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Abstract: In the process of market-oriented development of large-scale stadiums in China, commercial operation and public services has always been a pair of uncoordinated contradictions. How to balance the effective operation of stadiums and the service needs of public groups has become the key to hindering the development of large-scale stadiums. Based on this, it has become an effective method to solve the dilemma of large-scale stadiums operations from the perspective of stakeholders. The article mainly discusses the transformation of government functions, coordinated development with urbanisation, and the establishment of a scientific evaluation system. Under the premise of ensuring that the interest of each stakeholder is maximised, the coordinated development strategy of operations and services is elaborated.

Keywords: stakeholders; large-scale stadiums; public services; operation management.

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1 Introduction

The market-oriented development of large-scale stadiums (briefly LS) has become a trend. Most of the foreign multifunctional stadiums are privately funded construction. Therefore, the implementation of profit-oriented management and marketing concepts is imperative (Hock et al., 2010). Different from other countries, the funding sources of China's LSs are all financial allocations, and their purposes are also extremely unitary. At this stage, the development of LS in China is gradually in line with the market, deploying venue resources in a market-oriented manner, and gradually achieving independent profits and losses. Similarly, in view of the actual nature of China's LS, it has also been determined that its operation must also take into account social welfare. The state has implemented a policy of opening up to the public for free and low fees, resulting in a contrast between the operating results of LS and the expected goals. The reason for this phenomenon is mainly related to the government's single management system, which does not adequately consider the interest needs of various stakeholders in LS, and lacks effective measures to coordinate various stakeholders, which ultimately leads to the emergence of operational difficulties.

The most effective way to solve the dilemma of LS operations and public services is to coordinate the interest needs of various stakeholders. Freeman (2010) put forward the stakeholder theory in 1984. The purpose of the theory is to balance the interests of various stakeholders. From the perspective of various stakeholders, weigh the practical issues such as policy establishment and venue operation. For LS, how to properly allocate the interest needs of various stakeholders is the most important issue in market allocation at this stage. Identifying different stakeholder groups can help the organisation determine

what type of stakeholder management strategy each group needs (Walters and Kitchin, 2009). Stakeholder management strategy is an important aspect of stadium management. In the research on the effectiveness of facility management, the long-term overall performance model has begun to include the consideration of external stakeholders (Atkin and Brooks, 2005). Explain that the importance of stakeholders is getting more and more attention in management, and ignoring stakeholders may lead to serious consequences. Therefore, how to maintain the homeostasis of the various stakeholders of LS during the operation and service process is the key to solving the final problem.

2 Definition of stakeholders in public service of LS

2.1 Stakeholder theory connotation

The stakeholder theory was proposed by Freeman in the book *Strategic Management: a Stakeholder Approach* in 1984. It is defined as the management activities carried out by business managers to comprehensively balance the interests of various stakeholders. The theory believes that the development of any company cannot be separated from the input or participation of various stakeholders (Freeman, 2010). In the later research, many scholars have defined the stakeholder theory from different angles. Clarkson divided the stakeholder into: primary stakeholder and secondary stakeholder (Clarkson and Max, 1998). Generally speaking, the groups of various stakeholders are relatively fixed, but different stakeholders play different roles, and each stakeholder has its own interest groups and behaviours. When Robson studied the management of stakeholders in the tourism industry, he pointed out that the potential stakeholders of any particular participant in the tourism industry are almost endless, and modern managers must follow the behaviours and interests of these stakeholders (Robson and Robson, 1996). Companies are increasingly taking into account stakeholders when implementing governance standards and political measures (Keremidchiev, 2021). In fact, managers without ownership in a business are more concerned about the business than the owners because they would fear losing their jobs if the business went bankrupt. The issues that the stakeholder theory tries to solve are mainly value creation and transaction issues, capitalist ethics issues, and managerial thinking style issues (Freeman et al., 2010). In terms of the nature of stakeholders, its core connotation is optimal value creation and effective governance operation, that is, creating as much value as possible and realising effective governance.

