Construction of Intelligent Service Management Platform for College Sports Teams

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Abstract. This research takes the training, competition, management and talent database of college sports teams as the entry point, and the cross theory of computer, sports and management as the basis, aiming to build the intelligent service management platform of college sports teams. In order to achieve this goal, this study combined with the survey results and big data analysis, carried out a detailed program design for the training, competition and management of college sports teams. Then, combined with the data collected by wearable devices, an intelligent service management platform for college sports teams is designed and built. The platform is used to help sports teams to carry out competition, training and management in a more convenient, efficient and scientific way, provide data support for scientific decision-making, and provide integrated information resources, interactive information network and personalized information services for scientific training, competition and management of college sports teams. Solve the current cumbersome offline process and work mode of college sports teams, collect all data online, improve the overall control and data accumulation, improve the quality of reserve of college sports teams, and consolidate the foundation of sports reserve talents.

1. Introduction
College sports teams refer to the sports teams that enter the college through separate enrollment or are selected to join the team after entering the college and participate in sports training and competitions on behalf of the school in a planned way. At present, most college sports teams have not carried out scientific dynamic management, so it is difficult for coaches to conveniently grasp the important issues such as the training effect and competition situation of athletes. Traditional college sports team competition, training and management, talent selection method, etc, has been strong enough to support the development of college sports team, to achieve the strategy of "combination of sports and education" goal, must innovate management mechanism, scientific management training guide, establish a dynamic integrated management platform based on emerging technologies is the key [1].

At present, with the advent of the cloud era, the application of internet, big data, artificial intelligence, electronic information and other technologies in material selection, sports training, management, competition and other aspects has attracted more and more attention in international and domestic competitive sports. Therefore, it is particularly urgent to put forward the construction of intelligent service management platform for college sports teams, which is not only the urgent need for the development of college sports teams, but also the trend of the era when college sports training is combined with information technology.

Through the establishment of intelligent service management platform to innovate the athletes' competition, training and management, and establish the dynamic management mode. It also provides guidance services for the mining and screening of potential advantageous sports talents and the
selection of sports events, and carries out professional data sorting, analysis and management for the athletes' training management, competition management, coach team construction and sports team echelon construction [2]. Comprehensively grasp the distribution characteristics of competitive sports and the competition, training and management of college sports teams, and provide managers, coaches and parents with a variety of valuable results and opinions, propose solutions to the application, solve the current cumbersome offline processes and work methods, and standardize amateur competition, training and management. Big data and the internet are used to further improve the scientific training, talent selection, coaching and competition management of sports teams, so as to improve the overall level of college sports teams [3].

2. Values of Building an Intelligent Service Management Platform for College Sports Teams
Through the intelligent service management platform to obtain and analyze the relevant data of the sports teams, the system flow can be intelligently optimized, the advantages of combined efficiency can be brought into play, and a convenient, smooth, efficient, safe and scientific sports training system can be formed.

2.1. Improve the Cultivation System of College Sports Teams

2.1.1. Based on the database construction of sports reserve talents. Through the construction and maintenance of comprehensive information management platform for sports reserve talents, managers can realize the unified management of school layout, sports competition, sports training, cultural learning, grade assessment, healthy growth and other functions of sports reserve talents. Through the establishment of sports reserve talents information database, sports team data update, maintenance, query and management, and can be real-time release of policies and regulations and work dynamics. Dynamic monitoring of athletes training, cultural learning, health status, and provide online physical health management and online interaction.

2.1.2. Innovate the management mechanism of athlete training network. We will actively expand the primary training model, rely on universities, focus on finding excellent students on the basis of cultivating their interests and improving their physical fitness, and carry out extracurricular physical training. The implementation plan and effect of each training, the data of each competition, as well as the evaluation of the training level and training quality, can provide data support for coaches, provide data analysis for the competition, training and management work of management bodies at all levels, and standardize the management work of amateur training and competition. We will innovate and develop the intermediate training mode, conduct scientific and systematic training for athletes and students, and develop athletes' sports talents and special specialties. Through the comprehensive management platform, the high-quality sports resources and high-quality education resources of the college are organically complementary, so as to fully realize the mutual recruitment of coaches and teachers, and the sharing of facilities and resources, so as to jointly create characteristic projects and advantage projects.

2.2. Innovate and Develop the Training, Competition and Management System for Athletes

2.2.1. Strengthen the registration management of athletes. We will formulate measures for the administration of athlete registration and establish a big data platform for sports talent pool. Through the talents database and the big data platform, we can grasp all the information of athletes in training in a comprehensive and dynamic way, and master the body shape, function, physiology and biochemistry, general physical quality, special quality and special performance of athletes in each stage in detail. Management, cultural achievements, and in a team, each phase information of the coaches, training data every time, every time the game data, and as competition qualifications, talent selection, athlete registration management, training effect, data management and analysis for trace monitoring of key players, which will provide a scientific basis for athlete selection and training, and
create a fair and just competition environment for athletes, so as to protect the rights and interests of athletes [4].

2.2.2. Improve the level of scientific training. Through the comprehensive management platform, the complex data collection and monitoring technologies are integrated according to the characteristics of the project and the key factors affecting its training performance, and various aspects affecting the performance of the athletes are observed in all dimensions and at all times. In addition, specific information is obtained from the data to find the key points that affect the training status and performance of the athletes and implement effective solutions. Big data can be used to quantify the factors that affect athletes' performance in training by using audio-visual analysis equipment. Simulation technology and big data are used to simulate the movement methods of elite athletes, quantify each strength, Angle and power, analyze the physiological indicators and physical characteristics of elite athletes, and provide scientific basis for the selection of athletes and training diagnosis [5]. Managers, coaches, athletes and parents can learn about the training effect and communicate with each other on the platform.

