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The Impact Mechanism of Sports Consumption on Collaborative Governance of Sustainable Development in the Yangtze River Delta Region

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Abstract

The per capita sports consumption level in the Yangtze River Delta region has consistently ranked highest among major regions in China. As a pivotal component of the national strategy to expand household consumption capacity in the new era, sports consumption plays a significant role in advancing regional sustainable development. Although governments at various levels have actively explored leveraging sports consumption to promote local economic, social, and ecological progress, multiple constraining factors have impeded the realization of desired outcomes. Consequently, there is an urgent need for governments at all levels to re-examine the multifaceted relationships involved in promoting regional sustainability through sports consumption from the perspective of collaborative governance. Taking the Yangtze River Delta region as a typical case, the system reviewed the policy documents and other materials related to sports consumption formulated at the central and regional levels during the period from 2020 to 2026. According to the requirements of grounded theory, through multiple rounds of discussions and expert consultations, these were gradually classified into six core categories: strategic planning capacity, factor allocation efficacy, digital-intelligence empowerment network, multilateral collaborative governance, inclusive resilience safeguard, green value translation. Findings identify six collaborative governance pathways: aligning vertical and horizontal tiers via coordinated policy and institutional supply; optimizing factor allocation to synergize market mechanisms and industrial integration; digitizing grassroots sports infrastructure to cut governance costs; transitioning from unilateral to pluralistic governance with participation from government, social organizations, market entities and citizens; expanding sports welfare to equalize public services; and upholding ecological red lines to boost social identity and cultural confidence. This exploratory theoretical framework development represents a measured extension and elaboration of collaborative governance theory, while offering actionable referential insights for other regions seeking to leverage sports consumption to advance regional sustainable development.

1. Introduction

1.1. Research Background

Sports consumption has evolved into a pivotal catalyst for China’s economic expansion, social governance innovation, and ecological conservation, constitutes a critical vector for operationalizing regional sustainable development goals (Zhang et al., 2022; Bae et al., 2025). By 2030, the overall scale of China’s consumer market will have expanded significantly, with the household consumption rate rising markedly and its contribution to regional economic growth further strengthened. By the end of 2025, the total scale of China’s sports industry is set to top CNY 5 trillion, while the sports goods market is expected to climb above CNY 2 trillion. The 15th Five-Year Plan for Expanding Consumption proposes to encourage sports consumption, promote the development of the “sports event economy”, diversify fitness consumption scenarios, revitalize idle venue resources, and actively develop the outdoor sports industry. The Opinions on Unlocking Sports Consumption Potential and Further Advancing High-Quality Development of the Sports Industry propose to promote coordinated regional development, explore the

implementation of regional integrated sports consumption measures that benefit the people and provide convenient services, organize regional sports consumption promotion activities. Meanwhile, the promotion of regional sustainable development through sports consumption has become a research hotspot in the field of sports studies (Li et al., 2022; Misener et al., 2009). Against the backdrop of shifting international dynamics, industrial restructuring, and intensifying inter-city competition, with consumption gradually becoming one of the “New Troika” driving comprehensive economic and social development (Lan et al., 2020; Liu et al., 2021). Since 2020, taking the construction of 40 national sports consumption pilot cities as an opportunity, through top-down and bottom-up policy implementation, the role of sports consumption in promoting regional sustainable development has been continuously explored. Each local government utilizes consumption policies such as major sports events, rural sports events, renovation and construction of venues, sports culture festivals, and sports tourism, promote the integrated development of agriculture, culture, sport and tourism, stimulate the vitality of urban development, alleviate the integration of urban and rural areas, and achieve high-quality development of the sports industry, drive the synergistic development of regional social, economic, cultural, and ecological systems (Yu et al., 2018; Liu et al., 2024; Fang et al., 2026; Tai et al., 2024; Liu et al., 2025). Regional or urban sustainable development aims to achieve a balance among various dimensions such as the environment, society and economy (Cheng et al., 2025; Chen et al., 2025). Relevant studies have proved that sports consumption can deeply integrate with fields such as agriculture, culture, tourism, and business, achieving the dissolution of organizational boundaries and efficient resource integration. It is also an important driving force for urban-rural renewal and upgrading, optimization of industrial structure, and improvement of public service levels (Sun et al.; 2025; Wang et al., 2022; Zhang et al., 2026). Through leisure sports consumption, rural economies can be promoted, the ecological environment can be improved, and the lifestyles of young people can become healthier and more sustainable (Cheng et al., 2025; Zhou et al., 2024). Government departments utilize the suction effect and spatial spillover effect of the sports event economy to achieve the concentration of people, logistics, information flow, and capital flow, directly stimulating urban and rural consumption, promoting employment, and promoting regional sustainable development and common prosperity (Ge et al., 2025; Chen et al., 2025; Lu, 2021; Du et al., 2025). Therefore, as the sports consumption policies continue to be updated, as an important carrier for promoting high-quality or sustainable development in the region, it is conducive to addressing key issues such as the cross-regional flow of resources, industrial integration, and collaborative governance (Liao et al., 2022). Under the context of the sports power strategy, sports consumption and regional sustainable development have formed a positive interaction in geographical, resource, and economic spaces, and are widely adopted by government departments as key policy governance tools (Li et al., 2022; He et al., 2021). In China, under the central-local interaction model, local governments explore pathways to effectively promote regional sustainable development through sports consumption by employing governance approaches such as strategic planning, policy support, public services, ecological conservation, and coordination among multiple stakeholders. This helps alleviate or resolve issues in regional integration, including imbalances between urban and rural areas, uneven regional development, and insufficient environmental protection efforts (Xu et al., 2025; Ye et al., 2022; Xu et al., 2025; Yuan et al., 2026). In this sense, sports consumption has become a crucial issue in the

current and future development of urban agglomerations (Li et al., 2022). Although regional sustainable development is highly valued by all levels of government, due to multiple challenges such as fragmented departments, unbalanced resource elements, and unequal basic public services, the expected development effects still fall short (Li et al., 2026; Ma et al., 2024). Therefore, it is imperative to re-examine how to promote regional sustainable development through the implementation of sports consumption policies.

Based on the above viewpoints, this study aims to explore the key elements that promote the sustainable development of the region through sports consumption and ultimately aims to establish a collaborative governance mechanism that influences this development.