2.2 Stakeholder selection

With the in-depth study of stakeholder theory, stakeholder theory has gradually penetrated into social governance, education management, medical and health and other disciplines. Many scholars have applied this theory to research in the field of sports. Tsiotsou (2011) uses stakeholder theory to evaluate the response of Olympic and sports federation sponsorship announcements to the sponsoring company's shareholders, and discusses the effectiveness of sponsorship as a corporate investment. Friedman et al. (2004) pointed out, when sports managers achieve their predetermined goals, based on stakeholder theory and the principles of problem management, it provides a framework for problem analysis and can allocate resources more effectively. Sports venues are

necessary places for the implementation of sports activities, and how to effectively use them in operations becomes crucial. China's LSs are basically all funded by the government to preside over the construction, and they have strong public institution attributes. The nature of the operation focuses on large-scale competitions and public services, but lacks professional operating experience. In order to maximise benefits, third-party operating agencies must be introduced. As a result, there has been a conflict between public services and operational interests. In the process of providing services for LS, multiple stakeholders are involved, for example, government decision-making units, operation and management parties, entrusted management units, service contractors, leasing parties, public groups, third-party evaluation agencies and other multiple stakeholders. To sum up, this study selects 'government units', 'operating agencies' and 'public groups' in terms of the attributes, operation methods and public service groups of LS, and the three most representative stakeholders for research.

3 Stakeholder relationship analysis

3.1 Stakeholders

3.1.1 Government units

Government unit does not refer to a specific administrative agency, but a collective term for various departments related to sports, including government administrative agencies at all levels, sports bureaus, cultural bureaus, tax bureaus and other relevant departments. It is mainly responsible for public sports service policy formulation, overall management, fiscal and tax distribution, and public sports service evaluation. Government units have extremely high influence among all stakeholders in the public services of LS, and their interest expectations are closely related to themselves. Most LSs in my country are invested and constructed by the state, and their ownership belongs to the state.

The role of governmental units is related to the division of the Chinese sports system, where the national level (the State General Administration of Sports and related agencies) mainly controls sports at the macro level, while the local level (individual provincial, municipal, district and county sports systems) is responsible for the implementation of policies and regulations. Likewise, governmental units are multi-role players, such as organisers of events, investors and risk takers of projects, etc. The commonality that exists is that these developments are centred on urban construction, but there are differences in the planning of large and small stadiums, with some studies pointing out that the development of LS is more related to urban space, land idleness, and population mobility (Kellison, 2021), with more explicit purposes, such as stimulating economic activity, increasing urban population, or anchoring new sports and recreation areas (Chapin, 2004). In contrast, small venues are realised more in the form of open-air public stadiums, based on the premise of serving a mass population, and we are more concerned with the opportunity costs incurred (Wolla, 2017), i.e. all consumption related to sports. Therefore, the government administration ultimately transforms its own functions through the allocation of access rights. It cannot be denied that the planned economic system indirectly perpetuated by the Chinese government also has the advantages of integrated management and strong organisational power. For example, the Beijing Olympic Games were held in 2008.

3.1.2 Operating agency

There are many reasons for the emergence of LS operating institutions. In order to ensure the effective operation of LS, the government may have problems such as insufficient funds and professionalism of personnel, and it is an institution created in response to the development of the market. It exists in various forms, which can be established by government departments, commissioned by third parties to operate companies, and LS leases, etc.

The effective introduction of operating institutions is conducive to improving the efficiency of stadium operation and management, making the operation of LS more market-oriented, gradually eliminating institutional barriers to institutions, improving operational management capabilities and public service levels, and reducing the government's financial burden. For example, at the end of 2011, 4 venues in Shenzhen City established Shenzhen Sports Center Operation Management Co., Ltd, to try out the corporate operation and management method. In 2015, it achieved a total income of 94.57 million Yuan, of which the total profit was 12.28 million Yuan, showing a trend of double growth, realising the unification of social and economic benefits (China, 2016). In contrast, the operational development of smaller venues is more often managed directly through the sports sector and operated with the clear purpose of serving public sport. Studies have shown that participation in sport improves performance (Li et al., 2014) and that hosting public events is a way of forming cross-border relationships (Fenyves et al., 2015), i.e. the value of small venues (social value). Operating agencies need to implement various national sports policies and regulations, combine regional actual with venue functions, and conduct venue operations in a reasonable and effective manner. The effective operation of operating institutions has also promoted the transformation of government functions. That is, from administrative means to a combination with the law. At the same time, it has led to a more rationalised and humanised model of public service delivery by the government. It cannot be denied that the risk of market overreach and unsustainable operations may occur when operating agencies join. Eventually, the supply of public services is insufficient and the quality of services is reduced.

