Construction of an Optimal Industrialization Operation System for the Tea Industry Based on "Branding + Standardization" from the Perspective of High-Quality Development of the Local Economy

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Abstract Based on the requirements of local high-quality economic development and addressing the critical task of transformation and upgrading in the tea industry, this paper systematically discusses the necessity and feasibility of constructing an optimal industrialization operation system driven by the dual wheels of "branding + standardization". The article first clarifies the connotation of high-quality development and the synergistic mechanism between branding and standardization. It then analyzes the current situation and bottlenecks of China's tea industry development. Subsequently, it proposes a dual-wheel drive strategy where branding enhances value and standardization guarantees quality, and designs a systematic implementation plan involving industrial chain synergy optimization and integrated support from government, industry, academia, research, and application. On this basis, strategies and suggestions are proposed, encompassing the starting point, standard focal points, key effort areas, innovation points, and target achievement points. The aim is to promote the tea industry to break through homogeneous competition, achieve value ascent, and provide important industrial support for regional high-quality development through the construction of the aforementioned system.

Key words High-quality development, Branding, Standardization, Tea industry, Industrialization system

0 Introduction

China is the country where tea was first discovered, utilized, and cultivated in the world. The Chinese tea culture formed therefrom almost runs through the five-thousand-year history of Chinese civilization. Currently, as an important component of agricultural industrialization in China, the tea industry spans the primary, secondary, and tertiary industries, with a wide distribution, a large number of employees, and diversified output value. According to relevant statistics from the Ministry of Agriculture and Rural Affairs, among more than 2 800 counties (cities, districts) nationwide, over 900 are tea-producing counties (cities, districts), and more than 150 counties have tea as their leading agricultural industry[1]. As a typical agricultural product, tea has a extremely prominent place-of-origin effect and distinct geographical regional characteristics. Facts prove that the formation of famous teas is closely related to the superior tea plant varieties of the place of origin, the excellent natural environment, exquisite processing techniques, and a long historical and cultural origin. China's tea industry has a large scale, but its industrial strength is not yet strong enough; there are numerous brands, but limited premium brands, and the standard system needs improvement. Industrial development relies heavily on resource input, and the development model focuses on scale expansion. These current situations make it difficult to adapt to the new requirements of the high-quality development stage. This article is written in the hope of providing reference and guidance for enhancing the competitiveness of China's tea industry and achieving sustainable development.

1 Theoretical basis and concept definition

1.1 Theoretical connotation of high-quality development

High-quality development of the local economy is the specific application of the high-quality development theory at the local level. It not only abandons the past scale-and-speed-oriented development model but also integrates the new development philosophy of "innovation, coordination, greenness, openness, and sharing". Its essence centers on "quality first and efficiency priority", transforming the development mode from extensive to intensive, upgrading the economic structure, shifting the growth driver from factor-driven to innovation-driven, achieving greening of the three major objectives—economy, society, and ecological environment—as a whole, and pursuing the coordination and sustainability of the aforementioned goals. High-quality development emphasizes relying on technology and institutional innovation to improve total factor productivity, which essentially meets the people's growing need for a high-quality life[2]. From an industrial perspective, high-quality development manifests as "quality first and efficiency priority," enabling industries to move up the value chain. High-quality development of the tea industry requires us to shift from the past "competition on quantity" to safeguarding the quality baseline through standardized production and pursuing the value high line through brand building, achieving resource intensification, environmental friendliness, and maximization of regional brand value, thereby realizing inclusive growth of the local economy and sustained enhancement of competitiveness.

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1.2 Synergistic mechanism between branding and standardization Branding and standardization are not isolated concepts; they are interdependent and jointly propel the modernization of the tea industry. Standardization is the foundation of branding, as it draws clear quality lines for products and services. From planting and processing to storage and logistics, every link has standards to follow. These standards ensure stable and reliable tea quality. This stability is the prerequisite for building brand trust and lays a solid foundation of quality credibility for the brand image[3]. Branding is the value sublimation of standardization, achieved through market positioning, cultural narrative, and experiential marketing. The physical attributes guaranteed by standards are transformed into distinctive brand value. This transformation fosters emotional resonance, leading consumers to form brand loyalty, thereby obtaining brand premium. Market feedback and the demand for premiumization from branding drive the continuous improvement and upgrading of the standard system. Standards evolve from basic production specifications to comprehensive standards encompassing ecology, safety, traceability, *etc.* Standardization supports brand reputation, while branding pulls the enhancement of standards. This virtuous cycle enables the tea industry to move from low-level homogeneous competition to high-quality differentiated development, which is the core driving force for achieving optimal industrial operation.

