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Investigating the Mediating Role of Startup Sports Business in the Impact of Artificial Intelligence Marketing on Sports Product Marketing Strategies

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Abstract

Purpose: The objective of this study is to examine the mediating role of improved performance in sports startups in the impact of AI-driven marketing on sports product marketing strategies.

Method: This applied research employed a descriptive-survey design. The study population consisted of physical education professors, sports science students from Mohaghegh Ardabili University, along with sports product sellers and consumers in Ardabil province. Using Cohen's formula with a test power of 0.80 and an effect size of 0.25, a sample size of 355 participants was determined. Following the removal incomplete responses, 342 questioners were included in the final analyzed. Data collection utilized standardized questionnaires, for which content, divergent validity, and convergent validity were assessed and established. Reliability, measured by Cronbach's alpha, yielding coefficients of 0.82 for AI marketing, 0.86 for sports product

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marketing strategies, and 0.78 for sports startups performance. The hypothesis were tested using structural equation modeling (SEM) with SPSS19 and AMOS23 software.

Findings: The findings indicated that AI-driven marketing exerts a 0.42 effect on sports product marketing strategies and 0.14 effect on the performance improvement of sports startups. Furthermore sports product marketing strategies demonstrated 0.60 effect on enhancing the performance of improvement sports startups.

Conclusion: Therefore, leveraging AI in marketing constitutes a key factor for the success and sustainable growth of sports startups.

Keywords: Artificial Intelligence, Marketing, Physical Education, Sport Product, Digital Technology

Introduction

AI-driven marketing (AI Marketing) is an emerging field in business management that integrates advanced technologies with traditional marketing strategies to enhance decision-making and improve the effectiveness of advertising campaigns. By leveraging big data analytics, content optimization, personalized customer experiences, and market trend predictions, artificial intelligence has revolutionized the marketing landscape (Cheng et al., 2023).

In the sports industry, AI marketing not only boosts fan engagement but also enhances commercial strategies, consumer behavior analysis, and the return on sports investments (Liu et al., 2021). From optimizing digital advertising to personalizing sports-related offers, AI-driven marketing has become a pivotal tool for the growth of sports startups (Vasil & Erriart, 2023).

AI plays a critical role across various aspects of the sports industry, including player performance analysis, sports club management, fan base development, and digital marketing (Lin et al., 2022).

Sports companies and startups use machine learning algorithms to forecast demand for sports products, tailor marketing campaigns, and optimize pricing strategies (Chakraborty et al., 2023). Data-driven marketing in sports has enhanced fan engagement and empowered sports brands to build stronger connections with their audiences (Han & Zhang, 2023).

Marketing sports products consists of targeted activities designed to promote and sell sports goods and services. These strategies include digital advertising, influencer marketing, customer data analytics, and innovative technologies like augmented reality and AI (Bhagat & Kanyal, 2024). AI improves marketing efficacy by analyzing consumer behavior to create hyper-targeted campaigns (MacIntyre, 2023).

For sports startups, this technology helps entrepreneurs identify target markets and increase conversion rates through personalized advertising (Fiegerman, 2015).

Additionally, AI-driven marketing enables optimized ad timing, ensuring promotional messages reach customers at the most impactful moments. It also supports brand development by analyzing customer sentiment and providing real-time feedback. AI-powered digital marketing strategies, such as machine learning-based advertising and personalized recommendations, have significantly boosted customer engagement and loyalty.

Moreover, sports brands leverage augmented reality (AR) and virtual reality (VR) technologies to create unique customer experiences. AI can optimize these technologies to offer a higher degree of personalization. For example, AI-powered applications allow customers to virtually try on sports shoes or apparel, which increases customer satisfaction and reduces return rates. These innovations help sports startups enhance the shopping experience and achieve greater success in competitive markets. Sports startups face numerous challenges during their growth and development, including financial constraints, lack of market awareness, intense competition, and the need for continuous innovation in their marketing strategies (Elyasi et al., 2018). However, leveraging AI can help mitigate these challenges. For instance, big data analytics and marketing automation can lower advertising costs and improve campaign efficiency (Krishna & Agrawal, 2016). The growth of digital technologies and increased access to consumer data have created new opportunities for sports startups to develop more effective marketing strategies using AI (Graham, 2012).