3.1.3 Public group

Public groups are the objects of public services in LS, and their audiences are also the most extensive organisations. Public groups indirectly participate in the construction of stadiums through taxation and other forms. National policy stipulates that all kinds of sports venues across the country should be open to public groups in a free or low-cost manner. At the same time, the public also enjoys the right to express and choose the service needs of LS, and they have the obligation to evaluate the effectiveness of public sports service provision. Public groups combine their own needs, perceptions and consumer preferences, put forward consumer needs that are in line with their own interests, and choose public service preferences in a planned way, and contribute to public sports service policy formulation and generation of advice and suggestions. Similarly, as the demand side of LS services, the consumption mode of public groups is also oriented to the long-term development of LS. In order to adapt to the consumption patterns of the public, LS operation projects and surrounding industries will also be changed accordingly.

However, for LS, the purpose of their construction is mainly to undertake large competitions and events, even if the government implements free and low-charge opening policy, it is easy to lead to the situation that public services are not in place. If the government

is negligent in the operation, it is more likely to lead to an imbalance between ‘price’ and ‘value’, which will inevitably affect the sports demand of the public. Research indicates that sports demand occurs in relation to athletes, games, teams, individual intrinsic motivation and individual needs (Nagy and Tobak, 2015). On the contrary, for small sports facilities, they remain largely in their original state of operation and are more in line with the willingness of the mass population to use them, thus directly demonstrating the social value of their existence (basic sports services). Studies point out that the construction of sports facilities provides more types of relaxation, recreational facilities while rewarding the city (Mokras-Grabowska, 2017). Compared to LS, smaller facilities are more likely to highlight the social value of public services to public groups.

3.2 Forms of existence among stakeholders

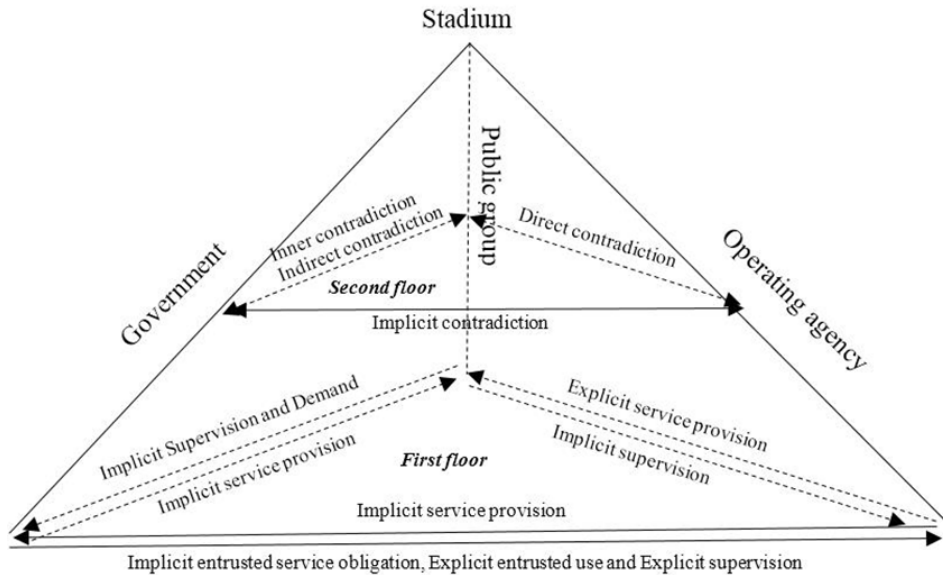
In the process of providing public services for LS, government units, operating agencies, and public groups. The three stakeholders are independent of each other and interrelated. However, due to the characteristics of public services provided by LS, there is a delegation and supervision relationship between government units and operating agencies; Both government units and operating agencies provide public services for public groups. Although they provide different ways, they all have a supply-demand relationship. Both government units and operating agencies provide public services to public groups. Although the methods of providing them are different, there is a supply-demand relationship. On the contrary, public groups are also the main consumers of operating agencies, and they will also have an evaluation of government units and operating agencies, and have an impact on the formulation of government policies and the effective operation of operating agencies. Therefore, there is a close connection between the three.