1.2. Study Area

The Yangtze River Delta region located in the eastern part of China and is the intersection of China's "Belt and Road" initiative and the Yangtze River Economic Belt. As one of the important global urban agglomerations, it is one of the most economically active and open regions in China. It has its own unique geographical conditions, covering the entire territory of Shanghai, Jiangsu, Zhejiang, and Anhui provinces and cities, including 41 cities and 306 counties, with a total area of 35.8 square kilometers (Ma et al., 2024; Niu et al., 2023; Yang et al., 2024). In 2018, the integration of the Yangtze River Delta region was elevated to a national strategy. In 2020, the National Sports Administration released the "Several Opinions on the High-Quality Development of Sports Integration in the Yangtze River Delta Region" (Ma et al., 2024). In 2024, the Three-Year Action Plan for the Integrated Development of the Yangtze River Delta (2024–2026) was officially released by the Yangtze River Delta Regional Coordination Office. This has significant importance in China's modernization drive, the construction of a sports power, and sustainable development (Tai et al., 2025). By the end of 2025, the aggregate sports consumption expenditure of Shanghai residents is projected to surpass CNY 109.3 billion, maintaining its leading position among major Chinese cities. Both Zhejiang and Jiangsu rank at the forefront nationally in terms of marathon event volume, while Jiangsu's sports industry scale accounts for over one-sixth of the national total. Relying on the huge domestic demand market of over 230 million people and the developed urban cluster network, sports consumption within the region has shown a trend of upgrading to high-end and integration. Shanghai has introduced international top-level events, Hangzhou has built a "sports cite" based on the legacy of the Asian Games, Jiangsu and Zhejiang have vigorously developed water sports and mountainous outdoor activities, and Anhui has deeply developed the "sports + tourism and culture" health care business model. This diversified pattern effectively stimulated the construction of green infrastructure and the upgrading of the service industry. At the same time, through promoting the integration of public services such as "cross-city event registration" and "cross-city fitness subsidies", the Yangtze River Delta region has significantly improved the health level and social vitality of its residents. Sports consumption has become a crucial link that connects regional economic transformation, ecological protection, and social governance. It provides new impetus for the Yangtze River Delta region to explore sustainable paths for transforming "green mountains and clear waters" into

“gold and silver mountains”. Based on this, these practices may be elevated to effective policy experiences at the regional or national level and exemplary institutional arrangements.

2. Research Design

2.1. Research Method

Grounded theory, as one of the core methods in qualitative research, was proposed by Barney Glaser and Anselm Strauss. It represents a specific methodology for establishing theories based on existing data (Shrestha et al., 2025; Shen, 2025). It is a theoretical construction process that focuses on objectively explaining specific phenomena to reach substantive theories, and then to formal theories (Li et al., 2022). The process of its theoretical construction is entirely dependent on the systematic coding and analysis of qualitative data (Shrestha et al., 2025). By decomposing and conceptualizing the existing materials, a new theory that is close to the real world, highly explanatory, and capable of revealing causal relationships is established (Xu et al., 2025). Grounded theory is suitable for interpreting complex and detailed process-based social phenomena. Its uniqueness lies in the ability to independently collect, analyze, summarize, and compare seemingly discrete and dynamic processes, thereby achieving a theoretical framework that can be understood and recognized by relevant scholars within the field (Goldkuhl et al., 2010; Redman-MacLaren et al., 2015).

The grounded theory approach focuses on the following reasons. On one hand, existing research using grounded theory to explore regional sustainable development has primarily focused on specific areas of sports consumption, such as sports tourism, sporting events, and public sports services offering summaries and generalizations, yet lacks a comprehensive refinement and elevation of the underlying practical logic behind collaborative governance in promoting regional sustainability through sports consumption. On the other hand, promoting coordinated governance for regional sustainable development through sports consumption requires positive interaction among central and local governments, multiple departments, and diverse stakeholders. In this complex practical process, it is essential to abstract the interactive relationships and dynamic patterns among various governance actors. This panoramic approach to penetrating governance aligns closely with the goals of grounded theory, as a research methodology emphasizing data, interpretive processes, and pattern recognition can effectively address inquiries within specific research fields or emerging issues. Furthermore, given the differences in the actual national conditions, cultural traditions, and regional sustainable development in various areas, foreign theories or experiences cannot effectively address and interpret China’s social issues. However, grounded theory can effectively reveal the practical problems faced in the collaborative governance of regional sustainable development through sports consumption. Its structured understanding is conducive to finding solutions and constructing relevant theories. This study aims to explore how the collaborative governance mechanism works in promoting regional sustainable development through sports consumption. A large amount of accessible raw materials is needed for this research, and there are numerous practical materials in different cities of the Yangtze River Delta region in the process of utilizing sports consumption to promote regional sustainable development.

Therefore, this study selected the Yangtze River Delta region as a typical case, using grounded theory to interpret the collaborative governance process of promoting regional sustainable development through sports consumption, focusing on the core issues and exploring the practical mechanisms of collaborative governance.

2.2. Data Source

The main types of data required for the coding process in this study include policy texts, internal government documents, materials from academic seminars, and professional books (Table 1). First, there are policy texts. These mainly consist of 264 official policy documents issued by the central government and various cities in the Yangtze River Delta region from 2020 to 2026, with a total of over 200,000 words, covering implementation plans, programs, opinions, regulations, measures, etc. The policy texts cover levels of the central government, provincial governments, and municipal governments. Second, there are government internal materials. These mainly include 2 government meeting materials and 7 internal government submissions. The related internal materials include Yangtze River Delta conference materials, provincial conference materials, and municipal submission materials. Third, there are academic seminar materials. These mainly consist of 4 materials from the academic forum on the high-quality development of sports consumption in China organized by universities. Fourth, there are professional book materials. These mainly consist of 2 reports on the development of the sports industry in the Yangtze River Delta region. Furthermore, the policy texts serve as an important data source for this study. Through the coding, interpretation and analysis of the policy documents using grounded theory, it is possible to effectively reveal the underlying clues of a potential world (Walter, 2006). Policy documents, as expressions of the governance goals, tools and methods of a country or political organization during a specific historical period, possess extremely strong representativeness and authority (Freeman et al., 2011; Yu et al., 2023; Bernardo et al., 2024; Xu et al., 2025). Therefore, this study intends to take the relevant policy documents from the central government and the Yangtze River Delta region as the core materials for this grounded theory research, forming a three-level policy network. Additionally, some internal government materials, academic conference materials, and professional book resources will be used to ensure the diversity of the data sources. This approach ensures the complementary and supporting relationships among the relevant data, thereby guaranteeing the reliability and validity of the research.

Table 1
Textual Data on Promoting Sustainable Development of the Yangtze River Delta Region through Sports Consumption from 2020 to 2026 (Selected).