However, challenges such as an overreliance on qualitative data, the complexity of AI technologies, and the substantial required investment persist. To overcome these obstacles, sports startups can adopt collaborative approaches, such as forming partnerships with digital platforms and utilizing cloud-based marketing services. Additionally, enhancing digital literacy and investing in data analytics can significantly improve the efficiency of marketing strategies. Another significant opportunity for sports startups is leveraging social media and AI-driven content marketing. AI algorithms can tailor marketing content for specific target audiences, thereby increasing engagement. For instance, some sports brands use chatbots to interact with customers and offer personalized recommendations, which enhances the customer experience and improves conversion rates. Overall, AI-driven marketing plays an increasingly vital role in the sports industry, particularly for sports startups, by enhancing the effectiveness of marketing strategies. Through advanced data analytics, personalized advertising, and campaign optimization tools, AI enables sports startups precisely identify their target markets and forge more effective connections with customers. However, challenges such as high costs, technological complexities, and data management issues require careful consideration. This study aims to explore these

challenges and opportunities while proposing effective strategies for leveraging AI in sports marketing. Future research could focus on empirically evaluating AI's impacts on the financial and marketing performance of sports startups. Additionally, examining customer's interaction with AI-powered marketing technologies could also contribute to the developing more effective strategies in this field. Additionally, Investing in education and digital skill development could help reduce existing barriers and enable more efficient utilization of AI technology. In recent years, artificial intelligence (AI) has emerged as a key driver of transformation across various industries, including sports and sports marketing. While, numerous studies have examined the technologies impact on different aspects of the sports industry, from product marketing to enhancing operational efficiency, their findings have largely remained isolated. There has been limited exploration of the interconnections between these factors or leaving significant research gaps unaddressed.

Literature Review

While many studies have examined the role of AI in enhancing sports marketing or supporting startup development separately, few have investigated the integrated impact of AI-driven marketing strategies on the growth of sports startups. The present study seeks to bridge this gap by integrating relevant concepts and examining the direct connection between AI, sports marketing, and the development of sports startups. AI has significantly optimized various sports marketing tasks. Mahbub (2023) demonstrated that this technology can enhance marketing functions for sports products, while Yang et al. (2023) concluded that AI, in addition to improving the quality of sports products and services, can contribute to the growth of the sports economy and the integration of related industries. These findings indicate that AI not only facilitates marketing but also serves as a driving force for the expansion of the sports industry. Moreover, AI-driven marketing strategies play a crucial role in customer retention. Chauhan (2023) demonstrated that these strategies can convert buyers into repeat customers, while Kamal et al. (2022) found that AI enhances sports product marketing strategies through data analytics. These findings suggest that leveraging AI in marketing can foster sustained engagement between brands and customers, ultimately strengthening brand loyalty and long-term customer relationships. The role of artificial intelligence extends

beyond marketing; this technology can have a profound impact on the development of sports startups. Yang (2022) found that AI fosters the growth of sports startups through innovation, technology, and market connectivity. Additionally, AI enables the creation of new smart sports products, which have the potential to transform the market landscape. In line with this, Zhang (2022) demonstrated that AI plays a crucial role in accelerating the efficiency of the sports industry's structural framework, facilitating entrepreneurship and job creation. Moreover, Paul (2019) emphasized that for the sports industry and entrepreneurship to evolve, it is essential to adapt to emerging technologies such as AI, ensuring that this technology effectively supports sports entrepreneurship. Despite the numerous advantages of artificial intelligence in the sports sector, several challenges hinder the development of sports startups. Sporsem (2023) identified key barriers such as a lack of innovation in software products, insufficient financial support, inefficient planning, and inadequate digital infrastructure. This indicates that the adoption of AI alone is not sufficient; it requires supportive frameworks and appropriate infrastructure to maximize its potential. Furthermore, Mandalizadeh et al. (2023) emphasized that for the sustainable growth of sports startups, the entrepreneurial ecosystem must be designed to support intellectual property rights, reduce corruption, and ensure financial backing, and foster research and development. Similarly, Salehian et al. (2024) argued that information and communication technology (ICT) plays a crucial role at every stage of startup growth, with the most significant impact occurring during the expansion phase