3.2.1 Entrusted management relationship

Principal-agent refers to the social relationship arising from the separation of the ownership of property rights and management rights. The principal-agent relationship exists widely in social and political life. According to the research of Waterman et al. in the political field, due to the existence of multiple principals and agents and the particularity of policy issues, there are eight types of principal-agent relationships between principals and agents, and the classic principal-agent relationship in economics is only one of these eight principal-agent relationships (Waterman and Meier, 1998). The principal-agent relationship of LS belongs to economics, which is actually the separation of ownership and management rights. The government unit instructs, entrusts, and employs agents to provide services for them through contractual contracts and other methods, and pays corresponding remuneration according to their contractual agreements. However, in the process of entrusting LS, a situation of double entrustment has occurred. The first is that in an explicit way, the government unit delegates the right to use LS to the operating agency, and the operating agency is responsible for the operation. The second level of entrustment is in an implicit way. While the government

unit entrusts the operating unit with the right to use, it also entrusts the obligation of providing services to the public group to the operating agency, and the final implementation of the service obligation of LS belongs to the operating agency (Figure 1, first floor).

Figure 1 The relationship between various stakeholders in large-scale stadiums



3.2.2 Supply-demand relationship

The relationship between supply and demand is the relationship between all products, labour and social needs provided by society in a certain period of time. This relationship includes qualitative adaptability and quantitative balance, which is a pair of basic contradictions in market competition. There are explicit and implicit expressions in the supply-demand relationship of LS. When government units construct LS, their main purpose is to ensure the smooth progress of large-scale competitions and provide public services to public groups. Based on the difficulties of government units' operations, government units entrust third-party agencies to exercise management rights. The final result is that the operating organisation becomes the service supply organisation of the public group, and the service demands of the public group are directly reflected in the operating organisation, so there is an explicit relationship between the operating organisation and the public group. As a government unit itself, because it does not directly provide services to public groups, it manages operating agencies to implement various policies and regulations in an indirect way, forming an implicit supply-demand relationship with public groups (Figure 1, first floor). Maslow's hierarchy of needs theory shows that with the continuous development of economy and society, basic public services must not only meet people's basic life and survival needs, but also further meet people's needs for a better life. The public's demand for public sports services are increasing day by day. However, the government's limited financial support for LS, it is difficult for the supply capacity of LS to support the needs of public groups, resulting in

conflicts between supply and demand. As a result, there has been a contradiction between supply and demand. Therefore, coordinating the balance between the service supply of LS and the needs of public groups is the ultimate goal.

3.2.3 Supervision and evaluation relationship

In terms of the actual public services of LS, there are two levels of principal-agent relationship. The first level is the actual power owner government unit, the government unit as the principal, the operating agency as the trustee, the supervision relationship between the government unit and the operating agency, the government unit mainly supervises whether the operating unit is in accordance with the agreed contract, for the operation of LS, the implementation of various policies, and the quality and quantity of services provided, government units have actual and explicit powers. When supervising the operating units, they directly express the results of supervision and urge improvement. The second level is the owner of implicit power, with all public taxpayers as principals, government units and operating agencies as trustees, and public groups overseeing government units and operating agencies, forming an implicit supervision system. When expressing the results of supervision, unlike government units, public groups feedback their supervision opinions in the form of evaluation, and their concerns are relatively vague, such as venue experience, comfort, and opening hours. Of course, whether the evaluation result affects the supervised client depends on many factors. The most important factor is that the government unit with explicit power in the supervision system must evaluate the evaluation result (Figure 1, First floor). Studies have shown that decision-makers will weigh in four aspects: the quality of the research (i.e. the quality of the evaluation results), the potential feasibility of the evaluation results, the consistency of the evaluation results with the user's knowledge and value, and the challenge of the evaluation results to the status quo (Wallace, 2005). Similarly, we should also consider the emergence of 'collusion' among various stakeholders, and encourage 'third-party' agencies to intervene in the supervision and evaluation system when appropriate.

3.3 Conflicting relationship between stakeholders

Government level: As LSs are state-owned assets, the government owns the ownership and use rights of the venues. The main purpose of the government's construction of venues is to respond to games and provide public services. Public group level: As a general group of people, public groups enjoy the right to use the public services of LS as stipulated by the policy, and their interests are very single. Therefore, the government has exercised its own functions to provide effective public services to public groups. At this point, theoretically, the interest relationship between government units and public groups is very clear, but in the later actual operation, LS has problems such as difficulty in receiving funds, excessive competitions squeezing public service time, etc.. Public groups did not receive effective public services, resulting in inherent contradictions between the two. Operating agencies: The emergence of operating agencies has solved the difficulties of unprofessional government operations. In order to maximise the use efficiency of LS, achieve effective operations and obtain benefits, government agencies have introduced third-party operating agencies with rich operating experience. The already clear interest relationship has become complicated. First of all, in view of the difficulties of its own operation, the government unit had to entrust the use right of the stadium to the operating