Data code	Data type	Data source	Data name	Use
A01	Master data	Policy text	Notice from the General Office of the Sports Administration on Carrying Out Pilot Work for Promoting Sports Consumption and Event Economy	Modeling
A02	Master data	Policy text	Some Opinions on the High-Quality Development of Sports Integration in the Yangtze River Delta Region	Modeling
A03	Master data	Policy text	Shanghai's Implementation Plan on Further Promoting the Construction of a National Sports Consumption Pilot City	Modeling
A04	Master data	Policy text	Opinions of Jiangsu Province on Accelerating the Development of Event Economy and Boosting Sports and Leisure Consumption	Modeling
A05	Master data	Policy text	Implementation Plan for the Sports-Promoting Consumption Campaign for the Benefit of the People in Suzhou City	Modeling
A06	Master data	Policy text	Incentive Measures for Promoting Consumption through Sports Events in Zhejiang Province	Modeling
A07	Master data	Policy text	The Implementation Plan for Sports Contributing to Rural Revitalization in Jiaxing City	Modeling
A08	Master data	Policy text	Several Measures Promoting the Deep Integration of Sports and Cultural Tourism to Boost Economic Development of Sports Events in Anhui Province	Modeling
A09	Master data	Policy text	Work Plan for Building Huangshan City as a National Pilot City for Sports Consumption	Modeling
B01	Master data	Internal government documents	2021 Annual Conference on Sports Industry Collaboration in the Yangtze River Delta Region	Modeling
B02	Master data	Internal government documents	Nanjing City's Proposal for Applying for the National Pilot City for Sports Consumption	Modeling
C01	Master data	Academic conference	Compilation of Work Reports for the Academic Forum on High-Quality Development of Sports Consumption in New Era China in 2025	Modeling

Data code	Data type	Data source	Data name	Use
D01	Master data	Professional books	Sports Industry Development Report of the Yangtze River Delta Region (2020–2021)	Modeling
E01	Triangle data	Policy text	The 15th Five-Year Plan for Expanding Consumption	Checkout
E02	Triangle data	Policy text	Three-Year Action Plan for Integrated Development of the Yangtze River Delta Region (2024–2025)	Checkout
E03	Triangle data	Policy text	Yangpu District Pilot Implementation Plan for Promoting Sports Consumption and Event Economy (2025–2027)	Checkout
E04	Triangle data	Policy text	Nantong City Implementation Plan for Promoting High-Quality Development of Service Consumption	Checkout
E05	Triangle data	Policy text	Hangzhou's Three-Year Action Plan (2025–2027) to Vigorously Boost Consumption and Build a "Sports City · Shopping Paradise"	Checkout
E06	Triangle data	Policy text	Implementation Plan for MA' Anshan City's Efforts to Become a National Pilot City for Sports Consumption (2026–2028)	Checkout
E07	Triangle data	Internal government documents	Work Promotion Meeting for the Construction of a Pilot City for Sports Consumption in Jiangsu Province	Checkout
E08	Triangle data	Academic conference	Compilation of Work Reports for the Academic Forum on High-Quality Development of Sports Consumption in New Era China in 2026	Checkout
E09	Triangle data	professional books	Sports Industry Development Report of the Yangtze River Delta Region (2022–2023)	Checkout

3. Coding Process

3.1. Open Coding

Open coding is the first step in grounded theory. It mainly involves encoding the raw data word by word and sentence by sentence, then summarizing and comparing the relevant contents (Zhang et al., 2022). During the coding process, researchers must refrain from any preconceived notions and need to conduct an objective observation of the relevant materials (Qi et al., 2022). During the conceptualization process, it is necessary to categorize similar contents and form more advanced categories. Regarding the entire

iterative coding process, structured consensus building and thorough discussions are imperative until a unified agreement is reached, thereby safeguarding the objectivity of the coding outcomes (Zeng et al., 2024). In response to the relevant discussions, multiple rounds of consultation with relevant scholars and experts are necessary to ensure the correctness of the key coding direction. Based on the above steps, the coding conceptualization is continuously revised, and the analysis framework is improved, ultimately ensuring the reliability of the research.

According to the above research steps, the relevant data were subjected to open coding, resulting in the identification of 143 initial concepts and 36 initial categories (Table 2).

Table 2
Results of open coding.

Initial Category	Initial Concept
Factor mobility	Expand land supply; Support private investment in sports; Government procurement of public services; Promote income growth for residents and enhance their consumption capacity; Encourage entrepreneurship to drive employment (5 items in total)
Industrial development	Optimize the spatial allocation of industrial; Promote the upgrading of the industrial structure; Promote the integrated development of industries such as culture, tourism and sports; Strengthen the linkage of the sports consumption industry chain; Build regional sports industry centers; Cultivate and expand sports market entities (6 items in total)
Industrial planning	Combination of local characteristics and policy requirements; Build characteristic towns; Leverage spillover effects to build signature branded products; Cultivate advantageous industrial models (4 items in total)
Consumption market development	Cultivate new spaces for sports consumption; Enrich sports consumption products; Refine the sports consumption market; Explore new demands for sports consumption (4 items in total)
Optimization of consumption environment	Protecting the rights and interests of sports consumers; Improving redress mechanisms for sports consumption disputes; Strengthening the credit system in the sports consumption domain; Formulating regulatory measures for sports consumption; Enhancing intellectual property rights protection (5 items in total)
Consumer-benefiting initiatives	Issue consumption vouchers and trial experience coupons; Encourage the disbursement of sports consumption subsidies; Consumer-benefiting public programs; Innovate payment products for sports consumption; Expand the application scope of social security cards (5 items in total)
Enhancing the provision of public sports services	Promote the equalization and standardization of basic public sports services; Improve the accessibility and service quality of public fitness facilities; Implement public awareness and participation initiatives for physical activity; Develop public sports infrastructure in both urban and rural areas (4 items in total)
Urban regeneration	Activate underutilized urban spaces and repurpose obsolete industrial plants; Develop and renovate themed commercial districts; Construct integrated sports service complexes; Establish clusters for sports enterprise headquarters; Comprehensively renovate aging residential communities (5 items in total)
Supporting non-governmental organizations	Encourage freedom of association and the establishment of new sports social organizations; Enhance the self-sustainability of sports social organizations; Intensify support for grassroots sports social organizations (3 items in total)
Leveraging the Role of non-governmental organizations	Engage sports social organizations in grassroots governance; Strengthen the autonomy of sports social organizations; Foster inter-organizational collaboration and networking among sports social organizations (3 items in total)
Citizenship consciousness	Sense of social identity; Health-conscious lifestyle; Shared vision (3 items in total)

