

# *Research on the Path of Embedding Digital Technology into the Integrated System of Smart Community Sports and Elderly Care Services*

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**Abstract:** This paper reviews the social embeddedness theory and digital governance theory by reviewing literature. The author believes that digital technology embeddedness refers to that in order to improve governance efficiency, grass-roots governments incorporate digital technology, digital resources and digital platforms into the overall governance mode by embedding sexy knowledge, monitoring, prevention and control methods under the background of digital government transformation. Such embedment can not only efficiently integrate scattered social resources, but also enable government departments at all levels and social forces to share big data and realize precise governance. The definition of the concept of smart community emphasizes that it takes residential areas as the unit, takes modern information technology as the means, integrates high-quality resources of all parties, relies on the comprehensive information service platform as the support, and relies on the relatively advanced infrastructure construction to achieve an intelligent and convenient community management innovation mode of high-quality development of community governance. The integration system of sports and pension services emphasizes the governance of service contents such as venue planning, event organization, information service, fitness guidance, physical fitness monitoring, etc. to meet the public sports needs of the elderly under the leadership of the government. Through field investigation and case analysis, it is found that there are three realistic dilemmas in the integrated service system of smart community sports for the elderly. The division of power and responsibility between the government and society is vague, and the policy system is not perfect. Smart community digital technology is not embedded enough, smart service has shortcomings. The intelligent transformation of community public sports service is restricted, and the planning of community governance is inaccurate. Based on the analysis of the dilemma of the integrated service system of sports and old-age care in smart communities, this paper introduces the theory of social embedment and the theory of digital governance, and proposes the optimization path of public sports service governance in smart communities with digital technology embedment.

## **1. Introduction**

Smart community is an important position to realize the health of the whole people. The aging of population is a great topic that our economic and social development must face. Public sports service is the constituent unit in the construction of smart community, and community sports governance is the basic project to realize the construction of public sports service system and the modernization of governance ability [1]. Population aging trend is accelerating; The diversified sports demand of the elderly presents new challenges to the community pension. In order to deal with the above problems, the government adopts digital transformation to drive the smart community sports and pension integration service system. Several Opinions of The State Council on Accelerating the Development of Sports Industry and Promoting Sports Consumption and Outline of the Healthy China 2030 Plan both propose that elderly care services should develop in a diversified direction and promote the integration of elderly care services with medical care, fitness, tourism and other related fields on the basis of resource sharing. The national strategy of actively coping with the aging population is closely related to the smart community, so the implementation of digital technology embedded in the smart community sports and pension integration service system is aimed at improving the enthusiasm of the elderly to exercise, to meet the needs of diversified and multi-level pension services. Therefore, from the perspective of digital technology embedding, this study adopts literature analysis, field investigation method and case analysis method to analyze the realistic dilemma of public sports governance in smart communities, in order to provide theoretical basis and practical support for the integration of smart communities into sports pension service system.

## **2. The Realistic Dilemma of the Integrated Service System of Sports and Old-Age Care in Smart Community**

### **2.1. The Division of Power and Responsibility between the Government and Society Is Vague and the Policy System Is Not Perfect**

#### **2.1.1. The Effectiveness of the Policy Text Is Limited and the Participants Are Single**

The policy text has the explicit incentive and guarantee function in the public management service. Although the General Administration of Sport of China has successively issued policies related to smart community sports, including overall planning of top-level design, work objectives, division of responsibilities, construction funds and pilot site selection, local governments at all levels have insufficient specific policies, and only some local governments have issued relevant policies for the construction of smart community public sports services [2]. For example, Jiaying City issued the "Implementation Plan of Jiaying Smart Community Sports Construction" and Shanghai City "Shanghai National Fitness Implementation Plan (2021-2025)" and other guiding documents. At present, most provinces and cities have not issued special policies to respond, and the effectiveness of the policy text is limited.

#### **2.1.2. Miscellaneous Powers and Responsibilities of the Government and Poor Management Efficiency**

In the governance of public sports services in smart communities, the government has various powers and responsibilities. It plays both the role of "helmsman" and "paddler". The result of comprehensive intervention in sports governance is poor management efficiency. The ideal governance model is the government, market, social sports organizations, communities, residents and other multi-subject collaborative governance. However, at present, the traditional mode of

"government handling" still exists, with the administrative department playing the leading role throughout the whole process. If the government refuses to cede part of its power to social organizations, market enterprises and other diverse subjects, it will be difficult to stimulate the autonomous regulation ability of integrated services for sports and elderly care in smart communities.