organisation in the form of contract, and let the operating organisation exercise the right to use the LS on its behalf. The power was transferred, and the operating organisation organised and implemented effective operations. In order to realise the final profit, the operating agencies have to play the edge ball of policy and the implementation of the national policy discounts, etc., has promoted the implicit contradiction between the government unit and the operating agency; Secondly, due to the existence of operating units, public groups can't achieve their expected results when they use public services. For example, the service quality is low under the free and low-charge status, and the opening time of some venues is unreasonable. Eventually, a direct contradiction between the public group and the operating agency appeared; finally, due to the contradiction between the public group and the operating agency, the contradiction accumulated and deepened over time. After the public group responded to the contradiction problem without results, the transfer of the contradictory party to the government unit cause indirect conflicts between government units and public groups (Figure 1, second floor).

4 The dynamic imbalance phenomenon of LS

4.1 Government inefficient management

The development of stadiums is closely related to China's sports industry. At the beginning of the development of sports industry, the concept of a competitive power has been implemented. Due to China's double-track approach, stadiums have a single service target, which eventually led to the operation and management system seriously lagging behind the development of the times. Compared with the operation and management of the Cobo Convention Center in the USA, it was operated by SMG in 2010 and achieved 3.6 million US dollars in that year, and by 2011, it achieved revenues of 7.6 million US dollars.

The service development of LS in China started late. The state has formulated and implemented a series of policies aimed at LS services without issuing corresponding normative implementation documents, and ultimately lacking certain operability. In the overall planning of LS, due to inadequate relevant policies and inefficient management systems, there are too many potential risks.

- 1 Excessive administrative intervention is not conducive to later operations. The purpose of the stadium construction is that there is too much administrative intervention. It only focuses on the use of large-scale competitions, while public services are not considered too much. It can be seen from the site selection of some venues that the location of the site is not considered as the key, but how to use the land. Eventually, most of the stadiums built are concentrated in remote areas of the city. The population-intensive areas with high demand for sports cannot enjoy the public services brought by LS, and it is difficult for the stadiums to play a role in the area after the game. For example, when the Guangdong Olympic Sports Center was preparing to build a stadium for the Asian Games, it did not consider how to operate effectively after the game, and it was difficult to transform the function of the stadium after the game, which eventually led to a derailment with urban development.

- 2 In the process of market-oriented operation of LS, there is a shortage of policy supply. The state is formulating special guiding policies for LS that lack venue construction, operation, management and supervision, and there is a phenomenon of incompatibility with local sports department policies. Various tax and fee standards are different, resulting in excessively high operating costs for LS. The incentive mechanism can't play a role in promoting, and the supervision mechanism is a kind of decoration. It not only fails to play the social service function of LS, but also brings difficulties to its own operation.
- 3 The layout is unreasonable and lack of resource allocation considerations. The overall layout of stadiums is unreasonable, ignoring the development of regional diversity and ecological sports. The function of the event can't be combined with the comprehensive utilisation after the game, especially the important transportation system, environmental protection measures, and the construction of the surrounding entertainment and catering business circles. For example, the Dalian Sports Center was built to host the 12th National Games. It is far away from the urban area and lacks convenient transportation and surrounding commercial circles. It is almost idle after the game, causing a serious waste of national resources.

4.2 Public service is not smooth

The reform of the management rights of LS and the development of entrusted management have promoted the rapid growth of the main players in the stadium operation market, but there are large differences in the level of operating institutions. Individual venues have poor operating services and difficult profitability, so that they can't continue to operate during the entrusted period, and eventually the venues fall into an inefficient cycle of operation. LSs are also facing the dilemma of public welfare responsibility and corporate profitability. Existing financial subsidies are not highly inclined to free and low-fee policies. For LS to survive, they have to introduce more commercial activities.

With the in-depth implementation of national strategies such as 'Healthy China' and 'National Fitness', it has indirectly promoted the construction and transformation of LS. However, problems such as high cost and difficulty in maintenance have become common problems in my country's stadiums. Through the application of the entrusted management model under the management right reform, it not only effectively solves some of the problems of LS, but also promotes the development of public services. However, whether the entrusted management model has really improved the overall operational efficiency and public service quality of LS is well explained by the financial data of several domestic entrusted management venues in recent years (Table 1). The operating conditions of LS, if government subsidies are deducted, and stadium depreciation is increased, it is basically unrealistic to achieve profitability.