Initial Category	Initial Concept
Government information disclosure	Timely release of government information; Residents' perception of the government's work (2 items in total)
Feedback system	Establish corporate feedback mechanisms; Establish a mechanism for public feedback; Establish a regional collaborative feedback mechanism (3 items in total)
Community development	Establishing community-based grassroots sports associations; Developing smart sports communities; Advancing sports philanthropy; Organizing resident participation in community governance (4 items in total)
Humanistic care	Elderly population; Vulnerable children; People with disabilities; Women; Farmers; employees((6 items in total)
Integrated platforms	Comprehensive sports information service platforms; Digital infrastructure; Foundational data interoperability (3 items in total)
Big data	Providing sports science and technology resources; "Internet + sports services"; Information sharing on sports resource trading platforms (3 items in total)
Cultural preservation and inheritance	Excavating local culture; Fostering mutual integration among diverse cultures; Developing cultural brand IPs; Promoting digital transformation of culture; Creating cultural and creative products (5 items in total)
Carbon peaking and carbon neutrality goals development	Advocating green, healthy, and eco-friendly lifestyles; Cultivating low-carbon sports consumption models; Facilitating green, low-carbon, and intelligent transformation of venues and facilities; Formulating and promoting green certification standards for the sports industry (4 items in total)
Ecological environmental protection	Constructing integrated ecological green development demonstration zones; Governing natural environments such as water bodies, mountains, and wetlands; Building or renovating sports eco-parks; Monitoring ecological bottom lines (4 items in total)
Ecological value realization	Resource identification; Product conversion; Industrial feedback (3 items in total)
Interdisciplinary collaboration	Establishing pilot zones for coordinated regional sports industry development; Forming sports alliances; Fostering inter-regional cooperative relationships; Creating cross-departmental task forces; Developing collaborative carriers for regional sports industries (5 items in total)
Technical support	Supporting e-commerce in sports; Supporting rural sports consumption development; Supporting financial services for sports consumption; Providing high-end think tank guidance (4 items in total)
Policy promotion	Advancing pilot construction for sports consumption; Promoting pilots integrating sports consumption and event economy; Standardizing development of sports-themed characteristic towns; Advancing construction of sports industry bases; Developing sports tourism routes (5 items in total)

Initial Category	Initial Concept
Policy instruments	Fiscal policy support; Financial instrument innovation; Land use safeguards; Tax incentives (4 items in total)
Policy implementation	Ambiguity in central policies; Re-formulation of policies at provincial/regional levels; Specific implementation at municipal level (3 items in total)
Monitoring and evaluation	Sports industry statistics, consumption surveys, and reporting; Statistical evaluation of sports consumption and event economy; Constructing relevant foundational databases; Third-party professional classification, statistics, and monitoring; Product quality monitoring (5 items in total)
Publication of results	Extensively publicizing governance practices in sports consumption; Establishing demonstration zones and enhancing exemplary effects (2 items in total)
Personnel training	Strengthening cultivation of sports industry professionals; Enhancing training for grassroots volunteers; Training sports social instructors; Building training bases and institutions (4 items in total)
Legal safeguards	Legislative coordination; Joint law enforcement; Rights relief (3 items in total)
Forms of governance	Networked governance structures; Power balance and decision-making rules (2 items in total)
Collaborative barriers	Uneven regional development; Insufficient social forces; Administrative silos within government departments; Fragmentation in collaboration areas (4 items in total)
Regional disparities	Obstacles to inter-regional factor mobility; Uneven allocation of basic public sports resources; Significant gaps in sports consumption levels among regional residents (3 items in total)
Problem prevention	Preventing sports safety incidents; Addressing homogeneous development; Preventing ecological pollution; Mitigating noise pollution; Protecting against infringement of consumer rights; Guarding against financial risks; Strengthening supervision of high-risk sports projects (7 items in total)
Publicity and guidance	Traditional media; New or social media (2 items in total)
Public participation channels	Government hotlines; Mayor’s mailboxes; Expanding avenues for civic participation; Online platforms; Public hearings; Symposiums (6 items in total)

3.2. Axial Coding

Axial coding is the second step of grounded theory, which is mainly a process of further exploring the internal connections of the results of open coding, to obtain more general and abstract major categories. This process aims to identify possible logical, hierarchical and causal relationships, and then reclassify them. After multiple rounds of discussions, interviews with relevant scholars and expert consultations, 13 major categories were finally formed (Table 3).

Table 3
Results of axial coding.

Major Category	Initial Category
Policy coordination	Industrial planning; Policy promotion; Regional disparities
Institutional supply	Legal safeguards; Policy instruments
Market allocation	Factor mobility; Industrial development
Industrial integration	Consumption market development; Interdisciplinary collaboration; Technical support
Multifaceted collaboration	Supporting non-governmental organization; Leveraging the Role of non-governmental organizations; Community development; Public participation channels
Network structure	Policy implementation; Forms of governance
Digital empowerment	Integrated platforms; Big data
Governance supervision	Feedback system; Monitoring and evaluation; Government information disclosure; Publication of results
Spatial restructuring	Urban regeneration
Green transition	Ecological environmental protection; Ecological value realization; Carbon peaking and carbon neutrality goals development
Risk prevention and control	Problem prevention;

Major Category	Initial Category
	Optimization of consumption environment; Collaborative barriers
Inclusive development	Enhancing the provision of public sports services; Consumer-benefiting initiatives; Humanistic care; Personnel training; Publicity and guidance
Cultural identity	Cultural preservation and inheritance; Citizenship consciousness

3.3. Selective Coding

Selective coding is the third step in grounded theory, which mainly involves a systematic analysis of the categorized concepts or categories, ultimately resulting in core categories that are highly relevant and universally applicable (Nah et al., 2015). After multiple rounds of in-depth analysis and comparison of the major categories, these were gradually classified into six core categories: strategic planning capacity, factor allocation efficacy, digital-intelligence empowerment network, multilateral collaborative governance, inclusive resilience safeguard, green value translation (Fig. 1).

Figure 1 Collaborative governance framework.

3.4. Theoretical Saturation Test

Theoretical saturation test serves as an evaluation criterion to stop the coding process, that is, researchers are unable to make new discoveries from additional data, or the contributions of relevant new discoveries are extremely small or have negligible impact, making further research unnecessary (Qi et al., 2022; Charmaz et al., 2021). In this study, independent coding analysis was conducted on 30 policy texts, 3 internal government documents, 1 academic conference material, and 1 professional book. The resulting coding yielded no new categories, confirming that the proposed collaborative governance framework has reached saturation.

4. Research Results

4.1. Strategic Planning Capacity

China has entered a new stage in which sports consumption serves as a pivotal driver of regional sustainable development. Deeply entrenched administrative barriers and fragmented collaboration remain the primary institutional constraints hindering the growth of regional sports consumption. To

