the Consumption of Iranian Sports Goods on Social Media," stated that if sports marketers fail to adopt appropriate strategies by relying on these valuable human resources and do not foster cultural and ethical development, technological advancement, social development, and personal branding growth, they will not be able to attract consumers to Iranian sports goods and will not sustain themselves against the appeal of other competitors. Hence, the present study confirms previous research in this area (Sepasgozar et al., 2022). The results of this study also indicate that the use of emerging technologies such as artificial intelligence, blockchain, and others, while offering numerous benefits, also brings about challenges in the field of marketing. Indeed, the use of AI in sports marketing is akin to a double-edged sword. If not applied correctly and appropriately, it may result in irreparable consequences in marketing efforts. Another barrier that can be addressed in this research is the lack of appropriate regulations and guidelines for the use of AI in sports marketing. This gap can create serious problems and challenges for businesses and organizations. Due to the rapid advancement of artificial intelligence technology, many organizations have yet to develop comprehensive and necessary regulations and protocols for the proper and ethical use of these technologies. The findings of this research confirm those of other studies in this area. The factors affecting the effectiveness of electronic marketing in professional sports in Iran, listed in order of significance, include management factors, knowledge management, customer relationship management, strategies, environmental and competitive factors, website features, organizational culture, supply chain management, brand factors, and resources. However, none of these factors can be effectively guaranteed without the establishment of government regulations and laws. As a matter of fact, creating governmental regulations in the field of emerging technologies can help

prevent the exacerbation of tensions and the fueling of controversies in the virtual space. There is also a need for investment in artificial intelligence technologies and electronic marketing within the sports industry in Iran. This research can aid in managerial decision-making and policy formulation regarding marketing in the sports sector. Addressing these challenges requires precise strategies and appropriate managerial measures to ensure that AI-based electronic marketing in the Iranian sports industry succeeds and thrives.

### Limitations and Further Research

The present study provides important insights into the challenges of AI-based electronic marketing in the sports industry. The findings indicate that digitalization and the use of AI technologies can enhance marketing strategies. However, they also face challenges such as organizational unpreparedness, a lack of technical skills, and concerns related to data privacy and security. However, the limitations of the study must also be acknowledged. First, the research was conducted with a specific sample of sports managers or within a limited geographical region, which could reduce the generalizability of the findings. Future research should focus on larger and more diverse samples to gain a better perspective on global challenges in this field. Secondly, the cross-sectional design of the study may limit its ability to identify long-term impacts and emerging trends in AI-based electronic marketing. Utilizing longitudinal or experimental designs in future research could provide a better understanding of how these challenges evolve over time. Finally, other factors such as organizational culture, financial resources, and prior experiences in adopting innovative technologies may also influence the challenges of electronic marketing. Therefore, future studies could explore these factors to offer a more comprehensive understanding of the existing challenges in the sports industry regarding AI-based electronic marketing.

### Ethical Considerations

**Compliance with ethical guidelines:** Ethical points have been observed.

**Funding:** No specific financial resources have been used.

**Authors' contribution:** All authors have contributed to the design and implementation of this study.

**Conflict of interest:** The authors have declared no conflict of interest.

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