2.2.3. Innovate the competition management mechanism. Innovate the methods of competition management, establish the big data platform of competition management, and realize the functions of competition creation, organization, registration and approval, and result inquiry at all levels through the internet. In addition, a database is established for each competition information at all levels (competition level, project name, sponsor, registration status, athlete's performance, etc.), which can be used for historical record comparison analysis and management.

3. Construction of Intelligent Service Management System for College Sports Teams
With the advanced technology and concept of internet science, the information and data of college sports teams and coaches are collected systematically to establish a competition, training and management platform, guide scientific management and training, and optimize the competition. This paper explores the distribution characteristics of competitive events of college sports representative teams and solves the current tedious offline management, establishes a cloud platform for competition, training and management of college sports representative teams, builds a talent pool for athletes and coaches, and optimizes the management, training and competition of athletes. The initial design of the intelligent service management cloud platform is shown in the following figure 1.

![Figure 1. The system construction of intelligent service management cloud platform.](image)

3.1. Sports Talent Management System Based on Big Data

3.1.1. Intelligent selection of materials based on big data. Through smart hardware automatically or manually test data to the system, according to each project selection index of selection model library,
the coach will use the system for each player to find suits own sports, at the same time through the sensor to upload data system will also be intelligent selection of talents and provide the coach and the school. Through the basic research of sports material selection, the accumulation of big data and the optimization of algorithm, the material selection model library will be more and more perfect and more accurate. The system is simple to use, and more technical interfaces are reserved. In the future, we can use block chain technology to make all data cannot be changed, to ensure the fairness of material selection and reduce the waste of competitive training resources.

3.1.2. **Big data of competition, training and management.** The system will manage the relevant business of the athletes, provide the schools, competition scores, training plans, training reports, and cultural scores of each stage, and conduct one-click qualification examination for the athletes' grades and application for competition registration. The system will manage each unit, large cycle, small cycle, training course plan and effect of the coach, and statistically analyze the coach's training results and athletes' achievements, which can be used as materials for the coach to advance. System will provide athletes, coaches, for college administrators, the development of sports and the data query, real time control of the sports competitions, training, and to help managers to the situation of the management work, provide data support for dynamically adjust management strategy, and urged to complete the development of related indicators at various levels, to form effective intelligent dynamic management system, set up college wisdom ecosystem management.

3.2. **Athlete Training and Event Management System Based on the Internet of Things**

3.2.1. **Intelligent training system.** Based on the basic index data of athletes and the 24-hour dynamic collection of intelligent hardware equipment, a training model library was established for each event. The system will recommend the training plan formed by the large cycle, small cycle, daily training intensity, training density and amount of exercise of each athlete through the data combined with the model. The coach can modify and refine the training content of each part according to the system recommended training plan to form his own teaching plan. In the training course, the system and intelligent hardware equipment can display the amount of exercise, exercise heart rate, lactic acid threshold, blood oxygen, blood pressure and poles in real time, and display the exercise intensity, exercise density, amount of exercise, heart rate, blood oxygen, blood pressure interval, pole and lactic acid threshold map for each group or the interval of each stage marked by the coach. During the training, the system will remind the coach that the athletes' amount of exercise, intensity and density is too high or too low, and the abnormal heart rate and blood oxygen interval will be reminded. The next group of training heart rate and excess recovery point will appear. After training, the data report of this training session will be provided to coaches and athletes [6]. With the accumulation of data and research, the system will be more perfect and accurate with the combination of artificial intelligence algorithm. At the same time, we can also add any hardware equipment to the system platform to monitor all the data of athletes, so that the data of athletes can be effectively used, help coaches to improve the training level, and help athletes to effectively improve performance.

3.2.2. **Intelligent event management.** Through the system to build a three-level competition network mechanism, the formation of the competition qualification examination, registration statistics, event scheduling, scoring system, score query, event analysis full automatic information. All levels of management through the system to release the relevant events and documents, and set the rights and registration conditions. Before the competition, schools, coaches and athletes register through the system, and the system will automatically review the registration qualification. The system will arrange according to each event and the registered athletes and send the competition schedule to each athlete, coach and school. In the competition, the judge uses the scoring system and scoring system of this system. After the scoring is finished, the final score will be calculated automatically according to the conditions of each item and pushed to the big screen. Schools, coaches and athletes participating in the competition can check the results of the competition in real time. In the future, they can use
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4. Conclusion

Based on the method of big data analysis, the training and management of college sports teams are designed in detail, the database is designed and constructed, the data related to the training, management and competition of college sports teams are recorded, and a platform for the competition, training and management of college sports teams is established. In the future, relevant researches should firstly build a material selection model library one by one according to the characteristics of each project, and establish intelligent algorithm and system for intelligent material selection. At the same time, the block chain technology is used to make the original data unchanged, so as to help coaches find more potential athletes and help students choose more suitable sports. The electronic files of athletes' performance, training techniques, effect analysis and cultural achievements are built into the competition registration and athlete level, providing technical support for the big data analysis and management decisions of universities [7].

Second, by several real-time acquisition athletes and wearable devices, and access to relevant training instrument upload data, establishing training model of the intelligent library, assist teachers training techniques, the related data, and can display real-time training help coaches more scientific and effective training, form match the whole process of intelligent system, make the game to organize the implementation of more simple[8].

Finally, the complex data collection is integrated through artificial intelligence technology and sensors, and all aspects of competition, training and management are dynamically evaluated in all dimensions and time periods. Moreover, specific information can be obtained from the data to find the key points that affect the training work of college sports teams and the performance of athletes, and effective solutions can be implemented dynamically.

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