further stimulate household consumption capacity, the central and local governments have successively introduced a series of policies targeting sports consumption. Following several rounds of policy implementation, growing scholarly and policy attention has been directed toward the inherent tension between “ambiguous central policies” and “fragmented local implementation”. Paying active attention to the role of sports consumption is a historical process that necessitates a proper assessment of the value orientation and the “hierarchical nesting” of sports consumption policies. Only in this way can the multi-level policy system spanning central and local initiatives create a sound enabling environment for the high-quality development of sports consumption. From the perspective of collaborative governance, to realize the transition toward a developmental consumption society, the use of sports consumption to promote sustainable development in the Yangtze River Delta hinges critically on state-led strategic planning, which manifests itself primarily in policy coordination and institutional supply. Sports consumption policies have emerged as a key institutional arrangement for promoting regional sustainable development. Over the long term, addressing issues such as the lack of top-level design in the policy system, the scarcity of policy instruments, weak policy coordination and linkage, and insufficient protection of residents’ consumption is still one of the key elements in resolving the institutional logic of the “fragmentation” of local sports consumption policies (Lin, 2026). Unlike the traditional “siloed and segmented” approach in public administration, current efforts in China regarding top-level policy design and overall coordination must fully account for both policy objectives and implementation capacity (Li et al., 2024). This requires aligning actions across vertical tiers and horizontal departments. The governance of sports consumption, therefore, does not conform to the conventional tradition of simple administrative fiat; rather, it constitutes a complex process of policy refinement. First, vertical intergovernmental coordination. Through the mechanism of policy piloting, local governments specifically in Suzhou, Nanjing, Ningbo, and Hefei have been granted greater latitude for policy innovation in the sports consumption sector. These localities are encouraged to engage in adaptive industrial planning tailored to their unique regional characteristics, thereby generating spillover effects that radiate to surrounding cities and rural areas (Li et al., 2022; Cheng et al., 2025; Li et al., 2025). Second, horizontal inter-departmental coordination. Its primary aim is to break down cross-departmental and cross-regional administrative barriers. Through the integrated development of the sports industry across the Yangtze River Delta, the governance of sports consumption is undergoing a profound shift from “siloed advancement” to “systems integration”, thereby addressing regional disparities in factor mobility, the allocation of basic public sports resources, and residents’ sports consumption capacity (Niu et al., 2023; Gao et al., 2022). Third, the strategic planning profoundly embodies the principles of “unified rules” and “legal safeguards”. Within this institutional supply framework, practices such as enacting intellectual property protection legislation, issuing the Model Text for Sports Construction Service Contracts in the Yangtze River Delta, and establishing a memorandum of understanding on joint reward and punishment mechanisms have been implemented. This “legislative coordination” coupled with “joint law enforcement” has not only standardized market order but also provided robust legal safeguards and accessible avenues for rights relief for cross-regional consumption. Regarding the portfolio of policy instruments, Shanghai leverages sports guiding funds, Jiangsu utilizes the “Jiangsu Sports Loan” (Suti Loan), Zhejiang employs land allocation for sports

industry development, and Anhui applies value-added tax incentives. This integrated approach creates a multiplier effect, translating macro-strategies into micro-level dynamics, thereby mitigating the inherent drawbacks of the top-down collaborative mechanism (Zhou et al., 2022; Ye et al., 2025).

4.2. Factor Allocation Efficacy

The key issue of how to transform China's economic development model and enhance the internal growth momentum of the economy has gradually focused on stimulating residents' consumption demand. From an economics perspective, sustaining this endogenous dynamism necessitates a fundamental shift in the allocation of resource factors transitioning from a unilateral government supply model toward one characterized by deep participation from market mechanisms and social forces. Such a transition is essential to escape the dual pitfalls of "government failure" or "market failure" inherent in traditional resource allocation paradigms. It must be emphasized that the driving forces of economic development reside in factor endowments, market mechanisms, and industrial foundations, with a particular accent on endogenous growth propelled by technological progress and human capital accumulation (Lin, 2026). It follows that reforms aimed at enhancing the allocative efficiency of sports consumption resources must adhere to this established logic. Coding analysis reveals that promoting sustainable economic development through sports consumption in the Yangtze River Delta should proceed along three dimensions: market allocation, industrial integration, and spatial restructuring. The findings demonstrate that "factor mobility" and "industrial development" constitute the direct drivers of sports consumption growth, while synergistic governance efficacy is operationalized through "industrial integration" and "spatial restructuring". A thriving sports consumption sector relies on the unimpeded flow of production factors; however, administrative barriers and market segmentation severely constrain the optimal allocation of resources. The synergistic efficacy of factor allocation serves as the cornerstone for activating market vitality, with its success hinging on the constructive interaction between the government and the market in advancing "market allocation" and "industrial integration" (Yang et al., 2020). Coding data reveal that within the dimension of "factor mobility" in the Yangtze River Delta region, "expanding land supply" and "supporting investment by social forces" serve as the preconditions for industrial development, whereas "upgrading the industrial structure" and "cultivating market entities" within the "industrial development" dimension emerge as its outcomes. A distinctive feature of this dimension lies in its emphasis on the catalytic effects generated by "cross-sectoral integration". Diverging from conventional industrial planning, sports consumption in the Yangtze River Delta promotes the convergence of culture, sports, and tourism-exemplified by sports service complexes and themed commercial districts, which effectively revitalizes underutilized resources identified in the "spatial restructuring" dimension, such as decommissioned factories and vacant lots. Accordingly, synergistic governance efficacy manifests in the government's efforts to broaden market access, dismantle administrative barriers, and steer social capital into the previously insulated sports sector. By leveraging cross-sectoral collaboration, authorities facilitate the recombination of factors across sports, culture, tourism, and related industries (Yang et al., 2023). Exemplary cases include Shanghai's "Gold Corners and Silver Edges" model for renovating sports centers, Jiangsu's transformation of industrial heritage into "sports-tourism highlights", and Zhejiang's "Sports +" initiatives that repurpose abandoned

spaces. This factor allocation model characterized by government guidance and market dominance-has markedly enhanced allocative efficiency and injected fresh dynamism into regional economic growth. Notably, factor allocation extends beyond individual administrative jurisdictions. Mechanisms such as the “Pilot Zone for Coordinated Regional Sports Industry Development” have dismantled barriers to cross-regional factor mobility, enabling interconnected sports consumption across the Yangtze River Delta. Exemplary initiatives include the Yangtze River Delta Sports Leisure Experience Season, the Taihu Lake Sports Circle, “Travel-with-Events” programs, and the Yangtze River Delta Professional Football League. Consequently, enhanced synergistic efficacy in allocating sports consumption resources bolsters urban socioeconomic resilience. The resulting spatial spillover and penetration effects facilitate the rational flow of factors to neighboring cities, thereby driving the modernization of the regional sports industry (Ma et al., 2024; Yin et al., 2025).

