

# Research on the Integration Development of Sports Industry and Digital Technology under Dual Cycle Background

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## ABSTRACT

With the development of digital technology, the sports industry itself is facing unprecedented and fundamental changes, which will change the basic ecology, business model and form of the sports industry. Using the literature method and the typical case method, this paper analyzes the current stage of digital technology application practices in the sports industry, mainly including the front-end, which focuses on sports and competitive events, the middle-end, which focuses on live streaming, broadcasting and re-broadcasting, and the back-end, which focuses on consumers. Combined with the background of the dual cycle policy, it summarizes the possible real challenges and historical opportunities for the integration and development of the two, and proposes a targeted response path.

**Keywords:** Sports industry; digital technology; dual cycle policy; integration development

## 1. INTRODUCTION

With the continuous development and innovative application of digital technologies such as social media, big data, cloud computing and human-computer interaction, the form, industry and ecology of the traditional sports industry are undergoing a continuous process of reconstruction, which has brought about fundamental changes in the sports industry. According to the Statistical Report on Internet Development in China, the number of Internet users in China has reached 989 million, and according to China's population of 1.4 billion, 70.6% of China's Internet users, digital technology has been able to penetrate into the daily life of most people through the Internet [1]. Therefore, the national "14th Five-Year Plan" outline points out that "the sports media industry should encourage the development of multimedia radio and television, Internet radio and television, cell phone APP and other new sports media industries, and make the competition and performance industry, fitness and leisure industry, and sports media industry as key industries for development ". Therefore, exploring the interaction between the sports industry and digital technology has become an important topic in the current academic world.

Many studies have shown that digital technology can be applied among various fields of the sports industry. On

the one hand, data technology can directly promote the operational efficiency of sports event-related activities, such as improving athletes' competition performance [2], ticket sales price judgment [3], and online fan interaction [4]; on the other hand, digital technology can enrich the sports industry ecosystem, introduce information, elements, and resources from other industries into the related sports field, and realize the bridging and integration, and constantly expand the possible forms of sports industry ecology [5].

However, China is facing an unprecedented change due to the dual impact of the New Pneumonia epidemic and the world political game, which also has a strong impact on the development of the sports industry, especially the sports media industry. Facing the complex situation at home and abroad, General Secretary Xi Jinping proposed to "accelerate the formation of a new development pattern with the domestic major cycle as the main body and the domestic and international double cycles promoting each other". In the above context, how to promote the organic integration of digital technology and the sports industry has become one of the most important issues. Therefore, this study attempts to explore the historical opportunities and practical paths for the integration of the sports industry and digital media technology under the perspective of the dual cycle policy,

so as to realize the structural transformation of the sports industry.

## 2. LITERATURE REVIEW

In recent years, with the wide application of digital technology in the economy and society, this has also had a profound impact on the sports industry, which is in the transition stage. From the existing literature, most studies are still limited to the application of technology in various fields and lack a systematic analysis of digital technology in the entire sports industry. Therefore, this study presents a comprehensive picture of the current changes brought by digital technology to the sports industry by sorting out the interaction between the two.

First, many studies have noted the changes brought by digital technology to traditional sports and event formats. For example, Hutchins et al. used the NBA2k league as an example to illustrate how traditional sporting events can be combined with eSports elements to digitize and cross borders, thus easing the digital crisis [6]. Forbes found that the NBA has introduced multiple types of technological products to assist scientific training, and the Sport VU system uses 3D high-definition cameras built in the dome to achieve dynamic trajectory of athletes' real-time capture and analysis. It can assess each player's muscle tension and stamina by measuring data such as running distance and average speed to improve the science and safety of training [7]. Bernard argued that big data analysis can be used to analyze athletes' performance in different dimensions and optimize it rationally to directly improve the individual ability of the sport to achieve better performance [8]. Valeria Catalani et al. proposed that through digital automated monitoring tools and motion capture technology, fitness conditions can be characterized and combined with health improvement and natural therapies to encourage the adoption of healthy food supplements [9]. A.D. Pizzo et al. found that the sports industry has embraced a range of digital products, including augmented and virtual reality, wearable fitness devices and e-sports, among others [10]. It should be said that the application of digital technology has upgraded the development of sports events and brought a profound impact to the whole sports industry.

