

# Research on the Scientific Development and Optimization Strategy of National Fitness in the Perspective of Smart Sports

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**Abstract:** This paper follows the idea of "literature research-comparative analysis-empirical research-model construction". Comprehensive analysis of relevant literature and data at home and abroad, to explore the basic logic, practical dilemma and breakthrough path of intelligent national fitness participation. In combination with national conditions and people's conditions, we put forward improvement strategies and optimization paths, accurately empower national public fitness services, and promote the deep integration of smart sports and national fitness. Build the model of "intelligent national fitness" in order to maximize the goal of national fitness and provide more comprehensive theoretical and practical guidance for promoting the cause of national fitness.

**Keywords:** Smart Sports; National Fitness; Science and Technology Empowerment.

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## 1. Foreword

"The most important indicator of modernization is people's health, which is the basis of people's happy life. "Comprehensively promoting the construction of a healthy China is a strategic task related to the overall situation of China's modernization drive. With the rapid development of technologies such as the Internet and mobile Internet, the connection between computer technology and national fitness research has become closer.

### 1.1. Status Quo of Foreign Research

In 2010, the rapid development of digital economy has further promoted the application of public sports public services in many fields, and the application of science and technology has provided a solid foundation for the digital, information and intelligent transformation of national fitness. Foreign research in the field of smart sports provides us with valuable experience, especially in how to effectively integrate advanced science and technology into the national fitness activities and management, so as to improve the exercise effect and user experience. However, further research is needed both in the integration of science and technologies such as artificial intelligence and big data and the Internet of Things, as well as in the creation of more flexible and diversified service models.

### 1.2. Domestic Research Status Quo

Since the national fitness was incorporated into the national strategy in 2014, the construction of a public service system has become the focus of research. The implementation of this strategy aims to improve the health level of the people and promote the popularization and development of sports activities. In this context, the rapid development of the new generation of information technology has provided strong technical support for the intelligent transformation and digital governance of national fitness public services. However, in the context of the digital age, the research perspective of national fitness public service is relatively single, and the depth of content is insufficient, especially in the aspects of

digitalization, intelligence and information transformation, and lack of systematic in-depth research.

## 2. Study Implications and Methodology

The purpose of this paper is to systematically analyze and explore the specific application of science and technology in promoting national fitness, deeply study its actual impact on improving the participation and effect of fitness, and further explore the role of science and technology in promoting national fitness. Through extensive investigation and detailed analysis of related fields, we identify the obstacles in the process of national fitness promotion in order to develop targeted solution strategies. Through the implementation of these strategies and suggestions, the popularization and deepening of the national fitness movement can be effectively promoted, so as to improve the physical quality and health level of the whole people.

First of all, the literature research method can understand the research status and development trend of the deep integration of national fitness under the background of smart sports. Through careful analysis of these data, the main direction and direction of the current research, key issues, progress and achievements are identified and summarized. At the same time, the shortcomings and existing problems in the existing research are found to provide valuable reference and basis for the subsequent research work through in-depth analysis of these problems.

Secondly, by using the comparative analysis method, through the in-depth comparison and analysis of the impact of technology before and after the national fitness, we can discuss how the application of technology has profoundly changed people's fitness habits, social interaction, health effect and user experience. Through this analysis, we can find the specific role and impact of technology in national fitness.

Finally, the empirical research method. By combining the national conditions and people's conditions, in-depth discussion and analysis of various experiences and conclusions in the research process, and a set of national fitness integration strategies suitable for smart sports are summarized. These strategies will be based on our analysis of

the current situation and the construction of the logical framework, aiming to solve the problems existing in the

current development of national fitness and improve its scientificity and effectiveness.

