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ANALYSIS ON OPERATION AND MANAGEMENT STRATEGY OF SMART UNIVERSITY GYMNASIUM IN CHINA

***Introduction.** With the continuous development of science and technology and the progress of society, the operation and management of smart sports venues has become an important topic in the new era. Smart sports stadium operation and management uses advanced technical means and management concepts, improve the operational efficiency and user experience of the stadium, to achieve sustainable development. **Purpose.** This paper will discuss the background and importance of the operation and management of smart sports venues, introduce the concept and characteristics of smart sports venues, put forward corresponding operation and management strategies, and analyze the challenges faced and solutions. Through in-depth research on the operation and management of smart sports venues, it can provide useful reference and guidance for the development of China's sports industry. **Methods.** Nowadays, the technical difficulties of mass sports are becoming more and more difficult, and the requirements for the quality level of sports services are becoming higher and higher, but the traditional sports infrastructure is difficult to provide the public with scientific and accurate technical guidance and high-quality sports services. **Results.** This leads to a certain contradiction between supply and demand in China's sports industry market, which restricts the development of mass sports. Such as table tennis, badminton, basketball, football and running are widely loved by the masses of sports, in fact, have higher technical requirements, if the technology is not in place, the action is not standard, not standard, it will not only affect the masses of sports exercise effect, but also may cause sports safety accidents. **Conclusion.** Through the construction of smart sports venues and the information upgrade of traditional sports infrastructure, it can accurately collect the relevant data information of public fitness, such as sports items, sports consumption, exercise time, and even the health indicators of people in the process of exercise. These data information can be shared by non-governmental sports organizations, sports enterprises, local sports departments and medical and health units through networking.*

Key words: *smart sport; venue; management strategy, work, sports facilities.*

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АНАЛІЗ СТРАТЕГІЇ РОБОТИ ТА УПРАВЛІННЯ СПОРТИВНИМИ ЗНАРЯДДЯМИ В КИТАЇ

З безперервним розвитком науки і техніки та прогресом суспільства, експлуатація та управління розумними спортивними майданчиками стала важливою темою в нову еру. Робота та управління розумним спортивним стадіоном використовує передові технічні засоби та концепції управління, покращує ефективність роботи та досвід користувача стадіону для досягнення сталого розвитку. У статті обговорюватимуться передумови та важливість експлуатації та управління розумними спортивними об'єктами, представлено концепцію та характеристики розумних спортивних об'єктів, запропоновано відповідні стратегії експлуатації та управління, а також проаналізовано виклики та рішення з якими стикаються науковці. В наш час технічні труднощі масового спорту стають все більш складними, а вимоги до рівня якості спортивних послуг стають все вищими. Це призводить до певного протиріччя між попитом і пропозицією на ринку спортивної індустрії Китаю, що стримує розвиток масового спорту. Такі види спорту, як настільний теніс, бадмінтон, баскетбол, футбол і біг є широко улюблені серед населення, насправді мають вищі технічні вимоги. Завдяки будівництву інтелектуальних спортивних об'єктів та оновленню інформації традиційної спортивної інфраструктури, можливо збирати відповідну інформацію про громадську фізичну форму, таку як спортивні предмети, спортивне споживання, час виконання вправ і навіть показники здоров'я людей у процесі вправи. Ці дані можуть надаватися спортивним організаціям, спортивним підприємствам, місцевим відділам спорту та медичним підрозділам через ме-

режу. Навчання та адаптація персоналу також мають вирішальне значення у формуванні команди, щоб підвищити працездатність і задоволення потреб працівників. Наставники можуть допомагати новим співробітникам швидко адаптуватися до робочого середовища, зрозуміти вимоги до роботи та вимоги до кваліфікації, а також надати практичну підтримку у вирішенні проблем; регулярне оцінювання та зворотний зв'язок. Необхідне адекватне оцінювання співробітників та надання відгуків, щоб зрозуміти їх продуктивність і потреби в навчанні.