4.3. Digital-Intelligence Empowerment Network

Against the backdrop of advocating collaborative governance, innovating social governance mechanisms, advancing digital infrastructure at the grassroots level, and enhancing the digitalization and intelligentization of governance serve as a critical pillar supporting the modernization of China’s governance system and capacity (Li et al., 2022; Li et al., 2024). Emerging technologies-such as big data, artificial intelligence, and the Internet-provide robust technological underpinnings for digital infrastructure at the grassroots level (Hanisch et al., 2024). In the digital era, collaborative governance transcends the confines of offline interpersonal interactions, manifesting instead as a deep convergence of data and technology. In this context, data-intelligence-enabled collaborative networks represent a paradigmatic shift from traditional governance structures (Xu et al., 2025). Within the main category of “digital empowerment,” the constructs of “integrated platforms” and “big data”, when coupled with the “networked governance structure” identified under the “network configuration” dimension-collectively constitute the “neural hub” of modern sports consumption governance. Findings from grounded theory coding indicate that governance modalities and policy implementation concerning sports consumption in the Yangtze River Delta prioritize how digital technologies empower the governance process itself. Through initiatives such as the Yangtze River Delta Digital Empowerment Initiative and new digital infrastructure projects, the region is advancing digital consumption and digital operations across key sectors including fitness and leisure, sports events, athletic training, and sports media-while simultaneously promoting the digital retrofitting of sports venues and equipment. Its main purpose is to solve the problem of “information asymmetry” and achieve the precision of sports services. Through real-time data interconnection, the government can accurately grasp the consumption dynamics, enterprises can promptly respond to market demands, and the public can conveniently participate in supervision. Furthermore, the use of big data has enhanced the scientific nature of decision-making. By establishing data on the sports industry in the Yangtze River Delta region, efforts were made to strengthen “sports consumption statistics surveys” and “monitoring by third-party institutions”. With the strong computing power support, policy implementation has become more scientific, shifting from “experience-driven” to “data-driven”. Finally, the networked platforms enabled by digital-intelligent technologies dismantle hierarchical constraints, giving rise to a flattened and networked governance

structure. Anchored in the Yangtze River Delta Integrated Sports Industry Information Platform, these platforms facilitate the upward transmission of grassroots consumers' demands to decision-making authorities. This process compresses coordination chains, thereby prompting a rebalancing of power and a fundamental shift in decision-making rules. By establishing the smart sports integrated data platform, Nanjing has developed the "Ningtihui" public service platform for civic sports benefits. It consolidates multiple functions, including facility inquiries, venue reservations, advance ticket sales, fitness guidance, and feedback collection. This initiative not only reduces the transaction costs of collaborative governance in promoting sustainable development through sports consumption across the Yangtze River Delta but also significantly enhances the agility and transparency of the government governance system.

4.4. Multilateral Collaborative Governance

Sports consumption's role in promoting regional sustainable development necessitates the engagement of multi-level and multi-dimensional stakeholders (Li et al., 2022). The collaborative governance model aligns closely with this requirement. Given the high complexity of involved actors, a transition from unilateral or dual governance frameworks toward multi-stakeholder collaboration becomes imperative. This entails the active participation of government agencies, market entities, non-governmental organizations, and the public (Qin et al., 2025). Consequently, in governing sports consumption for sustainable development in the Yangtze River Delta, efforts must focus on moving beyond unitary or binary governance structures, advancing instead toward pluralistic, collaborative governance. On one hand, recognizing that the sustainability of non-governmental organizations is pivotal for maintaining sustained engagement with social issues, the imperatives to "supporting non-governmental organizations" and "leveraging the role of non-governmental organizations" underscore a strategic decentralization of governance (Choi et al., 2023). Currently, in China, most grassroots sports social organizations face limitations in undertaking transferred government functions, exhibit deficiencies in service quality, and possess weak capacities for mobilizing societal resources. However, with the ongoing reform of the sports management system, sports authorities across the Yangtze River Delta have advanced the decoupling of sports associations from administrative agencies. They are actively incubating sports federations as hub-type sports social organizations to expand the autonomous development space for social sports forces. Concurrently, governments employ mechanisms such as "entrustment of services" and "administrative co-optation" to galvanize the roles of municipal and district-level single-sport associations and grassroots sports organizations. Particularly in organizing grassroots mass sports events, public welfare sports activities, and community governance, these entities are encouraged to participate in local governance, exercise operational autonomy, and fully harness their institutional advantages. On the other hand, sports industry organizations in the Yangtze River Delta exhibit distinct features of social embeddedness, possessing dual attributes of economic functionality and governance capacity. Specifically, a range of intermediary sports industry organizations have been established, including the Yangtze River Delta Sports Industry Group Alliance, the Yangtze River Delta Sports Enterprise Alliance, and the Yangtze River Delta Outdoor Sports Industry Alliance, which have played a constructive role in market oversight for sports consumption. These entities

participate in a suite of governance processes: guiding enterprises to pursue development that is specialized, refined, distinctive, and novel; conducting sports event ratings; implementing quality monitoring for sports consumption products; and undertaking the evaluation and dissemination of statistical data. These mechanisms ensure that when operating sports service complexes or supplying public goods, enterprises comply with governance oversight requirements, ultimately driving a paradigm shift from unilateral public service provision by the government to collaborative governance involving government, market, and societal actors in the sports consumption domain. Finally, collaborative governance in the Yangtze River Delta demonstrates a discernible trend toward grassroots networking and procedural justice. Community development and public participation constitute the micro-foundations of this co-governance framework. By incorporating university think tanks, appointing representatives from social sectors, and institutionalizing public hearings alongside online deliberation platforms, the region has shifted its decision-making mechanism from “government-determined provision” to “citizen-directed selection”. Enterprises, citizens, and regional authorities collaboratively operate multidimensional feedback systems, enhancing the timeliness of government disclosures through integrated online and offline channels. This ensures public awareness of and support for sports events and consumption pilot programs, while establishing a closed-loop system for social oversight that transforms the public from “passive spectators” into active “watchdogs”. Moreover, such institutionalized channels for collective expression integrate dispersed individuals into governance networks, thereby strengthening the resilience of grassroots governance units such as communities and sub-districts. Consequently, the establishment of a “multi-entity synergy and closed-loop oversight” framework transcends traditional dichotomous governance logics, providing robust institutional safeguards for leveraging sports consumption to drive regional sustainable development.

4.5. Inclusive resilience safeguard

The core of inclusive resilience safeguard lies in prioritizing “investing in people” to stimulate the endogenous impetus for residents’ sports consumption. In a developmental consumption society, consumption is no longer viewed merely as material depletion but as an investment in personal development, quality of life, and spiritual enrichment. Promoting regional sustainable development through sports consumption necessitates a profound commitment to a people-centered development philosophy that balances efficiency with equity and fosters resilience against risks. Increasing investment in social welfare has thus become a central pillar of sports consumption policies across all levels of government in the Yangtze River Delta. Grounded theory coding reveals that inclusive resilience safeguard integrates “social equity” with “systemic security”. Moving beyond the traditional focus on middle- and high-income groups, local governments throughout the region have prioritized vulnerable populations, including older adults, persons with disabilities, and farmers. Through interoperable “one-card” systems, policy benefits such as consumption vouchers, sports subsidies, and social security card applications are extended to the entire population, advancing the equalization of basic public sports services. The region has also implemented a systemic “all-age-friendly” policy framework. This includes mandating free or low-cost access to public sports venues for youth, providing necessary assistance for older adults using facilities and equipment, and ensuring barrier-free environments for persons with