A review of previous studies reveals that AI has numerous positive effects on sports marketing and the growth of startups. However, most prior research has independently examined these factors, with limited attention given to their interconnections. Additionally, the existing challenges in adopting AI require more in-depth investigation to develop comprehensive strategies that ensure its effective integration into the sports industry. This study aims to comprehensively examine the impact of artificial intelligence on the development of sports startups by analyzing the relationship between AI, sports marketing, and the growth of these businesses in greater depth. Additionally, this research seeks to identify strategies that can mitigate the challenges associated with AI adoption, thereby creating more favorable conditions for the sustainable development of the sports industry. The

sports industry is experiencing rapid technological transformations, and the integration of artificial intelligence (AI) can significantly enhance marketing processes and drive business growth. In today's competitive landscape, startups often face resource constraints and intense market competition. AI adoption can help these businesses remain competitive and expand by leveraging more intelligent and efficient marketing strategies. Additionally, AI enables startups to predict and manage market fluctuations effectively by utilizing adaptive strategies at different times. Moreover, this research aims to improve the understanding and application of AI in sports product marketing while enhancing the performance of sports startups. By addressing challenges and capitalizing on new opportunities, AI can facilitate sustainable development and long-term success in competitive markets.

In summary, while AI has demonstrated numerous positive effects on sports marketing and the growth of startups, existing research has largely examined these factors independently, with limited attention to their interconnected impact. Additionally, challenges in AI adoption call for more comprehensive strategies to ensure effective integration into the sports industry.

In summary, this study holds great significance due to the need for enhanced competitiveness, efficiency, customer experience, and the necessity to fill research gaps in AI-driven sports marketing. It seeks to expand academic knowledge, introduce innovative solutions in this domain, and support the growth and success of sports startups. Therefore, based on the aforementioned discussions, this research aims to answer the key question: Does the improvement in startup performance mediate the impact of AI-driven marketing on sports product marketing strategies?

In this study, based on theoretical foundations and the selected variables, and by articulating the rationale concerning their interrelationships, the conceptual model is presented as shown in (Figure 1).

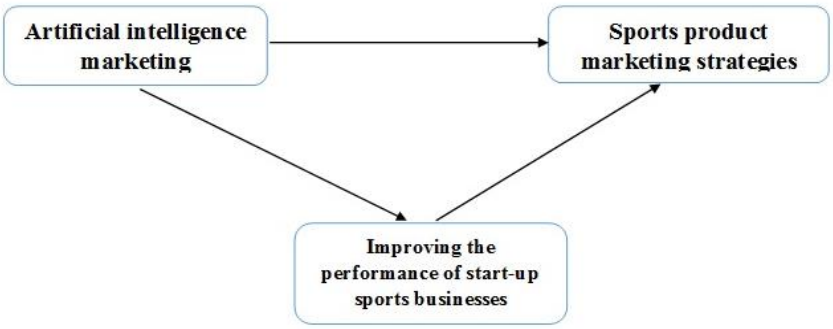

Figure 1. Conceptual Framework of the Research

Therefore, based on the conceptual model of the research, the research hypotheses are:

- AI marketing influences the marketing strategies of sports products.
- The impact of AI marketing on enhancing the performance of emerging sports businesses is significant.
- Sports product marketing strategies significantly affect the performance improvement of new sports businesses.