Ключові слова: *розумний спорт; місце проведення; стратегія управління, робота, спортивні об'єкти.*

Problem statement and its significance. Smart sports stadium operation and management is an important measure to meet the development needs of the new era, with the rapid development of science and technology and the increasing attention to sports health, the traditional sports stadium operation and management mode can no longer meet people's needs. The operation and management of smart sports venues takes digitization, intelligence and personalization as the core, through the use of advanced technical means and management concepts, the operation efficiency of the venues is improved, better user experience is provided, and the sustainable development of the venues is realized [1, p. 34–37]. Smart sports venues can monitor the use of venues and equipment status in real time through smart devices and sensors, provide personalized services and customized activities, and improve user satisfaction and loyalty [2, p. 134–136].

Analysis of recent research and publications. The issue of sports facilities management has been thoroughly examined by the world's most prominent scientists in the sphere of business administration and welfare management. Matthew Guschwan have been analyzing the basic principles used in stadium management. Development of international experience was carefully described by Li Deyi and Lu Hengbo [6]. Chen Kun, Chen Peifeng, Lin Yongqin [1] analysed modern stadium management techniques. In this article their ideas will be used as a basis in order to develop strategies for future improvement.

Thus, the purpose of the article is to outline basic trends in sport facility management in Hennan province, to diversify the open management mode of sports venues, establish a scientific open management system, train and introduce professional management talents, broaden sources of funds, and improve operating efficiency. Taking Chinese stadiums and gymnasiums as the research object. The research was conducted using methods such as literature review, field investigation and interviews. The scientific research is highlighted in works of Shen Hongming, Wang Yunlu, Liu Jianfeng, Rahim M.A., Magner N.R.

At present, the overall information technology in China has reached a high level, and both the maturity of technology and the construction of infrastructure are becoming more and more perfect. In addition, the state has paid great attention to the development of information technology industry, and has put forward a number of strategic deployments of information technology development, requiring the penetration and application of information technology to various industries and fields, so as to open a new chapter of social development.

Therefore, as far as the construction of smart sports venues is concerned, China has already had a reliable foundation and sufficient feasibility; On the other hand, China has always attached great importance to the development of mass sports and health. It has put forward a series of relevant policy documents and strategic plans, such as the Outline of the National Fitness Program, the Outline of the Construction of a Sports Power, Healthy China, Opinions on Promoting National Fitness and Sports Consumption to Promote the High-quality Development of the Sports Industry, etc. Open a new era of digital and information-based national fitness. It will enable the development of China's sports industry to conform to the trend of The Times, adapt to modern social and environmental conditions, meet the needs of the masses for sports and fitness, and enable the masses to enjoy more high-quality public sports and fitness services. As an important part of the national economy, the sports industry plays an important role in promoting economic growth, improving the national image and people's health. Smart sports venue operation and management can enhance the competitiveness and attractiveness of venues, attract more users to participate in sports activities, and promote the development of the sports industry [3, p. 20–28].

Therefore, the background and importance of smart sports venue operation and management is based on the current social development and the needs of the sports industry. First, with the rapid development of science and technology and the popularization of intelligence, people's demand for intelligent life is increasing. As an important place for people to carry out sports and entertainment, sports venues also need to adapt to the development trend of The Times and provide more intelligent, convenient and personalized services; Secondly, the operation and management of smart sports venues can improve the operational efficiency and user experience of venues. Finally, the operation and management of smart sports venues is of great significance for promoting the development of the sports industry [4, p. 37–39].

The purpose of the article. The emergence of the concept of "smart sports venues" is closely

related to the extensive and in-depth popularization of information technology, which specifically refers to the use of advanced technical means and management concepts to achieve digital and intelligent operation and management of sports venues. Through the introduction of intelligent equipment, sensors, big data analysis, artificial intelligence and other technologies, it realizes the intelligent operation and management of the stadium, provides more convenient and personalized services, and improves the user experience and the operational efficiency of the stadium [5, p. 79–84]. Smart sports venues have the following characteristics:

Smart sports venues achieve full digitization of venue operations through digital technology. Including the digital management of venue equipment, digital collection and analysis of venue data, digital monitoring of venue operations, etc., to improve operational efficiency and management level.

Smart sports venues through the introduction of smart equipment and sensors, to achieve the intelligent service of the stadium. For example, intelligent access control system, intelligent seat reservation system, intelligent fitness equipment, etc., provide convenient and personalized services to meet the diversified needs of users.

Data-driven decision-making. Smart sports venues realize data-driven decision-making through big data analysis and prediction. Through the analysis of data such as venue usage, user preferences and market demand, the resource allocation and operation strategy of the venue can be optimized to improve the utilization rate and economic benefits of the venue.