2 Analysis of the development status and problems of China's tea industry

2.1 Overall development trend of the tea industry Since the beginning of this century, the Central Committee of the Communist Party of China and the State Council have always placed the work related to "agriculture, rural areas, and farmers" in an important position within the overall national development. Multiple policies benefiting agriculture and farmers have been introduced consecutively, fully benefiting the tea industry. Consequently, China's tea industry has entered a "golden period" of rapid development. In terms of production, according to data from the Ministry of Agriculture and Rural Affairs, by the end of 2022, the national tea garden area exceeded 3.3 million t, and the annual tea output surpassed 3.15 million t, both ranking first in the world[4]. The structure of tea categories continues to optimize, with green tea, black tea, oolong tea, dark tea, and other tea types developing in a coordinated manner. The alignment between production and consumption is good, effectively meeting the diversified demands of both domestic and international markets. In the consumption sector, driven by the popularization of health concepts, domestic tea consumption continues to expand and upgrade. Deep-processed tea products are developing rapidly, with significant growth in value-added products such as tea beverages, tea foods, and tea extracts. According to industry statistics, the total output value of China's deep-processing tea industry exceeded 150 billion yuan in 2022[5]. Meanwhile, new business formats such as tea tourism integration and e-commerce live streaming are booming, injecting new momentum into the traditional tea industry and promoting the effective integration of the primary, secondary, and tertiary industries. Despite the generally positive development trend, the industry still faces the challenge of transitioning from "scale expansion" to "quality and efficiency". Current growth still relies heavily on resource input, and the quality of development urgently needs comprehensive improvement. This current situation not only lays a solid foundation for further advancing branding and standardization construction but also highlights the urgency and necessity of accelerating the transformation of the development mode and enhancing industrial competitiveness.

2.2 Main bottlenecks and challenges China's tea industry is moving towards high-quality development, but it faces many challenges. Brand building lags, public brand resources are fragmented, and market awareness is limited. Most enterprise brands have weak influence; there are famous teas but no famous brands. Product homogenization competition is significant, making it difficult to obtain brand premium. The standard system is yet to be fully developed, and implementation faces obstacles. Existing standards often have limited coverage, are updated relatively slowly, and tend to focus on the production link, failing to fully consider market and consumer demands. The industrial structure dominated by smallholders makes standard promotion challenging, and the stability of product quality cannot be guaranteed over the long term[6]. The linkage between various links of the industrial chain is insufficient. From planting and processing to marketing, the level of modernization and organization is relatively lagging. Resource investment in technological innovation is limited, and the achievement transformation rate is also less than ideal. All these factors constrain the industry's development towards higher value areas. These bottlenecks interact with each other, forming key constraints for the large-scale, intensive, and high-end development of the tea industry. They must be comprehensively overcome through a synergistic system of branding and standardization.

3 Construction of the "branding + standardization" dual-wheel drive model

3.1 Branding strategy implementation path Branding is a key move to enhance the value and core competitiveness of the tea industry. Brand building is a systematic project and also a market-oriented conceptual activity, involving all aspects from top-level design to market practice. Firstly, scientifically constructing the brand architecture. It is recommended to establish an integrated development mechanism led by the regional public brand, featured by the core cultural connotation of the public brand, and guaranteed by geographical indication certification. The public brand (*e.g.*, local famous teas) is spearheaded by the government or industry associations, with unified identification, establishing brand access standards, and conducting holistic brand promotion to establish a high-end image and regional cultural value for the entire industry, providing trust endorsement and traffic entry points for enterprise brands[7]. Based on the momentum of the

public brand, enterprises deeply focus on the market, excavate unique features and highlights, and create brands with distinct positioning, stories, and emotions to achieve differentiated brand competition. The regional public brand and enterprise product brands support each other, jointly constructing a high-end brand ecosystem for the regional tea industry.