Method

The purpose of this research was the effect of artificial intelligence marketing on the marketing strategies of sports products with the mediating role of improving the performance of start-up sports businesses. The research method was applied in terms of purpose, descriptive-survey in terms of nature, and quantitative in terms of research approach, which was carried out by field method. Also, the current research is of causal modeling type or structural equation modeling type, and the relationship between variables was tested. The statistical population of the research included professors and students of physical education and sports science, sellers and customers of sports goods. To determine the sample size based on Cohen's formula, the power of the test was 0.80 and the effect size was 0.25 equal to 351, and due to the existence of incomplete questionnaires, 342 questionnaires were analyzed.

The measurement tools include 1- artificial intelligence marketing questionnaire (Fekrat and Jabri, 2024), which consists of 41 questions in 7 components of smart marketing indicators, digital and content marketing, advertising and sales management, artificial intelligence

tools, neural marketing coverage , the use of human resources, the exchange of information is formed. 2- Sports product marketing strategies questionnaire (Izdkhah et al., 2021), which consists of 109 questions in 9 components of innovation strategy, customer relationship strategy, infrastructure strategy, development strategy, service strategy, expert human resources strategy, promotion and advertisement strategy , pricing strategy and product strategy are formed and 3- The performance questionnaire of new sports businesses (Ziyae and Toutifar Thehranpour, 2019), which is also made of 20 questions in 5 components of innovation, risk-taking, pioneering, aggressive behavior and independence.

The scoring method of these three questionnaires was based on a 5-point Likert scale from completely to completely disagree. The content validity of the questionnaires was confirmed by sports management professors and Convergent and divergent validity were examined, and CR and AVE values were confirmed therefore, it has convergent validity. Also, the value of AVE for all three variables was reported to be higher than MSV and ASV, which also showed that the measurement tools have divergent validity. The reliability of the questionnaires was also checked by Cronbach's alpha coefficient that Cronbach's alpha reliability was reported as 0.82 for the artificial intelligence marketing questionnaire, 0.86 for the sports products marketing strategy questionnaire, and 0.78 for the sustainable performance questionnaire of sports businesses. In order to analyze the statistical data, descriptive statistics methods such as calculating the mean, standard deviation, and in the inferential statistics section, the Kolmograph Smirnov test was used to determine the normality of the statistical sample. To analyze the research hypotheses, the structural equation model was used by SPSS19 and AMOS23 software.

Findings

The descriptive results of the demographic characteristics of the research samples indicated that 30.4 percent were women. The level of education showed that 53.6 percent have a bachelor's degree or less, 33.9 percent have a master's degree, and 12.5 percent have a doctorate degree. 75.4% were married; 24.6% single; and 4.9% less than 20 years old, 26.8% between 20 and 30 years old, 23.7% between 30 and 40 years old, 37.9% between 40 and 50 years old and 6.7% more than 50 years old.

Descriptive analysis of research variables based on central parameters (mean, median, and mode) and dispersion parameters (standard deviation, variance and range of changes) for the main research variables is presented in (Table 1).

Table 1. Descriptive Analysis of Research Variables

Research variables	Number	Average	Middle	Mod	Standard deviation	Variance	Range	Minimal	Maximum
Artificial intelligence marketing	342	4.005	4.00	4.00	0.581	0.338	3.71	1.29	5
Sports product marketing strategies	342	3.49	3.66	3.89	0.597	0.357	2.67	1.67	4.33
Improving the performance of start-up sports businesses	342	3.52	3.60	3.60	0.694	0.483	3.60	1.20	4.80

Table 1 shows the descriptive analysis of the research variables including artificial intelligence marketing, sports product marketing strategies and improving the performance of start-up sports businesses.

Since the research based on the structural model and the assumption of normality of the data; therefore, the normality test has been carried out prior to next analysis.