Smart sports venues provide personalized experiences through data analysis and personalized recommendations. According to users' preferences and needs, suitable sports items, courses and activities are recommended to improve users' satisfaction and loyalty.

In short, smart sports venues are sports venues that use advanced technologies and management concepts to achieve digitalization and intelligent operation and management, and it has the characteristics of digital operation, intelligent service, data-driven decision-making, personalized experience and cross-border integration. Through the construction and operation of smart sports venues, the competitiveness and attractiveness of venues can be enhanced, and the development of sports industry can be promoted.

Summary of the main research material. Enhance social coordination in the development of sports undertakings.

Therefore, it is difficult for folk sports organizations, sports enterprises, local sports departments and medical and health units to accurately grasp and understand the relevant data information of mass fitness. And the data information between each other cannot be shared, it is difficult to form effective coordination and cooperation between each other, which greatly limits the development quality of sports and health undertakings. Through the construction of smart sports venues and the information upgrade of traditional sports infrastructure, it can accurately collect the relevant data information of public fitness, such as sports items, sports consumption, exercise time, and even the health indicators of people in the process of exercise. These data information can be shared by non-governmental sports organizations, sports enterprises, local sports departments and medical and health units through networking. All parties can extract content with reference value from these data information, which is conducive to the improvement of relevant services, and can promote the coordination of all parties. With the joint participation and cooperation of all parties, to build a more perfect sports and health service system [6, p. 158–161].

Nowadays, the technical difficulties of mass sports are becoming more and more difficult, and the requirements for the quality level of sports services are becoming higher and higher, but the traditional sports infrastructure is difficult to provide the public with scientific and accurate technical guidance and high-quality sports services. Through the construction of smart sports venues, such problems can be well solved. Relying on the corresponding sports information technology and artificial intelligence technology, it can not only provide people with general sports teaching, but also analyze the existing problems according to the individual sports situation, and give the corresponding technical guidance and suggestions to help people improve and adjust their own sports. With low cost and high efficiency, it can greatly improve the technical level of sports for the general public. In terms of sports services, such as venue booking, parking, refereeing, the internal environment of the venue, the traditional sports infrastructure can hardly provide any kind of quality services, so many people feel quite inconvenient. Through the construction of smart sports venues, these service problems can be comprehensively solved. For example, the public can inquire the local sports venue information and book online through special information application, and automatically navigate the vehicle to the nearby parking point. In the process of sports, intelligent referees can also serve the public, increasing the competitive and interesting nature of mass sports. If people have special needs for the internal environment of the venue, it can also be very convenient to remotely adjust through the Internet of things to keep the venue lighting, temperature, humidity, etc., at a comfortable level [7, p. 45–51].

In the past, the public's exercise is carried out offline, there are no small limitations in the transmission of information, so the social atmosphere as a whole

is not very strong, through the construction of smart sports venues, the use of information technology can be a good change such a situation, to create a strong social national fitness atmosphere. For modern people, information technology is a very efficient way of communication and exchange, and most people are very active on the network. Therefore, the "14th Five-year Plan" sports development Plan puts forward such a plan to develop a national community sports activity management service system, promote the establishment of national, provincial (autonomous region, city), city three levels of interconnection of the national fitness information service platform, pilot to carry out "national fitness code", combined with sports level rating and event activity points rating, to build a personal "sports achievement" system. The advantage of this system is that the use of smart sports venues to collect the public's exercise and fitness, so as to form a social form, attract everyone to participate in exercise and fitness, and under the incentive of the "sports achievement" system, encourage the public to develop long-term exercise habits [8, p. 1–7].

The smart stadium uses management strategy. Comprehensive digital transformation is one of the important strategies for smart stadium operation and management. The specific contents include the following aspects: First, the construction of digital infrastructure. Smart sports venues need to build a complete digital infrastructure, including network, server, database, etc., to support the digital operation and management of the venues; Second, data collection and analysis. Through the introduction of sensors and intelligent devices, real-time collection of the use of venues, equipment status and other data, and data analysis and mining. Through data analysis, users' preferences and needs can be understood to optimize the venue's resource allocation and operation strategy; Third, the construction of operation management system.