Secondly, there are also studies that have analyzed the impact of digital technology on the traditional sports industry. In terms of industrial foundation, Watanabe et al. argue that digital technology can enhance the ability of sporting goods manufacturers to recycle the benefits of resources, promote intelligent interconnection, information integration, data decision making, and human-machine interaction to do so, optimize production processes, promote production efficiency, and promote the inherent upgrading of industrial structures [11]. In terms of industrial form, Cunningham et al. conducted an in-depth investigation of e-sports projects, and this new sport created by digital technology has formed a scale of

tens of billions of output value, while the proportion of e-sports users in China has reached 59% globally, which greatly promotes the change of the supply side of the sports industry [12]. In terms of sports media, the way of communication of sports content has also changed greatly. The popularity of mobile Internet has brought more entertainment choices to users, and short video has become a new way to watch sports games [13].

Through literature combing, it can be seen that digital technology has had a huge impact on the sports industry, which itself is part of the overall social development trend. Clearly, this digital development trend provides new market opportunities for the sports industry and exposes the traditional industry to a more flexible and complex market environment [14]. However, these studies ignore that the sports industry itself is not only single and closed, but the sports industry is accelerating its integration with other industries through digital technology, thus forming a new ecosystem that integrates sports product resources, event resources, and user resources. On the other hand, the current international social situation is also full of uncertainties, with the new crown epidemic and political games between major countries affecting the development of various industries in a way that is unprecedented. Based on this, this study will summarize the current application of digital technology in the sports industry, and then explore the historical challenges and practical paths of the development of sports industry and digital media integration combined with the background of COVID-19 and political situation, so as to realize the structural transformation of the sports industry.

## 3. THE APPLICATION PRACTICE OF DIGITAL TECHNOLOGY IN THE SPORTS INDUSTRY

In real life, typical cases of integration and development of digital technology and sports industry are emerging, showing an increasingly flourishing development trend. In general, the application practice of digital technology in the sports industry can be analyzed and studied from the front end, middle end and back end.

### 3.1. Front End: Digital Technology and Sports Events

The so-called "front-end" refers to the direct application of digital media technology in the sports industry in the form of integration, including wearable devices, biometric technology and motion capture technology, which directly drives the production, sales and marketing of sports products related to them, mainly belonging to the sports manufacturing industry. Motion capture technology, for example, is essentially a positioning system that captures the spatial position (3D coordinates) of the subject to obtain kinematic data related to it, such as speed and acceleration, and has been

widely used in the fields of live monitoring of sports events, sports rehabilitation, virtual sports, human-computer sports interaction, and sports film and animation [15].

### ***3.2. The Middle End: Digital Technology and Sports Media***

The so-called "mid-end" refers to the application of digital technology in the sports media industry, mainly involving the live broadcasting, rebroadcasting and rebroadcasting of sports events, which is reflected in the development of modern media platforms. Take B/R LIVE, the OTT platform of Turner Sports, as an example, it shows how top-level event IPs are combined with digital media platforms to create an industrial ecology directly facing sports consumers. In the context of increased competition in the industry, video resources often form the basis for the development of digital media platforms, while content and ecology determine the development trend of digital media platforms. For B/R LIVE, its specific strategy is reflected in three aspects: subscription strategy adjusted on demand; communication strategy to maximize the use of social media; and profit strategy relying on digital media.

### ***3.3. The Back End: Digital Technology and the Sports Consumer***

The "back end" refers to the industries that are directly related to the sports consumer. With the rapid development of digital technology, the sports industry is not only a specialized field, but also a consumer mentality and value of total fitness through these digital technologies into daily life. Take the 2018 Tencent Sports co-production "Supernova National Games" as an example, which presents how sports can be combined with entertainment to form a socialization path for the integration and development of sports and digital media technology, that is, introducing the "rice circle" culture under the fan economy into the program and transferring "fans" transferring their love for idols to the sports they play [16].

## **4. OPPORTUNITIES AND CHALLENGES FOR THE INTEGRATION OF THE SPORTS INDUSTRY AND DIGITAL MEDIA TECHNOLOGY**

Since 2018, the international political situation has become more and more complicated, and the economic ties between different countries have been seriously affected. At the same time, the superimposed effect of the new crown epidemic makes the trend of globalization seem to show a trend of reversal. It is in the face of increased international uncertainty and changes in the main contradictions of domestic society that the Chinese government has proposed a new development pattern of

building a dual domestic and international cycle. In the dual cycle, the domestic circulation and the international circulation are dialectically unified, and the smooth domestic circulation is the premise of the dual cycle, while the smooth international circulation is the support and guarantee of the dual cycle [16]. Therefore, it is necessary to summarize the opportunities and challenges faced by the integration of the sports industry and digital media technology based on the trend of de-globalization, and put forward the basic background for the establishment of a dual cycle development pattern of the sports industry.