### **2.1.3. The Public Opinion Feedback Channel Is Not Smooth, and the Policy Update Is Slow**

The integrated service system of smart community sports and elderly care lacks sound public opinion feedback channels, and the follow-up policy update is slow. In the era of digital governance, although public sports services can realize their supervisory power through online electronic questionnaires, public opinion feedback on the official government website and other channels, the feedback channels for public opinion in the field of smart communities have not yet formed detailed sections [3]. After the government issued the guiding documents, subsequent policy documents are updated slowly. As a result, the lower government departments and community street centers lack of sustainable reference basis.

## **2.2. Insufficient Embedment of Digital Technology in Smart Community and Shortcomings of Smart Service**

The embedding of digital technology into the integrated service system of sports and elderly care in smart communities can effectively implement relevant policies, gather sports resources, and improve the matching of supply and demand. However, some experts point out that the construction and planning of smart public sports service platforms in smart communities in different regions vary due to the political performance drive and lack of reference standards for platform construction. Moreover, some regions have different cognitive standards for the wisdom of national fitness, and there is a phenomenon that "digitalization" equals "wisdom".

### **2.2.1. The Embedding of Smart Community Sports Intelligent Platform into Other Government Departments Is Blocked, and the Phenomenon of Data Island Still Exists**

The innovative mode of community management of intelligent and convenient service obviously needs the cooperation and resource sharing of various government departments. Smart community sports intelligent platform is embedded with government departments and community street service centers, etc. For example, in the construction process of "Sports Expert" smart sports management platform of Jiaxing Sports Bureau in Zhejiang Province, it is necessary for sports Bureau, relevant departments of Environmental Protection Bureau, Civil Affairs Bureau, social security department and urban and rural planning department to share the database. However, the "Sports Player" smart sports management platform in Jiaxing has not yet been embedded in the platform construction of all relevant departments, and the phenomenon of "data island" still exists [4].

### **2.2.2. Sports Intelligent Platforms in Different Cities Develop In Isolation, Lack Connectivity, and Have Uneven Spatial Distribution**

The 14th Five-Year Plan for Sports Development issued by the State General Administration of Sport clearly requires promoting the deep integration of national fitness and national health, and building a higher-level sports public service system for the whole population. Although sports departments across the country have indeed accelerated the construction process of smart sports platform in public sports services under the guidance of policies, local governments have their own governance, isolated development, lack of connectivity between different cities, and various system

applications emerge in an endless stream. However, the interoperability mechanism between platforms is not embedded enough, and the overall development is fragmented. At present, the Suzhou government has jointly developed the "Sutitong" APP with relevant departments; Shanghai has focused on the "Coming to Shanghai" platform; Shaanxi Province has cooperated with "Sports Cloud" and the national fitness Internet public service platform; Zhenjiang Sports Bureau in Jiangsu Province has built the "Big City of Sports" smart sports platform; Gansu Sports Bureau has built the "Gansu Sports" smart sports platform. Chongqing Sports Bureau has made great efforts to build a platform for "Chongqing Fast Sports". Secondly, from the perspective of spatial and geographical distribution, the development of public sports services in smart communities is unbalanced. In the economically developed eastern regions, the popularity and promotion of smart community sports intelligent platform is much higher than that in the economically underdeveloped central and western regions.

### **2.2.3. Inefficient Use of Data Affects the Level of Service Intelligence**

To improve the level of intelligent service, we need to accelerate the sharing and utilization of data resources and activate and release the value of data elements. Data as a basic element of digital governance. However, the survey found that the data utilization of various subjects in the governance process of smart community public sports service was not ideal. At the individual level, there are shortcomings in the data utilization ability of elderly residents in the community. According to the interview, some elderly residents are reluctant to log in to the smart fitness service for fear of personal information leakage, but because of the limited educational level of the elderly, unable to operate the smart platform. In physical fitness monitoring, residents only pay attention to basic health data such as blood pressure and weight, and ignore other personal physical data information [5]. Similarly, smart community public sports operators tend to improve management efficiency rather than service quality in terms of data utilization. At the community level, there is insufficient collaborative use of data in horizontal units. The phenomenon of information silos between departments is an important reason for the low efficiency of intelligent supply of public services. At present, the data governance of smart communities has not formed data connectivity with horizontal units such as smart health care and smart medical services in the community, so the problem of information silos is more prominent.

## **2.3. The Smart Transformation of Integrated Sports and Elderly Care Services Is Constrained, and the Community Governance Planning Is Out of Alignment**

### **2.3.1. Lack of "Service Management" Governance Standards and Lack of Subject Consciousness of Community Workers**

In the process of community governance, due to the labor contract relationship between community workers and subdistrict offices, their work consciousness is more focused on the assessment requirements and administrative tasks of superiors, and lack of subject consciousness. In the integrated services of sports and old-age care in smart communities, communities usually play a supporting role in cooperation with superiors. In the investment, construction and management of smart community infrastructure, the community faces the loss of discourse and authority, and the "service management" governance standard is absent.