disabilities participating in fitness activities. Furthermore, the spatial distribution of sports facilities is strategically planned to prevent the excessive concentration of premium resources in urban cores, instead promoting balanced urban-rural development through equitable geographic allocation. Beyond addressing market risks, the region has instituted a systematic approach to identifying “collaborative barriers” and enabling “problem prevention.” In response to potential nuisances such as noise pollution or traffic congestion from sporting events, mass-participation events like “Jiangsu Football City League”, “Zhejiang City Basketball League” and “Anhui City Basketball league” have established cross-departmental and trans-regional risk early-warning and emergency response mechanisms. Regarding sports safety management, high-risk events, such as marathons, mountain outdoor sports, and water sports-are subject to joint approval and oversight. The implementation of comprehensive pre-event, mid-event, and post-event supervision, evaluation, and risk-alert systems has significantly enhanced the anti-interference capability and self-correction resilience of the sports event ecosystem. Consequently, this collaborative mechanism characterized by “baseline safeguarding plus risk prevention” ensures the stable and sustained progression of sports consumption amidst complex environments, tangibly elevating public wellbeing.

4.6. Green Value Translation

The coevolution of green economy and ecological civilization has emerged as a central concern for high-quality regional development. As a green growth pole within the emerging consumption sector, sports consumption diverges fundamentally from conventional material consumption, which is typified by intensive resource consumption and demonstrates markedly eco-friendly attributes. Yet it also exhibits a dualistic nature: while holding substantial potential to advance low-carbon development, large-scale expansion of sports consumption may nonetheless exacerbate resource depletion and environmental stress (Guo et al., 2026). The realization of the green value of sports consumption hinges on its transition toward a low-carbon, resource-conserving model, which alleviates environmental stress while advancing human well-being and social equity (Dong, 2022). This green transition encompasses two core dimensions: first, institutional efforts to strengthen ecological conservation, realize ecological value, and pursue the carbon peaking and carbon neutrality goals; second, culturally embedded green consumption behaviors among residents, specifically reflected in green purchasing, utilization, and disposal practices across the full product lifecycle (Yu et al., 2024). Accordingly, promoting green and sustainable regional development via sports consumption calls for a vivid empirical illustration of the “Lucid Waters and Lush Mountains Are Invaluable Assets” theory. This requires closely intertwining green transition with cultural identity to collectively drive the synergistic transformation of economic value alongside natural ecological and cultural values. Findings from grounded theory coding further reveal that the green value realization of sports consumption across the Yangtze River Delta follows a distinct evolutionary path of ecological and cultural assetization. On one hand, through ecological conservation and the advancement of carbon peaking and carbon neutrality goals, the Yangtze River Delta has leveraged digital empowerment to drive the green and low-carbon transformation of venues and facilities. This fosters low-carbon sports consumption patterns and lifestyles, thereby propelling the development of an ecological civilization. Within integrated culture-sports-tourism initiatives such as

sports-themed towns, outdoor recreation destinations, and sports tourism routes local grassroots governments implement a cyclical model of resource identification, product conversion, and industrial reinvestment. This approach transforms pristine natural environments resources into sports consumption products like hiking, cycling, and camping. Concurrently, the resultant economic returns are strategically reinvested into ecological conservation through rational industrial development, creating a virtuous circle. On the other hand, in the process of cultural preservation and inheritance, the region has undertaken measures including launching city leagues, implementing the “one county, one specialty” initiative, and integrating culture, commerce, tourism, sports, and exhibitions. These efforts unearth local cultural assets and cultivate cultural intellectual property, which not only enriches the substance of sports consumption but also strengthens social identity and cultural confidence within the “civic ethos”. Crucially, in realizing green value, spatial restructuring strictly adheres to ecological red lines. Newly built or renovated facilities, such as eco-sports parks, cycling tracks, and camping sites are organically embedded within natural ecosystems. This approach prohibits artificial landscaping, thereby achieving a harmonious coexistence between the built environment and nature. Consequently, the dual-value transformation of green and cultural assets demonstrates that sports consumption possesses the capacity to not only monetize natural resources but also revitalize cultural DNA. This provides a continuous stream of green momentum and cultural soft power for regional sustainable development.

5. Conclusions

As a pivotal component of advancing Chinese-style modernization, sports consumption plays a constructive role in expanding domestic consumption and driving the systemic restructuring of development pathways toward regional sustainable development. This study seeks to unpack the core governance elements embedded in the practical processes of collaborative governance that leverage sports consumption to promote sustainable development across the Yangtze River Delta, with the broader goal of offering actionable insights and evidence-based policy recommendations for implementing the sports powerhouse strategy and advancing regional sustainability. Using the grounded theory methodology, we conducted a comprehensive review of policy documents issued at all levels within the Yangtze River Delta, alongside systematic collection and collation of internal government documents, academic conference materials, and specialized monographs. This multi-source dataset provides robust empirical grounding for constructing a theoretical model that elucidates the mechanisms through which collaborative governance enables sports consumption to drive regional sustainable development in the Yangtze River Delta. The resulting model is designed to offer clear governance directions for multi-stakeholder collaboration aimed at further advancing regional sustainability. To this end, we performed meticulous comparison and categorization of the initial concepts derived from open coding, followed by multiple rounds of iterative discussion and comparative analysis to refine primary and secondary categories, these were gradually classified into six core categories: strategic planning capacity, factor allocation efficacy, digital-intelligence empowerment network, multilateral collaborative governance, inclusive resilience safeguard, green value translation.

