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Promoting High-Quality Urban Development through Digital Sports

-- Taking Chongqing, China as a Case Study

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Abstract

Public health has garnered increasing attention from the international community. Digital sports offer a new pathway for promoting nationwide fitness and empowering high-quality urban development, becoming a new driving force for urban high-quality development. As a representative megacity in China, Chongqing leverages the framework of Digital Chongqing to continuously advance the digitalization of public sports resources and the intelligent transformation of sports scenarios, exploring localized approaches for digital sports to empower urban development. Research findings indicate that digital sports can support the high-quality development of mountainous cities in four aspects: health city construction, existing space renewal, industrial upgrading, and inclusive governance. The research conclusions can provide practical references for other developing countries' mountainous cities in integrating digital sports into urban planning systems.

Keywords

Digital Sports, High-Quality Urban Development, Urban Sports, Chongqing.

1. Introduction

High-quality urban development is a sustainable development paradigm rooted in people's well-being, based on spatial intensity and efficiency, supported by green and diversified industries, and guaranteed by refined and inclusive governance. Promoting universal health through sports and fitness, thereby enhancing the quality of life, is the fundamental pathway to achieving people's well-being. The global advancement of digital technology has enabled the deep integration of artificial intelligence and big data with public sports services, continuously broadening the inclusivity of these services. Digital sports break down information barriers regarding sports resources, enable precise matching between fitness demand and supply, expand fitness scenarios, and diversify avenues for public participation, providing a new approach to addressing issues such as the uneven spatial distribution of traditional public sports resources and insufficient service inclusivity. Digital sports have become a key driver for promoting universal health and high-quality urban development. As a representative megacity in China, Chongqing leverages its "1361" framework to continuously advance the digitalization of public sports resources and the intelligent transformation of sports scenarios, exploring a localized path for digital sports to empower urban development. Current academic research primarily focuses on the convenience services provided by digital sports; however, few studies systematically elucidate the critical role of digital sports from a comprehensive perspective of high-quality urban development. Using Chongqing as a case study, this paper explores how digital sports can empower urban governance capacity, systematically advance the construction of a digital sports public service system, and coordinate the synergistic development of mass sports, competitive sports, and the sports industry. sports culture. By

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fostering the comprehensive development of sports initiatives, it aims to solidify the foundation for universal health and leverage digital sports to empower high-quality urban development. [1]

2. The Intrinsic Logic of Digital Sports Empowering High-Quality Urban Development

High-quality urban development encompasses multiple objectives, including the improvement of people's well-being, the enhancement of spatial efficiency, (General Administration of Sport of the People's Republic of China: "14th Five-Year Plan for Sports Development," https://www.gov.cn/zhengce/zhengceku/2021-10/26/content_5644891.htm) industrial upgrading, governance optimization, and the strengthening of urban soft power. Digital sports refer to "practical activities that utilize digital technology to promote the development of sports"; leveraging technologies such as big data and the Internet of Things, they provide multidimensional empowerment for high-quality urban development. First, in terms of health empowerment: Digital sports integrate the service chain for national fitness; by relying on online platforms, physical fitness monitoring terminals, smart walking trails, and other platforms, they lower the information barriers and time costs for the public to participate in fitness activities, thereby supporting the development of healthy cities and consolidating the foundation of people's well-being for high-quality urban development. Second, in terms of spatial renewal: Utilizing digital surveying and spatial inventorying technologies, idle and underutilized spaces—such as areas at the foot of mountains, beneath bridges, and marginal plots—can be identified and converted into public sports venues. This revitalizes existing spatial resources and addresses the challenge of scarce land resources in mountainous cities. Third, in terms of industrial empowerment: Digital sports drive the development of new business models, including online fitness, the digital operation of sporting events, sports big data services, and smart sports equipment; this stimulates sports-related consumer demand, accelerates the digital transformation of the sports industry, and fosters new drivers of urban economic growth. Fourth, in terms of governance and brand empowerment: Digital platforms create channels for cross-departmental collaborative governance; by hosting digital sporting events and developing distinctive mountain sports, cities can cultivate unique urban identity markers and enhance their overall influence.[2]

3. Pathways for Digital Sports to Empower the High-Quality Development of Chongqing

(I) Strengthening the Digital Sports Infrastructure

In alignment with the requirements for the development of Digital Chongqing, a city-wide sports digital platform will be established. Leveraging the unified public data infrastructure of Digital Chongqing, the expansion and quality improvement of data resources in the sports sector will be systematically advanced. Following city-wide standards for data aggregation, sharing, and exchange, industry barriers will be dismantled; data from multiple departments—including education, sports, health, culture and tourism, and community governance—will be integrated, and data collection criteria will be standardized to enable the secure sharing of sports and health data. Aligning with the strategic layout for sports development, foundational data and other sports resource data—covering campus sports, public fitness, professional competitions, competitive sports, and universal health—will be integrated to solidify the city's unified digital sports infrastructure and provide data support for the implementation of various smart sports applications. In alignment with the goal of integrating city-wide public services, the "Yuyue·Fitness" online platform will be upgraded to connect with the Digital Chongqing