Table 2. Data Normality Test

	Artificial Intelligence Marketing	Sports Product Marketing Strategies	Improving the Performance of Start-up Sports Businesses
Number	342	342	342
Mean	4.005	3.49	3.52
St.D	0.581	0.597	0.694
K-S	2.416	2.638	2.133
Sig	0.000	0.000	0.000

Based on the results listed in Table 2, in all cases, a significance value smaller than 0.05 has been obtained. Therefore, the data distribution is not normal.

Table 3. Fit Indices of the Final Drawing Model

Fit index	GFI	AGFI	TLI	IFI	NFI	CFI	RMSEA
Acceptable fit	Bigger than 0.8	Bigger than 0.8	Bigger than 0.9	Bigger than 0.9	Bigger than 0.9	Bigger than 0.9	Smaller than 0.08
Fit is obtained	0.804	0.8099	0.952	0.922	0.916	0.932	0.063

According to Table 5, all absolute and relative fit indices are acceptable. Also, the RMSEA fit index is equal to 0.063, therefore, the model has a good fit.

Table 4. KMO Test Results

Variables		KMO test	Condition	Sampling Adequacy	Sig
Artificial intelligence marketing	Smart marketing indicators	0.612	acceptable	0.776	0.0000
	Digital marketing and content	0.793	acceptable		
	Advertising and sales management	0.759	acceptable		
	Artificial intelligence tools	0.579	acceptable		
	Neuromarketing coverage	0.715	acceptable		
	Employing human resources	0.908	acceptable		
	Exchange of information	0.905	acceptable		
Sports product marketing strategies	Innovation	0.710	acceptable	0.801	0.0000
	Customer relationship	0.500	acceptable		
	Infrastructure	0.755	acceptable		
	Development	0.745	acceptable		
	Service	0.786	acceptable		
	Expert manpower	0.719	acceptable		
	Promotion	0.513	acceptable		
	Pricing	0.770	acceptable		
	Product	0.771	acceptable		

Improving the performance of start-up sports businesses	Innovation	0.772	acceptable	0.689	0.0000
	risk taking	0.689	acceptable		
	pioneer	0.635	acceptable		
	Aggressive behavior	0.566	acceptable		
	freedom	0.650	acceptable		

Table 4 shows the results of the KMO test, the components of all three artificial intelligence marketing variables, sports product marketing strategies and improving the performance of start-up sports businesses that according to the report made in this table, the condition of all the components were suitable, that is, they were greater than 0.7. Of course, if it is above 0.5, it can be accepted with caution.

Table 5. Checking the Reliability and Validity of the Structure

Research Variables	CR	AVE	MSV	ASV
Artificial intelligence marketing	0.823	0.545	0.447	0.306
Sports product marketing strategies	0.864	0.656	0.176	0.111
Improving the performance of start-up sports businesses	0.789	0.574	0.443	0.244

The value of the CR index for all three variables is greater than 0.7, so the combined reliability of all three variables is confirmed And because the value of the AVE index for all three variables is more than 0.5 and smaller than 0.7, therefore convergent validity was confirmed for all three variables. Also, the value of AVE index for all three variables is higher than MSV and ASV, so the divergent validity of all three variables was also confirmed.

Table 5 shows the reliability and construct validity of the research variables, the combined reliability of artificial intelligence marketing was 0.823, the combined reliability of sports product marketing strategies was 0.864, and the combined reliability of improving the performance of new sports businesses was reported as 0.789.

Figure 2 shows the mediating role of performance improvement of sports start-ups in the impact of artificial intelligence marketing on sports product marketing strategies in the standard case.