In terms of communication, it is necessary to integrate traditional and new media to form an omni-media communication matrix; also, on the basis of tea culture, blend historical heritage, craftsmanship, health functions, and lifestyle to enhance the premium capability of tea brands through cultural marketing and experiential marketing; furthermore, leverage digital platforms such as e-commerce, social media, and live-streaming sales to widely attract young people and achieve sales conversion. The above three aspects are interlinked, and the final key is still the brand. The footfall point of branding ultimately lies in standardized production and management[8]. The value promise of a brand must be realized through specific products. Every single product must consistently deliver on the consumers' perceived value of the brand to establish consumer trust, achieve brand loyalty, and complete the fundamental shift from selling raw materials to selling the brand. The specific construction of the branding system is shown in Fig. 1.

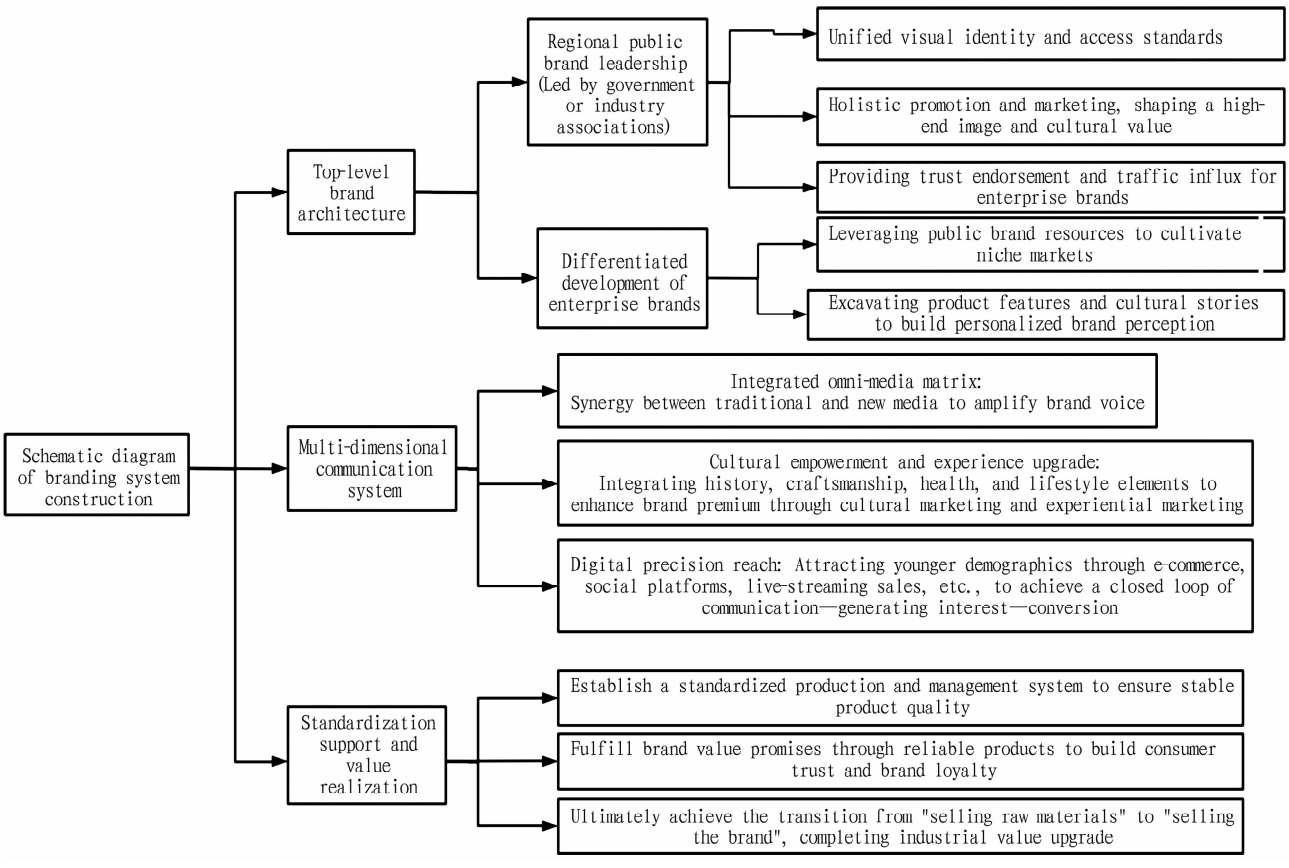

Fig. 1 Schematic diagram of branding system construction

3.2 Standardization system construction plan The construction of a standardization system is the support for the brand-based development of the tea industry. This system is also the technical cornerstone and institutional guarantee for achieving high-quality development. The construction of this system needs to cover the entire industrial chain, forming a three-dimensional and collaborative standard system. This system is based on general foundational standards, with industrial chain standards as the core, and market & service standards as the extension. In improving the production standards at the front end of the industrial chain, the construction of ecological tea gardens is key, requiring rigorous soil management, perfect green pest control, and standardized ecological planting[9]. This ensures that the raw materials are both safe and high-quality. The processing link is also crucial. Primary processing, refining, and deep processing all need to have Standard Operating Procedures (SOPs). Processing conditions must be controlled, technological process must be clear, and critical control points must be precisely managed. This ensures stable product quality and enables traceability. The standard system needs to extend to the back-end market, requiring the establishment of sound product quality grading standards. Scientific grading of tea should be based on sensory evaluation and physicochemical indicators, establishing an objective basis for premium quality and price. It is necessary to establish service standards covering packaging and labeling, storage and logistics, e-commerce, and other links to ensure product quality and consumer experience during circulation. Ultimately, it is essential to implement the standards and pursue continuous improvement, building a complete traceability system

that allows production records to be traced, flow directions to be checked, and responsibilities to be assigned. Leading enterprises and cooperatives should take the lead in setting examples, guiding smallholders to join standardized production. The standard system should be continuously innovated, collaborating with research institutions and industry associations, and revised timely according to market demands[10]. This enables the standards to keep pace with technological development and consumption upgrading, laying a solid quality foundation for brand building.