Building a smart sports stadium operation and management system to achieve comprehensive digitization of stadium operations. The system can include venue booking system, member management system, event management system, etc., to improve operational efficiency and management level; Fourth, mobile application development. Develop smart phone applications to provide convenient functions such as venue booking, event registration and fitness guidance. Through mobile apps, users can make reservations and inquiries anytime and anywhere, enhancing user experience [9, p. 62–69].

Providing personalized services is another important strategy for the operation and management of smart sports venues, which can provide customized services and experiences according to the individual needs of users. Through data analysis and the application of smart technology, smart sports venues can better understand users, meet their diversified needs, and enhance their satisfaction and loyalty. The following are some methods and measures to implement personalized services: First, the establishment of user profiles. Through data analysis and user research, the establishment of user profile is the basis of implementing personalized service. Through the collection of users' personal information, sports preferences, consumption habits and other data, users are classified and analyzed to understand the characteristics and needs of users.

Smart sports venues can use smart booking systems to allow users to book suitable venue facilities and activities according to their own time and needs. For example, users can book a basketball court or swimming pool for a specific time period according to their preferences and schedule. And third, fitness guidance and personalized training plans. Smart sports venues can provide personalized fitness guidance and training plans through smart fitness devices and apps. Users can use smart devices to monitor and analyze their physical data according to their physical condition, health goals and preferences, and then the smart devices can make personalized training plans according to the user's situation.

Innovative marketing means and activities can attract the attention and participation of users, increase the stickiness and loyalty of users, and promote the development and growth of venues. Through innovative marketing strategies, smart sports venues can increase brand awareness and user engagement through the following measures: First, social media marketing. Make use of social media platforms, such as Weibo, WeChat, TikTok, etc., to publicize and promote the venues. Increase the visibility and exposure of the venue by publishing interesting and attractive content to attract users' attention and participation; Second, integrated online and offline marketing. Cooperate with other related industries or brands to jointly organize promotional activities. For example, cooperate with fitness equipment brands to hold fitness exhibitions, cooperate with health drink brands to hold health lectures, etc., through cooperative promotion activities, expand the influence of venues and user groups; Fourthly, the member recommendation program. Set up a member referral program to encourage existing members to recommend new users to join. For example, give members rewards for successful referrals, such as discount offers, bonus points, etc. Expand the user base and increase the number of users of the venue through the member recommendation program; And fifth, experiential marketing campaigns. The measures and systems of safety management can prevent and reduce the occurrence of safety accidents, improve the safety level of venues and the trust of users. Smart sports

venues should formulate and implement strict safety rules and regulations, and clarify the safety management requirements and division of responsibilities of the venues. For example, rules for the use of venues should be formulated to clarify the code of conduct for users in the venues; Formulate safety operation procedures to clarify the safety requirements of employees at work. These rules and regulations can ensure that the safety management of the venue has rules to follow; Fourth, emergency plans and rescue measures. Smart sports venues should formulate perfect emergency plans and clarify the response measures and division of responsibilities for various emergencies. The emergency plan should include the handling process and contact information of various emergency situations such as fire, earthquake and sudden disease. In addition, venues should also be equipped with professional rescue workers and equipment to provide timely and effective rescue services.

Continuous innovation and improvement can make the venue keep pace with.

The following are some concrete measures for continuous innovation and improvement: First, user feedback and demand research. Pay attention to the development and application of emerging technologies, and apply them in the operation and management of smart sports venues. For example, the introduction of artificial intelligence technology to provide personalized fitness guidance and training plans through smart devices and apps; Using big data to analyze user behavior and preferences to optimize venues' operational strategies; Using virtual reality technology to provide immersive sports experience, etc., constantly explore and apply new technologies to improve the intelligent level and user experience of venues;

Third, product and service innovation. Continue to innovate the products and services of the venues, provide more diversified and personalized choices, launch new sports and courses according to user needs and market trends, and meet the diversified needs of users; Increase featured activities and themed activities to provide a rich sports experience. And provide customized fitness plans and personalized health consultation services to help users achieve their health goals. Constantly innovate products and services to improve user engagement and satisfaction; Fourth, process optimization and efficiency improvement. The operation process of the venue should be optimized to improve work efficiency and service quality. By introducing automated equipment, such as self-service ticket machines, self-service checkout machines, etc., to simplify the process of user admission and checkout; Optimize staffing, reasonably arrange the work tasks and time of employees, and improve work efficiency. Challenges and solutions of smart stadium operation and management strategy