### **2.3.2. Shortage of Professional Human Resources and Low Utilization Rate of Intelligent Application Scenarios**

The integrated service system of sports and old-age care in smart community needs many human

resources. First, there is a shortage of professional and technical personnel. One of the significant differences between smart communities and ordinary communities lies in the use of intelligent, information and digital technology equipment, so it is in urgent need of professional and technical personnel in information technology. However, most communities currently adopt the form of outsourcing to complete relevant work, and the lack of technical posts makes the governance of public sports services in smart communities unsmooth. Second, the number of social sports instructors is insufficient. In addition, the structure of the team of community sports instructors is unbalanced. Third, the lack of community full-time sports management personnel. The administrative affairs of the staff of the community neighborhood committee are busy and their responsibilities are blurred. There is a lack of professional sports management talents to provide overall planning and fitness guidance for the community elderly sports services.

### **2.3.3. Low Utilization Rate of Intelligent Equipment among Residents, And Some Groups Fall into the "Passive Data Gap"**

Digital divide refers to the different degrees of access and application of digital technology among different social groups, especially among elderly people in communities [6]. Some elderly people, migrant workers and other groups in communities are blocked from using intelligent fitness facilities due to their low education level. Field investigation shows that some elderly people cannot get away from special guidance when participating in smart fitness. On the other hand, the over-performance of the venue facilities exceeds the upper limit of the needs of the elderly, which leads to the digital exclusion of the elderly and further affects their participation in smart fitness.

## **3. Research on the Path of Embedding Digital Technology into the Integrated Service System of Sports and Elderly Care in Smart Communities**

### **3.1. Clarify the Division of Powers and Responsibilities between the Government and Society to Enhance the Momentum of Policy Innovation**

#### **3.1.1. Embed Policy Support Matrix to Improve Policy Development Environment**

Sports departments at all levels shall jointly build a policy support system for the integrated service system of smart community sports and elderly care, and improve the environment for policy development. First of all, on the basis of the "General Administration of Sport Program", local governments should further introduce supporting policies and implementation rules that meet local needs. Secondly, the government should establish a policy support matrix jointly with multiple departments. The smart community sports and pension integration service system should be embedded in the relevant information resources of non-sports departments such as the Ministry of Civil Affairs and the Ministry of Urban Construction. The policy formulation should give full play to the synergistic efficiency, and provide administrative boost force for smart community public sports service and governance through the integration of departmental information resources.

#### **3.1.2. Strengthen the Macro-Control of the Government and Play the Role of Steering the Government**

The government plays a leading role in the multi-body governance of the community, and the wisdom of the integrated service system of sports and elderly care requires the government to give full play to the role of "helmsman" and guidance. First of all, through the introduction of public policies to plan the community sports governance work. Second, the government can properly streamline administration and delegate power to lower levels, coordinate various governance bodies,

and mobilize the autonomous regulatory capacity of communities, market enterprises and social organizations. By increasing tax incentives, financial subsidies and other means, non-governmental entities are guided to participate in the development of public sports services in smart communities.

### **3.1.3. Embed the Supervision and Evaluation Mechanism to Smooth the Feedback Channel of Elderly Residents**

We will embed a monitoring and evaluation mechanism based on people's satisfaction, and smooth the channels for public feedback. The government may authorize a third party as a supervisory body to supervise the use of special funds, the construction and maintenance of venues, the construction and maintenance of comprehensive information data platforms, the fitness status of residents, and the development of community sports activities. According to the real needs of the elderly residents in the community for smart sports, the feedback mechanism plate of the smart sports platform is simplified to collect the suggestions of the elderly residents, and the policies and regulations are updated timely.

## **3.2. Digital Technology Is Embedded Into the Smart Community Service Platform to Enhance the Quality of Smart Service**

### **3.2.1. Make Overall Plans to Embed the Standard Framework of the Smart Community Sports and Elderly Care Integrated Service Platform to Break the Phenomenon of Data Island**

The embedded standard framework of smart community sports and elderly care integrated service platform should be planned and designed by provincial and municipal governments and sports departments. In combination with local characteristics and actual needs, planning schemes in line with actual needs should be formulated, "sports +" ecology should be actively constructed, health care, social security, finance, human resources and other departments should be promoted to embed smart community public sports service platform, so as to realize service transformation of platform for all application scenarios, whole population and whole life cycle sports population, and actively break the dilemma of data island [7].