In the short term, the trend of de-globalization will have a dampening effect on the development of the integration of the sports industry and digital technology. This is mainly reflected in the following aspects: First, the relevant sports events are still mainly offline and largely restricted by the prevention and control requirements of each country, various high-level and high spectator sports competitions and mass entertainment sports are forced to suspend, the actual demand of sports consumers for sports goods is greatly reduced, and the sports exchange activities between countries are restrained, which also directly affects the market scale of the sports industry; second, the market scale of the sports industry is directly affected by the risk brought by the political game of big countries may lead to a crisis in the sports media industry, the original live broadcast, rebroadcast and replay will generate many copyright disputes, foreign sports industry development funds, technical talents and event IP face the real choice of withdrawal, the economic game derived from the political game will lead to the financing difficulties of the sports industry, affecting the division of labor between multinational sports organizations; third, the political As many advanced digital technologies originate from western developed countries, the introduction and application of these digital technologies are difficult to achieve under the development trend of de-globalization, which also leads to the stagnation of the industrial ecology of "sports industry + digital technology".

In the long run, both the new crown epidemic and geopolitical games will exacerbate the physical space divide, which will further increase the inherent demand for online communication. In the new international environment, digital technology can reduce the market risk brought by uncertainty, create digital development opportunities for the sports industry, and further promote the emergence and development of new sports industry forms. As you can see, social media, broadcast and short video digital technology in the sports industry plays a more and more important function and role, and to be able to get through online and offline, fuzzy industry boundaries, create multiple platforms, the whole industry, experience, and service of a new business model, change the disadvantages of traditional sports service productivity, meet the demand of the public more diverse.

Thus driving the development of related sports industry. Overall, the digital sports market is still in the increment of rapid development, and expanding the depth and application of digital technology is an important way to promote the transformation and upgrading of the sports industry and the growth of sports consumption. The scale of the digital sports industry will further expand.

## 5. CONCLUSION

With the widespread application of digital technology, the ecology of the sports industry is undergoing a continuous process of reconstruction and thus presenting new forms of expression. From the perspective of the current integration of the sports industry and digital technology, it can be divided into three levels: front-end mainly involves specific technology applications, such as wearable devices, biometric technology and motion capture technology, which directly drive the production, manufacturing and sales of sports products related to them; middle-end mainly involves the live broadcast, broadcasting and re-broadcast of sports events, which changes the The back end directly connects the sports industry and sports consumers, bringing sports into daily life through digital technology, enabling people to form the concept of sports and contributing to the integration of sports with different social life needs.

However, with the arrival of the trend of de-globalization, the integration between the sports industry and digital technology has both historical opportunities for rapid development and real challenges for impeded development. In this regard, new ideas of integration development need to be formed in conjunction with the double-cycle policy: (1) Facing the internal market needs of consumption upgrading, the sports industry should seize the opportunity of digital technology development, strengthen R&D cooperation with relevant technology enterprises, contribute to new consumption hotspots, seize the craze of the concept of total fitness, and use digital technology in multiple directions and angles to supply suitable sports products to the public; (2) grasp the changes of international policies (2) to grasp the changes in international policies, seek project support in conjunction with policy hotspots, continuously expand the speed, volume and quality of two-way integration, place the transformation and upgrading of industrial structure in a prominent position, and realize the dual benefits of sports industry and digital technology; (3) to actively expand foreign markets, bring into play the advantages of digital technology in crossing physical space barriers, disseminate, exchange and sell domestic sports events and related sports products through digital technology platforms. The negative effects of the highly uncertain globalized environment are eliminated by promoting sports exchanges with various countries through online methods.

It is worth noting that there are still some contents to be further explored in this study, which are mainly reflected in the following aspects: first, there are limitations on the understanding of digital technology. At present, the most advanced digital technology is still mainly applied in Western countries, and its application scenarios need to be further understood and recognized. Second, the future development trend of globalization is not yet clear, and the integration of the sports industry and digital technology will be affected, which needs to be adjusted accordingly with the changes of the world situation.

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