It is difficult to realise the economic benefits of LS, and the social benefits of public services for public groups are even more difficult to achieve. Most sports venues report the number of public welfare services by estimates, and there is no accurate numerical value to measure. At the same time, there is also a tendency toward specific service targets. For reasons such as public relations and cost, LS use limited supply of government backgrounds, associations, clubs, etc., and fitness services for public groups are ignored by operating agencies.

Table 1 Financial data of several venues entrusted with management in China

<i>Stadium</i>	<i>Years</i>	<i>Total income/ten thousand</i>	<i>Profit/ten thousand</i>	<i>Government subsidies/ten thousand</i>
Shanghai Mercedes-Benz Arena	2017	22,388.53	8,324.50	-
	2016	19,285.57	5,932.61	-
Guangzhou Comprehensive Gymnasium	2017	1,752.95	314.57	756.00
	2016	1,589.07	172.13	756.00
Dongguan Sports Center	2018	2,195.00	760.00	-
Jining Sports Center	2017	4,133.55	194.13	100.00
	2016	3,760.35	143.48	-
Anqing Sports Center	2018	673.68	-372.30	950.00
Huizhou Sports Exhibition Center	2016	106.80	-20.14	73.50

Note: The data comes from the financial reports and research survey results of each venue in the corresponding year, where ‘-’ indicates that the data is missing.

Source: Qing and Yuanxin (2020)

4.3 Inconsistent service standards

The change in the concept of public group sports in China has placed higher requirements on the service quality of sports venues. However, it is difficult for small and medium-sized stadiums to meet the diversification of sports for most people, and indirectly promote the rapid development of LS. However, the quality and quantity of their services cannot match the needs of the public. Analysing the reasons, there are mainly the following three points.

- 1 The public group's expression of sports will deviate from the service body's will. Due to the lack of awareness of sports consumption in public groups, the economic attributes of public welfare products are not considered when paying for public services, which leads to cognitive biases towards paid sports items, which ultimately leads to contradictions in the willingness of service entities.
- 2 The government lacks effective supervision and the service content is formalised. The role of the government in the operation of LS is very important, not only to support its independent operation, but also to standardise operating guidelines. The lack of a government supervision mechanism in the later stage of operation has caused problems such as high service prices and excessive marketisation in LS, and the public services enjoyed by citizens have become formalised.
- 3 Lack of standards for non-basic public sports services. The public sports service legal system standards formulated by the government do not have a clear expression of service results and lack applicability to venues after the management rights reform. For example, there are defects in the design of public service provision content and social benefit evaluation indicators. On the contrary, in terms of non-basic public sports services, the supply body is not clear, and there is no document support for service specifications and evaluation standards, which limits the improvement of the quality of sports services.

5 Public service steady state strategy

5.1 Transform government functions

The state pointed out in the *Healthy China 2030 Planning Outline* that it is necessary to further optimise the market environment, cultivate diversified subjects, guide social forces to participate in the construction and operation of fitness and leisure facilities, and promote the reform of the separation of resource ownership and management rights of sports venues. Based on the unsound development of sports at this stage, the government must build a flexible and efficient sports development model, change government functions in a timely manner, and realise that the sports governance system and governance capabilities are in line with modern development.

The functional transformation of government units will help promote the efficient operation of stadiums. According to data, Zhoushan Sports Center has achieved an operating income of 7,576,800 Yuan in 2018 through the operation of government-enterprise cooperation, and the total dynamic and static income of Huanglong Sports Center in 2015 has reached more than 100 million Yuan. Government units should refer to the following points when changing their functions:

- 1 Reduce administrative intervention to match the law of market development. With the development of the country's reform of the sports industry, the previous administrative intervention management system that was inherited under the background of the planned economy has been changed, the ownership of stadiums and the right to operate are gradually separated, and private enterprises are encouraged and supported to actively participate in the construction of stadiums. For example, the Public-Private-Partnerships (PPP) model that emerged in Europe and the USA in the 1970s. The US Government took the lead in shifting from the original model of completely financed the supply of sports facilities to the model of government and social capital cooperation (Long, 2013). The Golden Eagle Baseball Stadium in Baltimore in the USA, the Flemish sports facilities in Belgium, and the main Olympic building and Olympic Village for the 2008 Olympic Games in China are all realised through this model.
- 2 Establish a long-term and effective incentive and supervision mechanism. The government guarantees the smooth operation of venues by formulating corresponding incentives and supervision policies. Newsome et al. insisted on restricting and paying equal attention to private investment in sports venues. For example, the contract between the City of Jacksonville and SMG stipulates that SMG's operating income exceeds US\$9.313 million per year to obtain incentive fees and a maximum of US\$150,000 (Newsome and Comer, 2000). When implementing incentives and supervision, the government must not only perform its own functions well, but also strengthen the forms of self-supervision, social supervision, and mass supervision of LS services.
- 3 Focus on ecological construction and rational layout planning. The ecological construction of LS includes the concept of sustainable development and people-oriented concepts. Take the 2016 Brazil Olympics as an example. In order to better serve the masses after the games, the Brazilian Olympic Organizing Committee decentralised the location of Olympic stadiums, including not only the