### **3.2.2. Embed Data Sharing Caliber in Different Cities to Break Spatial Imbalance**

In the construction process of smart community sports intelligent platform, the data sharing caliber of different cities is embedded to break the spatial imbalance. First of all, public sports service platforms at provincial and municipal levels should be built to avoid disorderly local construction and form standardized and reasonable community smart sports service guidelines. On the other hand, embedding a unified data sharing aperture promotes the interactive interconnection between platforms and between cities, laying the foundation for data sharing and application interworking between different platforms. Finally, provinces and cities should strengthen exchanges, learn from the model pilot smart community public sports service governance experience, and reduce the level of information asymmetry in spatial distribution.

### **3.2.3. Strengthen the Depth of Digital Governance and Improve Data Utilization Efficiency**

First of all, enhanced digital governance can be embedded in blockchain technology, because the immutable nature of blockchain makes the information stored for a long time and high credibility. Relying on blockchain technology, big data, artificial intelligence and other means to develop online virtual business, through residents' exercise data to establish physical health files and



personalized fitness programs. Secondly, the elderly residents' cognition of data value should be improved. Elderly residents are less willing to collect fitness data, mainly because the relationship between exercise and physical health of community residents only remains at the level of psychological effect. In this regard, managers of smart communities should actively carry out data popularization education, improve residents' fitness data management concept, and make residents realize that data is a new asset in the digital age. Finally, on the basis of multiple subjects and by means of data correlation, the collaborative development of sports, medical care, elderly care, furniture and other fields is realized to build a sound ecosystem of smart community service. [8]

### **3.3. Embed Smart Service Governance System to Highlight Community Service Responsibilities**

#### **3.3.1. Establish the Subject Consciousness of Community Workers and Strengthen the Power of Community Management**

First of all, the government should promote multiple subjects to carry out extensive consultation, co-construction and co-governance on the integrated service system of sports and old-age care in smart communities, and part of the power can be transferred to the community. Through the formation of government investment, community management, enterprise services, public participation to form a multi-subject collaborative governance pattern. Secondly, community workers should strengthen their own subject consciousness. Community is the essence of smart community construction. Community workers should pay attention to service quality, improve work efficiency, innovate service mode, provide convenient services, and enhance the confidence and support of the elderly residents for the integration of community sports and old-age care.

#### **3.3.2. Improve the Allocation of Human Resources and Embed Smart Sports Compound Talents**

The lack of digital sports talents in the integrated service of sports and old-age care in smart communities needs to improve the training mechanism of smart sports talents and accelerate the training of composite talents. Firstly, the integration of production and education should be strengthened. In the early stage, sports colleges and universities can formulate and implement training programs matching the actual needs of the smart sports market. In the later stage, through the practice and social learning of school-enterprise cooperation, sports talents gradually complete the transformation from traditional type to intelligent type and compound type. Secondly, pay attention to talent incentive, adopt the linkage between government and community, improve the welfare treatment of intelligent sports compound talents [9]. Local government should increase its support for community sports talents and provide administrative help for smart sports talents to flow into the community, such as issuing relevant talent introduction policies. Finally, a reasonable talent structure should be established. According to the needs of smart sports, the corresponding post setting and talent structure should be formulated, including compound talents in management, technology and marketing.

#### **3.3.3. Eliminate the Digital Divide of the Elderly and Embed the Special Service Governance System of "Integration of Sports and Elderly Care"**

In the context of population aging, smart community public sports service governance should include the social responsibility of smart elderly care [10]. First of all, we should embed the special service governance system of "sports pension integration" to give humanistic care to the elderly in the process of fitness guidance. Relying on intelligent venues and facilities, communities should

regularly carry out intelligent sports popularization activities to improve elderly residents' cognitive level of intelligent fitness. Secondly, smart community public sports facilities improve the degree of fitness for aging. Smart communities can set up lightweight fitness zones for the elderly, carry out digital literacy education activities, and guide the elderly to understand and use digital public sports services, including smart fitness facilities. The "Sports and health Home for the Elderly" built in Shanghai for the community with a high degree of aging can provide a reference for the "sports and elderly care integration" service governance.

#### 4. Conclusions

In the context of the country's strong support for smart community public sports service governance, combined with the perspective of social embedding theory and digital governance theory, this paper discusses the current practical difficulties of smart community sports pension integrated service in three aspects: government policy, smart platform and community governance. The "superior quality" of sports and elderly care integrated service is an essential part of the high-quality development of society. First, the division of power and responsibility between the government and society should be clarified to enhance the momentum of policy innovation. Secondly, digital technology is embedded into the smart community service platform to improve the quality of smart service. Finally, it is necessary to embed the smart service governance system, strengthen the subject consciousness of the staff, cultivate smart sports compound talents, resolve the digital divide of the elderly, and highlight the responsibility of community service. Through the above optimization methods to enrich the service quality of sports old-age integration, innovate the system of grassroots elderly sports governance, in order to provide theoretical basis and practical support for the intelligent transformation and digital governance reform of Chinese community sports old-age integration services.

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