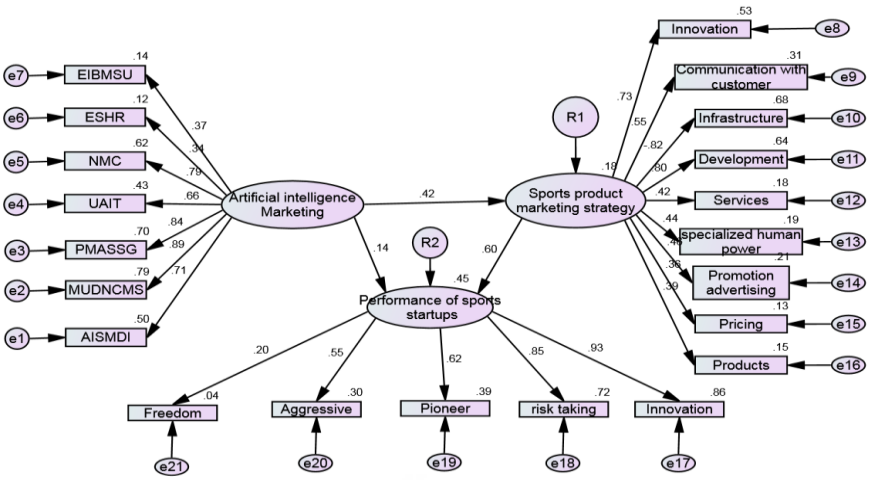

Figure 2. The Mediating Role of Performance Improvement of Sports Startups in The Impact of Artificial Intelligence Marketing on Sports Product Marketing Strategies

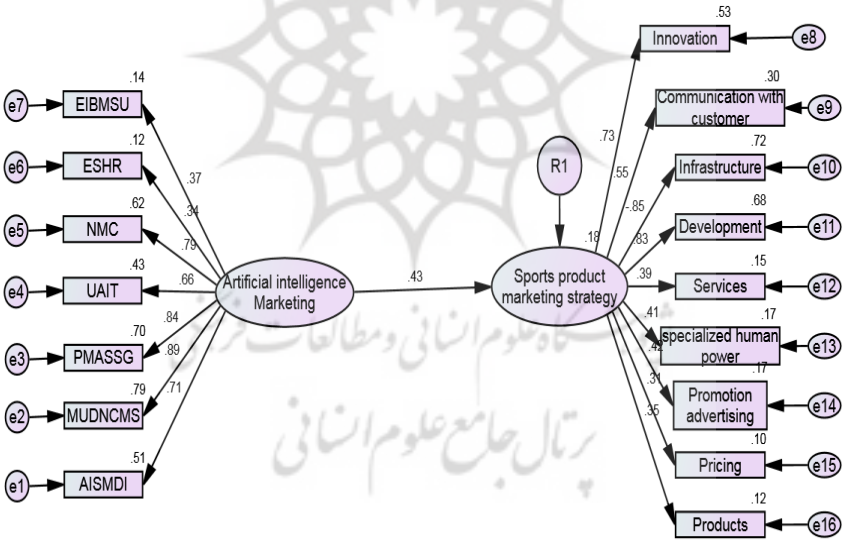

Figure 3. The Effect of Artificial Intelligence Marketing on Sports Product Marketing Strategies (without mediating variable)

Table 6. Summary of research hypothesis test results

Research Assumptions	β	T-VALUE	p	Result	Mediator Type
The effect of artificial intelligence marketing on sports product marketing strategies	0.42	6.053	0.000	Confirmation	Perfect Mediator
The effect of artificial intelligence marketing on improving the performance of new sports businesses	0.14	2.415	0.016	Confirmation and meaningless	
The effect of sports product marketing strategies on improving the performance of new sports businesses	0.60	8.559	0.000	Confirmation	
Artificial intelligence marketing on sports product marketing strategies (without mediating variables)	0.43	6.164	0.000	Confirmation	

The results of structural model path analysis in Table 6 showes that the effect of artificial intelligence marketing on sports product marketing strategies is 0.42 with a significance level of 0.000, the effect of artificial intelligence marketing on improving the performance of new sports businesses is 0.14 with a significance level of 0.016, and the effect of sports product marketing strategies on The improvement of the performance of new sports businesses was reported as 0.60 with a significance level of 0.000. On the other hand, because the t-value in all three hypotheses is outside (1.96 and -1.96), at the confidence level of 0.99, hypothesis H1 is confirmed. That is, artificial intelligence marketing has a positive and significant effect on sports product marketing strategies, and sports product marketing strategies have a positive and significant effect on improving the performance of new sports businesses, but artificial intelligence marketing has a positive and insignificant effect on improving the performance of new sports businesses.