In terms of strategic planning capacity, when formulating sports consumption policies, it is imperative to conduct a rigorous assessment of policy value orientations and the hierarchical nesting of policy frameworks, to circumvent institutional barriers stemming from policy fragmentation and the siloed, segmented approach characteristic of traditional public administration. This aims to advance policy coordination and institutional supply in tandem rather than as isolated parallel processes ensure alignment between policy objectives and implementation capacity, unify actions across vertical governance tiers and horizontal government departments, and ultimately establish a coupled and interactive mechanism involving multi-level, multi-domain, and multi-stakeholder engagement. In terms of factor allocation efficacy, it is essential to reform the allocation model of sports consumption resource factors shifting from unilateral government supply to diversified provision by market entities and social forces to stimulate constructive interaction between market allocation and industrial integration. This approach effectively revitalizes underutilized resources within the spatial restructuring process, bolsters urban socioeconomic resilience, and generates spatial spillover and penetration effects from sports consumption production. In terms of digital-intelligence-empowerment network, efforts must be made to advance digital infrastructure for grassroots sports governance and enhance the digitalization and intelligentization of social governance. This addresses persistent challenges in collaborative governance such as information asymmetry, experience-driven decision-making, and hierarchical constraints, thereby realizing precision-targeted governance, scientific policymaking, and networked governance development. Such reforms reduce the transaction costs of collaborative governance while significantly enhancing the agility and transparency of the government governance system. In terms of multilateral collaborative governance, the governance structure must transition from a unilateral model to a multi-stakeholder collaborative framework, with a strategic decentralization of governance authority to grassroots sports social organizations. This entails advancing the decoupling of sports associations from administrative agencies, cultivating sports federations as hub-type sports social organizations, and leveraging the socially embedded nature of sports industry organizations. Furthermore, community development and public participation constitute the micro-foundations of this co-governance framework, collectively driving a discernible trend toward grassroots networking and procedural justice in collaborative governance practices. In terms of inclusive resilience safeguard, stimulating the endogenous impetus for residents' sports consumption hinges on the principle of investing in people. By scaling up investment in social welfare within the sports sector and systematically rolling out all-age-friendly policies, proactive problem prevention measures can be implemented to dismantle collaborative barriers. This ensures that policy dividends from sports consumption reach the entire population, advancing the equalization of basic public sports services. In terms of green value translation, the transformation process must strictly adhere to ecological red lines during spatial restructuring. Digital empowerment should be leveraged to drive the green and low-carbon transition of sports venues and facilities, while advocating low-carbon sports consumption patterns and lifestyles. Rational industrial development channels economic returns into ecological conservation, strengthening social identity and cultural confidence, and ultimately improving human well-being and social equity. Collectively, these efforts lay a solid foundation for long-term regional sustainable development. These core categories constitute the fundamental influence mechanism through which

sports consumption promotes sustainable collaborative governance in the Yangtze River Delta. As a region with a relatively high level of sustainable development and advanced sports consumption capacity, the Yangtze River Delta should capitalize on its locational advantages to foster multi-stakeholder collaborative governance, adopt data-intelligence-enabled governance tools to improve government governance efficacy, and refine policy planning, inclusive development, and green development frameworks. This integrated approach will ultimately realize sustainable and coordinated regional development.

The findings of this study offer valuable referential insights for other regions seeking to leverage sports consumption to advance regional sustainable development. It is important to acknowledge, however, that the Yangtze River Delta possesses distinct contextual specificity; considerable limitations remain regarding the direct extrapolation of this study's findings to other regions with divergent institutional, economic, and social contexts. Future research should therefore incorporate empirical cases from diverse regions to map contextual boundary conditions, employing multiple case study analysis and cross-case comparisons to generate more generalizable findings and actionable policy recommendations.

Declarations

Competing interests

The authors declare no competing interests.

Ethics Approval

This article does not contain any studies with human participants performed by any of the authors.

Informed consent

Informed consent was not required as this study did not involve human participants.

Author Contribution

D.C.: Conceptualization, methodology, formal analysis (coding), writing-original draft., funding acquisition. C.Z.: Corresponding author; validation, resources, writing-review & editing. M.L.: Data curation, investigation, writing-review & editing. G.L.: Supervision, project administration, funding acquisition.

Data Availability

All data generated or analysed during this study are included in this published article and its supplementary information files.

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Figures

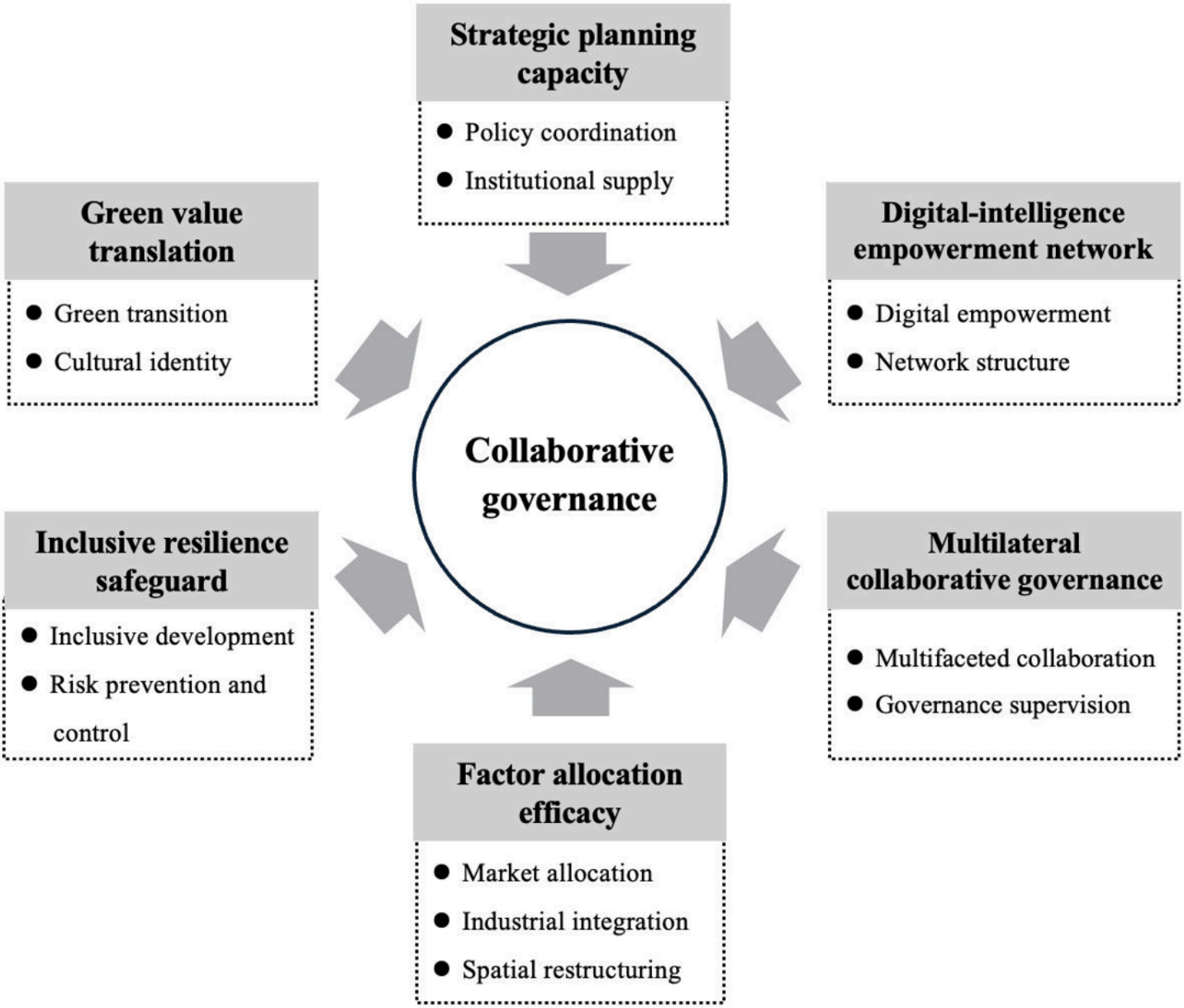


Figure 1

Collaborative governance framework.