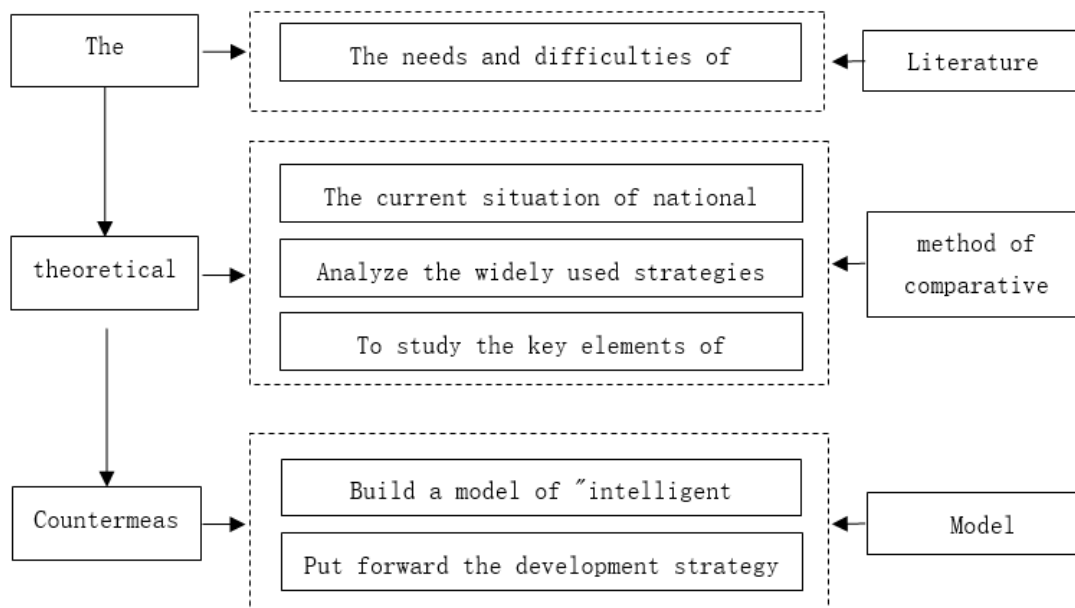


Figure 1. studies the overall

### 3. The Theoretical Basis of Science and Technology Enabling National Fitness

#### 3.1. The Concept of National Fitness

National fitness refers to encouraging and supporting all people to participate in physical exercise and sports activities through a variety of ways and channels, aiming to improve the health level of the whole people, enhance the physical quality and cultivate a healthy lifestyle. It is a systematic activity promoted by the country, society and individuals, emphasizing the concept of "everyone participation, lifelong fitness" in order to achieve the goal of a healthy China. The characteristics of national fitness include: popularization, diversity, scientific, systematic, community and long-term.

#### 3.2. The Development Status and Trend of National Fitness

Digitization and intelligence will become an important trend in the future of national fitness. Big data, artificial intelligence and intelligent devices will be used to improve fitness experience and management efficiency, and promote the popularization of online courses and virtual social networking. Secondly, the community fitness will receive more and more attention, and the community will become the main position of the national fitness. Personalized customized services will also become more and more popular, according to users' personal data, needs and goals to provide tailored training programs and dietary guidance, will meet the personalized fitness needs of different groups of people. The popularity of health concept encourages people to pay more attention to their own health. In the future, more people will improve their quality of life by combining sports, diet and mental health. In the face of the aging society, the fitness programs and services suitable for the elderly will gradually increase to promote the physical and mental health of the elderly and meet their special fitness needs. The continuous increase of policies and investment provides a stronger

guarantee for the national fitness. Finally, the national fitness program will be integrated with culture, tourism, education and other fields to launch comprehensive health activities and promote the comprehensive development of a healthy lifestyle.

#### 3.3. Analysis of the Current Situation of National Fitness

##### (1) Age difference in technical acceptance

In exploring the multi-dimensional influencing factors of technology acceptance, one of the particularly significant observations is that there is an obvious age difference in technology acceptance. This group is often unfamiliar with new technologies, as well as the traditional living habits and cognitive patterns, but it is relatively slow to face these new technologies, and it is difficult to quickly master their use methods. This difference is not only reflected in the speed of learning of operational skills, but also in their recognition of the convenience and value of the new technology.

##### (2) The operational complexity of technological tools

Because of the complexity of their operation process and the high learning cost, some technological tools often bring considerable challenges to users. This complexity is not only reflected in the cumbersome operation steps, but also may involve the understanding of professional terms and esoteric concepts, which increases the difficulty for users to master and skillfully use them.

##### (3) Data Privacy and security

With the rapid development of technology, the collection, storage and use of personal data have become more common, but it also brings unprecedented risks. As one of the most sensitive information for individuals, the privacy and security of health data are crucial for users. Users will carefully consider whether these tools are trustworthy, whether they will properly protect their personal data, and whether there is a risk of a data breach.

##### (4) Lack of personalized experience of technology tools

Users often use technological tools with expectations for personalized and customized services. They want these tools

to be intelligently tailored to their preferences, habits and needs, providing a unique use experience. Many tech tools are not personalized enough to accurately capture and respond to users' unique needs.

## **4. The Development Strategy and Model Construction of Science and Technology Enabling National Fitness**

Based on the understanding of smart sports, we make an in-depth analysis of the integration of smart sports and national fitness, and put forward development strategies in order to achieve the basic goal of promoting national fitness.

### **4.1. Strengthen Technology Research and Development and Application**

In view of the problems of low technology acceptance and complex operation in the current smart sports system, the key is to strengthen technology research and development, and it is necessary to continuously optimize and upgrade the system to ensure that the needs of users are met. Second, it is also essential to simplify the operation process. By optimizing the user interface and interaction design, users can make it more intuitive and convenient when using the system, so as to improve the user experience. In addition, improving the user-friendliness of the system is also not to be ignored. We can help users better understand and master how to use the system by adding help documents, online tutorials, and user support services. At the same time, by regularly collecting user feedback, timely find and solve the problems encountered by users in the process of use, so as to further improve user satisfaction.

By strengthening technology research and development, simplifying the operation process, improving user friendliness, and introducing artificial intelligence and big data analysis and other technological innovation means, we can make the smart sports system easier for users to operate and understand, so as to improve user acceptance and satisfaction.