seaside area, but also the basic service facilities in Rio. Integrate the construction of LS with residential, leisure, commercial and other formats, effectively allocate resources, and turn stadium facilities into a service system with sports as the main body and coordinated development of multiple formats. Through synergistic driving effect, it not only guarantees the public service quality of LS, but also promotes urban economic development.

5.2 *Coordinated development of public services and urbanisation*

The development of sports venues in China is similar to that of the USA. The urbanisation rate in the USA reached 51.2% in 1920. Urbanisation created external conditions for the development of sports venues. US sports venues ushered in the first 'golden age' (Foner, 2013). The large-scale construction of stadiums in the USA, such as Los Angeles Rose Bowl Stadium with 100,000 seats (1922), Chicago Military Stadium with 120,000 seats (1923); and the establishment of US sports and leisure lifestyles, which promoted the development of US professional sports (Nelson, 2005; Jacobs, 2012). China's permanent population urbanisation rate exceeds 60% in 2020. In the process of increasing urbanisation, the construction of sports venues has also made great progress. For example, competitions such as the Beijing Olympic Stadium and the Guangzhou Asian Games Stadium have promoted the construction of the stadium. However, the problem of idle stadiums after the game is seriously out of touch with the rapid development of the city, resulting in a serious waste of resources. Robertson (1995) studied the redevelopment of cities in the USA, LS can be used as a special activity generators (SAG) strategy for urban renewal. The strategy pointed out that with large-scale event facilities (such as stadiums, conference centres, etc.) as the base point, the construction of large-scale entertainment service facilities around it will promote urban development in the region. The SAG strategy provides a guarantee for the operation of LS. The government indirectly promotes the appreciation of surrounding land by constructing supporting facilities around LS, and the population in the surrounding areas increases. For example, in 2004, there were 28,868 residents in the planned area of San Diego's baseball stadium. By 2010, the number of residents in the area was 44,052, an increase of 52.6%. The area where the baseball field is located has become the county's third fastest population growth area (Cantor and Rosentraub, 2012). LSs are the core of SAG's strategy, and reasonable and effective operation is the key.

In the process of urbanisation, the government provides corresponding support policies for the construction of sports venues, but the support cycle may be phased or temporary, and the ultimate goal of effective operation is to achieve. First, professional operation. Pursue professional governance, ensure service quality, pursue LS, and ensure stadium profits. Increase the diversity of governance methods, different types of venues, and different governance methods to ensure the operation and service of LS. Second, diversify operations. Relying on the opportunity of urban development, increase the scope of business, focus on the main business, and develop a variety of business models to enrich the number of teams, increase the types of teams, and build their own teams. Undertake professional competitions and other methods, improve the channels of LS, improve service quality, continuously enrich service content, actively promote service standardisation, and improve customer satisfaction. Third, establish brand awareness. Establish the brand image of LS, increase the allocation of intangible assets, develop naming rights of stadiums, venue leasing, sports business advertisements, and sports

media broadcasts. For example, Shanghai Mercedes-Benz Arena is a very successful sports centre. Fourth, optimise the talent structure. Professional management talents can not only improve service quality, meet the diverse needs of public groups, and save the management costs of LS, but also provide a great space for the introduction and development of venues' post-match event resources. Finally, multi-format integrated operation. The post-match operation of the large-scale Olympic stadiums has given us inspiration. The surrounding development of LS is a combination of culture, commerce, education, tourism and other multi-formats. Based on this, the operation value chain is established to form a mutually supporting model of multiple formats. Public groups also enjoy a diversified service system when exercising in the stadiums. For example, Beijing Workers' Stadium is a successful model of multi-format development.

5.3 Establish a comprehensive evaluation system

As the carrier of national policy implementation, LS need a scientific quality evaluation system to standardise the improvement of their public service quality. Therefore, the establishment of a reasonable and effective national health evaluation system has become the focus of ensuring the effective implementation of public services.