According to Baron and Kenny's table, because in hypothesis 1 and 3, with the presence of the mediating variable, the results are significant and in hypothesis 2, they are insignificant. Also, the effect of artificial

intelligence marketing on sports product marketing strategies without the presence of a mediator variable (improvement of start-up sports businesses) was reported to be significant. We conclude that the mediator of improving the performance of new sports businesses in the effect of artificial intelligence marketing on the marketing strategies of sports products is a complete mediator.

Discussion

The purpose of this research was to investigate the mediating role of improved performance of start-up sports businesses within the relationship between artificial intelligence marketing and marketing strategies of sports products. Our results suggested that the use of artificial intelligence in the marketing of sports products can help the growth and development of new businesses. These technologies not only help improve marketing strategies, but also can lead to increased efficiency, reduced costs, and improved customer experience. New sports businesses that can properly exploit these technologies can gain more success in today's competitive markets. Below, the findings related to each hypothesis are discussed and the results of researchers aligned with these hypotheses are presented.

The findings based on the first hypothesis showed that artificial intelligence marketing has a positive and significant effect on the marketing strategies of sports products. Regarding the findings on this hypothesis, Alberto et al. (2022) suggested in their research that using artificial intelligence in marketing strategy formulation improves efficiency and effectiveness. Tasaddoghi et al. (2020) stated that sports marketing strategies increase visibility, attract customers, and increase sales. Also, this type of strategy effectively helps start-up sports businesses to build brand identity and gain recognition. Nataliya (2019) also stated in her research that the transformation of the sports industry into a powerful business structure through marketing, the use of marketing tools, principles and functions effectively contributes to the economic growth of sports. The findings of this hypothesis are in line with the findings of Mahabub (2023), Kemal (2022), Zhang (2022), Reddy (2020), Ratten (2020). Therefore, in relation to this hypothesis, it can be said that the role of artificial intelligence in marketing will push traditional marketing approaches to advanced approaches and lead to a more customer-oriented marketing perspective. Using artificial intelligence marketing, consumer preferences are better understood and

marketing campaigns are tailored more effectively and the overall experience of the customers will be improved and finally the profitability and competitive advantage in the field of sports products marketing will increase.

The findings of the second hypothesis showed that artificial intelligence marketing has a positive and significant effect on the improvement of new sports businesses. Kemal (2022) state that digital technologies and artificial intelligence have created a revolution in new sports businesses and sports marketing. Chen (2020) stated in the research that artificial intelligence technology integrates sports information and industrialization and promotes the development of new sports businesses. Jingjing (2021) showed that artificial intelligence technologies increase the development rate of sports industry and companies by 20% that it contributes to the development of sports industry management. The findings on this hypothesis are consistent with the findings Salehian et al (2024), Yang et al (2023), Zhang (2022), Mandalizadeh et al (2023), Yang (2022), Reddy (2020), Paul (2019). Therefore, in relation to this hypothesis, it can be said that because artificial intelligence provides many capabilities, including data analysis, predicting patterns, improving performance and user experience, It can have a significant impact on new sports businesses. The use of artificial intelligence algorithms in data analysis, improving strategies and decisions, optimizing the performance of companies, providing personalized services to customers, and improving management and financial processes can help the growth and success of new sports businesses. In conclusion, it can be said that the use of artificial intelligence technology can help the development and growth of new sports businesses. Because this technology provides facilities that make it possible to improve performance, increase interaction with customers, and reduce costs. On the other hand, new sports businesses that benefit from this technology can quickly enter the competitive and dynamic market and strengthen their position in it.