### **4.2. Ensure Data Privacy and Security**

First of all, strengthen the construction of laws and regulations to provide a solid legal guarantee for the security of personal information. Secondly, the adoption of advanced encryption technology and privacy protection measures are also essential. In addition, privacy protection measures such as anonymization and minimizing data collection are particularly important. Through these measures, we can significantly enhance the users' trust in the smart sports system. When users use the smart sports system, they can feel that their data privacy has been fully protected, so as to enjoy the convenience and fun brought by the system more confidently.

### **4.3. Provide a Personalized Experience**

The smart sports system should introduce advanced personalized recommendation algorithm to better meet the personalized needs of users. This algorithm can deeply analyze users' fitness habits, health status and personal preferences, so as to customize exclusive fitness plans and content for each user. The smart sports application system should also have strong data collection and analysis capabilities. Through real-time monitoring of user feedback

and behavioral data, the system can continuously optimize and adjust the service content to provide a personalized experience more for user needs.

In short, through personalized recommendation algorithm and continuous data analysis and optimization, the smart sports system can provide users with more accurate and intimate services, and help users to achieve the health and fitness goals while enjoying the fun of sports.

### **4.4. Improve Health Literacy and Digital Literacy**

In order to enable the general public to better understand and use the smart sports system, we need to improve their health literacy and digital literacy through education and training. In this way, people can make more effective use of smart sports systems to improve their quality of life. In addition, we should also actively carry out popular science activities related to smart sports, and enhance the public's awareness and acceptance of the value of smart sports through various forms of publicity and education.

### **4.5. Build a Multi-Party Participation Ecosystem**

The development of smart sports needs the joint participation of the government, enterprises, scientific research institutions and all sectors of society. It can jointly promote the development of smart sports through the establishment of cooperation mechanism and resource integration. The government can provide financial support and preferential policies to create a good environment for the development of enterprises and scientific research institutions. Enterprises can give full play to their own technology and market advantages to promote the research and development and application of smart sports products. Scientific research institutions can provide technical support and innovative ideas to promote the technological progress of smart sports. At the same time, all sectors of society should also actively participate, including sports organizations, media, investors, etc., to form a multi-participation ecosystem.

## **5. Conclusion**

Through the comparative analysis of the impact of technology before and after enabling national fitness, this study deeply discusses the important role of modern technology in enhancing the public's fitness participation, promoting social interaction, improving health effects and enhancing user experience.

First, in terms of fitness participation, technology enables the frequency and diversity of exercise. Through real-time feedback and data analysis, users can develop personal fitness plans more scientifically and track their progress and goals, which not only improves their confidence, but also significantly enhances the sustainability and self-management ability of fitness.

Second, improvements in social interaction are also an important result of technological empowerment. Through social media and various fitness APPs, users can easily share their personal fitness achievements, post updates and interact. This virtual social environment promotes the connection between users, making fitness no longer a lonely activity.

Third, in terms of health effects, technology enables users to better understand their own health status. This data-driven approach makes health management more scientific and

effective, and users can adjust their fitness plans according to the data to achieve better health results. Studies have shown that participants' weight and fitness levels have generally improved, and some users have even successfully overcome long-term health problems through technology empowerment, demonstrating the potential of technology in health management.

Finally, from a user experience perspective, technology empowerment greatly enhances the fun and appeal of fitness. Many users mentioned that the fitness APP design friendly and personalized recommendation features enhance their sense of engagement and motivation. In addition, online courses allow users to train at any time and place, and this flexibility further drives the popularity of fitness activities.

To sum up, the positive impact of technology empowerment on national fitness cannot be ignored. It not only improves people's fitness engagement and social activities, but also promotes health improvement and enhances the user experience. In the future, there is still extensive room for improvement in the application of technology in the field of fitness, and the industry should continue to explore the combination of technology and fitness to design more attractive and effective fitness solutions. At the same time, users are encouraged to maintain the combination with natural and traditional fitness methods with the help of technology, so as to achieve more comprehensive health goals. Further research can explore the acceptance of different groups of technology fitness, and how to enhance the effect of technology empowerment through education and promotion, in order to promote the sustainable development

of the national fitness cause.

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## References

- [1] The General Administration of Sport of China. Further study Xi Jinping's important discourse on sports [M]. Beijing: People's Publishing House, 2022.
- [2] The Central People's Government of the People's Republic of China. Notice of The State Council on the Issuance of the National Fitness Plan (2021-2025) [EB / OL]. [2021-07-18] (2022-05-10). [http://www.gov.cn/zhengce/conteng/2021-08/03/content\\_5629218.htm](http://www.gov.cn/zhengce/conteng/2021-08/03/content_5629218.htm).
- [3] Gao Mengzhen, Wang Zhiwen, Shi Zhenguo. Digital enables accurate supply of national fitness public services: mechanism of action and implementation strategy [J]. Sports Culture Guide, 2023 (2).
- [4] Zheng Jiakun "14th Five-year Plan" period to build a higher level of national fitness public service system: opportunities, challenges, tasks and countermeasures [J]. Sports Science, 2021,41 (07).
- [5] Wang Ningning, Cheng Wenguang. Intelligent practice dilemma and action direction of national fitness public service [J]. Sports Culture Guide, 2022 (10).