- 1 Confusing the concepts of welfare and service. Public groups have misunderstandings about the public services provided by the government. They believe that public services are equal to welfare services. In fact, there is an essential difference between the two. The government has formulated free and low-fee policies. For the masses, they can enjoy preferential public services, but it has also led to a reduction in the profitability of operating institutions and even losses. Therefore, it is necessary to pay attention to cultivating the sports consumption consciousness of public groups and to promote the change of their thinking in the direction of 'leisure sports', which is the key to solving the difficulties in the operation of LS. Not only that, the government should attach importance to the profitability of enterprises and respect the laws of the market, and increase supporting policies such as the government's purchase of public services to ensure the continuous operation of operating institutions.
- 2 Public services have become an important way to reflect the level of government management functions. In recent years, the functional management level of governments in various countries has gradually been reflected in the quality of public services. How the government operates the service carrier of LS has become the key. The implementation of the government purchase method not only maintains the continuous operation of the operating organisation, but also ensures the public welfare attributes of the stadiums. However, it is worth noting that although government purchase is a way of providing public services, a sound supervision and assessment system must be established. For operating agencies, clearly stipulate the main rights and responsibilities, standard requirements, evaluation specifications, etc. of the public services of LS; for the government itself, strengthen the accountability mechanism, realise the return of government responsibilities, and ensure the effective implementation of various systems.
- 3 Establish a scientific service evaluation system. As the operating rights of LSs are changed, the corresponding service evaluation system also needs to be revised, and

the interests of operating institutions and social benefits must be taken into account. Therefore, it is necessary to clarify the evaluation indicators of social benefits, such as public welfare opening hours should be in line with residents' fitness habits; increase the weight of satisfaction with public service quality; clarify the operational range of operating institutions; clarify the scope of non-basic public services of stadiums. At the same time, operating agencies are encouraged to convert some non-basic services into basic services, expand the scope of basic public sports services, and realise the precise supply of public sports services. Some scholars used the analytic hierarchy process (APH) method to preliminarily construct the relative weight score of the urban public sports stadium construction service national fitness index system (Lu, 2016). Provide a usable reference basis for the revision of the public service evaluation system of LS after the management right reform.

6 Conclusions and recommendations

6.1 Research conclusions

To study the public service stability of LS from the perspective of stakeholders is to balance the various stakeholders by analysing the contradictory relationships between various stakeholders and ensure that each stakeholder obtains the maximum benefit. Homeostasis development is a coordinated development mechanism that both promotes and restricts each other. The ultimate goal of LS is to maximise the interests of various stakeholders in the process of homeostasis development. Based on the above research, the following suggestions are provided.

- 1 Accurately position the government's functions in each stage of the development of LS. In the development process of LS, different development strategies are implemented, and the corresponding public service supply is also different. Government units must clarify their own functional positioning. With the development of LS, they must continue to change, and make corresponding evaluation adjustments in a timely manner based on feedback from operating agencies and public groups.
- 2 Clarify the interest needs of various stakeholders in LS. The interest needs of stakeholders are a key issue that affects the operation of LS. Sorting out and coordinating the interest relationship between various stakeholders and maximising the purpose of interest are an important prerequisite for maintaining the homeostasis of LS.
- 3 LS coordinate with the development of the city to achieve a win-win situation. The development of LS can't be isolated from the development of the city, and should be adapted to the overall urban planning and influence and promote each other.
- 4 Construct a public service evaluation system for LS. The public service evaluation system is the guarantee basis for ensuring that public groups enjoy public services. The level of service quality can be clearly reflected through the evaluation standards of the evaluation system. It is a collaborative strategy to maintain the homeostasis of public services in LS.

- 5 LS should implement diversified and ecological operations. The operating organisation changed the original operation thinking, based on the long-term development strategy of LS, and ensured the sustainable development positioning of diversified, enriched and ecological operation methods and contents.

6.2 Future research recommendations/limitations

The shortcomings of this study are as follows: The starting point of the research is only for LS, not too many small and medium-sized sports venues. The research method uses literature data and a few expert interviews. There is no on-site questionnaire survey. The data in the article is partly from literature and partly from expert interviews; the research is extensive and there is no targeted selection of several LS. It is suggested that future research should pay more attention to the development of small and medium-sized stadiums' operational services, and focus on the field investigation of several LS, and carry out follow-up long-term research on them. The research results are more pertinent.

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