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main portal. This will integrate resources from city-wide smart venues, Mountain City Smart Walkways, community smart fitness stations, and mountain outdoor sports sites to create a "single map" of city-wide sports resources, enabling "one-stop online services" for venue reservations, online physical fitness self-assessment, on-demand fitness courses, and public event registration. In response to the needs of national fitness initiatives, channels for collecting dynamic sports interaction data will be expanded. By leveraging community smart fitness terminals and walkway sensor devices, continuous data regarding citizens' cardiopulmonary function, exercise duration, and workout feedback will be collected on a regular basis, thereby enriching the high-quality datasets within the sports sector. In alignment with the goals for improving the physical health of adolescents, data barriers among primary, secondary, and higher education institutions should be removed. By leveraging campus physical-education equipment, fitness terminals, and other resources, baseline data on students' physical fitness and athletic capabilities should be collected on a regular basis; a student physical-fitness profiling platform should be established; and intelligent physical-health early-warning systems should be implemented to support the overall deployment of the city's intelligent physical-education cluster. [3] In alignment with public data security and personal information protection, a tiered encryption management mechanism for health data should be established; the filing and review process for AI-based sports applications should be standardized; and the baseline for public privacy and security must be strictly upheld, thereby achieving the standardization, scalability, and security of sports data.

(II) Develop balanced and inclusive digital sports services

Focusing on adolescent health, the city will promote the development of smart sports programs in schools through tiered and categorized implementation. [4] Primary, secondary, and tertiary schools will leverage AI-powered intelligent physical assessments, fitness terminals, and postural recognition devices to establish dynamic electronic health records for students, enabling the precise identification of deficiencies in students' physical fitness and overall physical condition. By analyzing data on adolescents' postural alignment, physical fitness, and exercise feedback, the system will identify health and exercise-related risks, intelligently generate personalized exercise prescriptions, and refine a closed-loop management process encompassing "monitoring—intervention—evaluation—feedback." It will also innovate digital sports assessment models, using dynamic data on students' daily exercise and improvements in physical fitness to conduct scientific evaluations, while integrating physical education character, teamwork, willpower development, and the spirit of sports into a comprehensive evaluation system. Furthermore, the city will promote this tiered and categorized digital-based educational model to schools across the city, enabling targeted interventions based on adolescents' physical fitness data and thereby strengthening the foundation for health-oriented education on campus.

Focus on promoting nationwide fitness and expanding digital fitness scenarios. Continuously improve supporting facilities such as smart walking trails in mountain cities, intelligent community fitness stations, and compact smart fitness venues; revitalize urban "golden corners and silver edges"; and expand offline sports spaces. Develop online services—including cloud-based running races and online scientific wellness and fitness courses—to broaden citizens' daily exercise options. Leveraging the city-wide unified platform, provide free access to city-wide inclusive AI fitness courses and online physical fitness self-assessment resources for township schools and village communities; break through geographical constraints; and ensure that residents in remote mountain areas have equitable access to high-quality smart fitness services. By leveraging digital resources, continuously strengthen the digital "15-minute fitness circle" to effectively address the shortage of fitness facilities in flat areas of mountain cities. [5]

Focus on the balanced allocation of resources and improve the city-wide smart sports supply system. Enhance the digital command systems for major venues such as the Longxing

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Professional Football Stadium and the intelligent athlete training analysis platform; leverage big data to conduct scientific athlete selection, digital rehabilitation for sports injuries, and post-event data review and analysis, thereby comprehensively elevating the level of competitive sports. In the integrated fields of "sports+cultural tourism" and "sports+health and wellness," apply digital technologies to revitalize traditional Ba-Yu sports resources; drawing on the distinctive resources of the mountain city, develop digital sports tourism guides and online health and wellness exercise guidance services. [6]

(III) Promoting the Sustainable Development of Digital Sports

Improve the multi-stakeholder collaborative operating mechanism, establish regular channels for cooperation, and foster a development framework based on joint construction, joint management, and shared benefits. Strengthen the supply-demand linkage mechanism; primary, secondary, and tertiary schools across the city should continue advancing the digital transformation of curriculum resources, sports research, athletic competitions, and sports culture resources, thereby creating a complete closed loop. Establish a dynamic content update mechanism to promote the integration and coexistence of traditional sports culture and red sports resources with digital contexts, continuously enriching smart sports application scenarios. Establish a talent support and safeguard mechanism, strengthen the development of specialized teams in sports digitalization, and continue cultivating interdisciplinary teaching staff who possess both sports expertise and digital literacy; deeply explore the value of data in education; leverage data to empower classroom reform, sports research, and innovation in sports activities; and continuously unlock the educational effectiveness of digital sports.

Digital sports carry significant value in advancing the health of the entire population in the modernized New Chongqing; they will inevitably drive the governance and industrial development of Chongqing as a megacity and facilitate its high-quality, sustainable development.

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