The findings on the third hypothesis showed that marketing strategies of sports products have a positive and significant effect on improving the performance of start-up sports businesses. Alexandru (2013) stated in her research that having a sports marketing strategy attracts consumers, which also causes commercial success and improves businesses in the field of sports products. Yin et al. (2010) showed in the research that traditional sports marketing with the support

of e-commerce is beneficial for new sports businesses. In this regard, Anna et al. (2022) who identified effective strategies in the sports industry stated that sports marketing strategies are very vital for the growth of sports businesses. Also, strategic decisions are essential for success in sports industry businesses. The findings of this hypothesis are in line with the findings of Chauhan (2023), Pengpeng (2020), and Ratković (2019). Regarding the findings of this hypothesis, it can be said that sports marketing strategies play an important role in the development of sports businesses by providing a road map for success. Also, by focusing on areas such as social media, relationship marketing, and influencer marketing, small sports businesses can effectively use their limited resources to avoid business failure. Finally, using these strategies and insights can help sports businesses take advantage of innovations, rapid market entry, and bridging gaps in the competitive sports industry to help them succeed and sustain in the economy. It can also be said that having an effective marketing strategy is essential and vital to maintain competitiveness, adapt to changes in the external environment, and meet customer needs. That ultimately leads to increased business and profitability and key indicators such as product, pricing, positioning and promotion and development have a direct relationship between marketing strategy and organizational success in businesses.

Conclusion

Based on the findings of this research and the discussion on the hypotheses, it can be concluded that artificial intelligence (AI) is significantly transforming marketing strategies across various industries, including the sports sector. By leveraging AI technologies, emerging sports businesses can enhance their performance, optimize their marketing strategies, and gain a competitive edge. AI enables businesses to analyze vast amounts of customer, market, and competitor data, predict consumer behavior patterns, and create personalized marketing campaigns. This leads to more precise and targeted marketing strategies, ultimately improving customer satisfaction, increasing sales, and fostering long-term customer loyalty. From a practical perspective, the integration of AI in marketing presents several implications for key stakeholders. For sports businesses, AI can

streamline customer engagement, refine market segmentation, and improve decision-making through data-driven insights. For policymakers, the rise of AI-driven marketing necessitates the development of regulatory frameworks to ensure ethical AI use, data privacy protection, and the safeguarding consumer rights. For industry stakeholders and investors, understanding AI's potential can guide strategic investments and foster innovation in sports marketing technologies.

While this study offers valuable insights into the impact of AI on sports marketing strategies, it has certain limitations that present opportunities for further research. Future studies could explore the following areas:

- How AI-driven marketing strategies evolve over time and their long-term effects on customer retention and brand loyalty in the sports industry.
-The ethical implications and consumer perceptions of AI in sports marketing, particularly regarding data privacy, algorithmic bias, and transparency.
- Cross-industry or cross-cultural studies to understand how AI-driven marketing strategies perform across different sports markets and consumer segments.
- The impact of AI technologies, such as chatbots, virtual assistants, and predictive analytics impact fan engagement and brand interactions in both professional and grassroots sports.
- The financial feasibility and return on investment (ROI) of implementing AI in marketing strategies for both start-ups and established sports businesses.
- In conclusion, AI is reshaping the marketing landscape for sports businesses, creating new opportunities for growth, efficiency, and innovation. The adoption of AI-driven marketing strategies will be a key factor in achieving sustainable business success in today's highly competitive sports market. However, ongoing research and thoughtful policy development are crucial to maximize AI's benefits while addressing its challenges**.**

CONFLICT OF INTEREST: The authors declare that they have no conflicts of interest regarding the publication of this manuscript.

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