The following are some ways to solve the problem of technology input and cost: First, make a clear plan for technology input. When carrying out technological innovation and application, formulate a clear technical investment plan, clarify the investment funds and resources, and reasonably arrange the priority and time node of technical investment according to the actual situation and needs of the venue; Second, find the right technology partners. Establishing a cooperative relationship with a technical partner can share the cost and risk of technical input, and looking for a partner with professional technology and resources can reduce the cost of technical input and obtain better technical support and services; And third, research and evaluate the return on technology investment. When investing in technology, it is necessary to conduct sufficient research and evaluation to understand the expected return and benefits of the technology investment. Fourth, find innovative ways to save costs. When making innovative improvements, you can look for innovative cost saving ways to reduce the cost of technical input. For example, by negotiating better prices with suppliers, choosing more affordable technology solutions, or using open-source technology and sharing resources to reduce costs.

At the same time, a user information management system should be established to ensure that users can access, modify and delete their personal information at any time; Fourth, strengthen security awareness and training. Strengthen security awareness and training of employees, so that they understand the importance of user privacy and data security, and master relevant security management knowledge and skills. Organize security training and drills regularly to improve employees' awareness of data security protection and emergency handling ability; Fifth, regular security review and risk assessment. Conduct regular safety reviews and risk assessments to identify and address potential safety hazards.

Check the security of systems and applications through security vulnerability scanning, penetration testing and other means, and promptly repair vulnerabilities and strengthen security protection measures.

In the smart stadium, the problem of employee training and adaptation needs to be paid attention to and solved. Here are some ways to solve the problem of employee training and adaptation: First, develop a training plan. Develop a clear employee training plan that includes both new employee training and ongoing training. New employee training should include the training of the venue's rules and regulations, work processes, service standards and other basic knowledge and skills. Continuous training can include technical training, service skills training, safety training, etc., in order to enhance the professional quality and work ability of employees; Second, provide diversified training methods.

Provide a variety of training methods according to the different needs and learning styles of employees. Face-to-face training courses, workshops and seminars can be organized, as well as online learning platforms and training resources can be utilized to provide opportunities for self-directed learning and distance training; Third, a tutor system can be established. Establish a mentor system by assigning experienced and capable employees to new employees as mentors for one-on-one guidance. Mentors can help new employees quickly adapt to the work environment, understand job requirements and skill requirements, and provide practical and problem-solving support; And fourth, regular assessment and feedback. Evaluate and feedback employees regularly to understand their work performance and training needs. Through evaluation and feedback, problems and deficiencies can be found in time, and targeted training and counseling can be carried out to help employees improve their work ability and adaptability.

Conclusions. To sum up, the continuous innovation and improvement of smart sports venues is to provide better user experience and meet user needs. By paying attention to user feedback and needs, technical input and cost issues, user privacy and data security, staff training and adaptation, smart sports venues can continuously improve their competitiveness and user satisfaction. At the same time, it also needs to pay attention to users' privacy and data security, and build a good trust relationship. Staff training and adaptation is also crucial, through training and team building, to enhance employees' work ability and satisfaction.

Through continuous innovation and improvement, smart sports venues can continuously enhance their competitiveness, meet the diversified needs of users, and achieve sustainable development and improvement. Let us work together to build smarter and better stadiums to provide users with a better sports experience and a healthy life. In the smart stadium, the problem of employee training and adaptation needs to be paid attention to and solved. Here are some ways to solve the problem of employee training and adaptation: First, develop a training plan.

Develop a clear employee training plan that includes both new employee training and ongoing training. New employee training should include the training of the venue's rules and regulations, work processes, service standards and other basic knowledge and skills. Continuous training can include technical training, service skills training, safety training, etc., in order to enhance the professional quality and work ability of employees; Second, provide diversified training methods. Provide a variety of training methods according to the different needs and learning styles of employees. Establish a mentor system by assigning experienced and capable employees to new employees as mentors for one-on-one guidance. Mentors can help new employees quickly adapt to the work environment, understand job requirements and skill requirements, and provide practical and problem-solving support; And fourth, regular assessment and feedback. Evaluate and feedback employees regularly to understand their work performance and training needs.

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