4 Design of the optimal industrialization operation system

4.1 Industrial chain synergy optimization mechanism The industrial chain synergy optimization mechanism is the hub of the "branding + standardization" industrialization operation system. Its purpose is to overcome the shortcomings of traditional tea industry segments operating independently and being compartmentalized. Through institutional arrangements, entity interaction, and interest linkage, it aims to achieve close connection and value addition across all links from the tea garden to the teacup. The construction of the industrial chain synergy optimization mechanism should be advanced along three lines: entity synergy, process synergy, and interest synergy[11].

4.1.1 Entity synergy. It is necessary to establish an industrial consortium led by leading enterprises, facilitated by specialized cooperatives, with the participation of family farms and farmers, and served by scientific research service organizations. Leading enterprises leverage their advantages in market, capital, and advanced technology to be responsible for setting standards, operating brands, and selling finished products. They integrate and output management, technology, and capital to mid-stream and upstream family farms and farmers. Specialized cooperatives have an organizational function, gathering farmers for standardized production, unified procurement of production materials, and technical training, acting as a connector between "small production" and "big market". Scientific research institutions provide continuous support such as variety improvement, process innovation, and standard R&D, achieving close integration of industry, university, research institute and application.

4.1.2 Process synergy. The focus is to rely on information means to build a smart information platform covering the entire process, centralizing information on planting, processing, inspection, storage, logistics, sales, *etc.*, to achieve recorded production, queryable information, traceable flow, and assignable responsibility. This not only facilitates the implementation of the standard system and transparent supervision but also benefits from using big data to analyze market demand, which in turn forces precise planting and flexible processing at the front end, achieving production based on sales, reducing ineffective supply, resolving industrial structural imbalances, and improving the adaptability of all links in the industrial chain to market demands and the efficiency of resource allocation in all aspects.

4.1.3 Interest synergy. A close interest linkage and risk prevention mechanism must be established. It is necessary to construct interest communities in various forms such as contract orders, share cooperation, guaranteed purchase plus secondary dividends, enabling farmers to stably share the value-added benefits from processing and sales links. This is not only an important way for farmers to share the value-added benefits from the entire industrialization process and increase their income but also a fundamental guarantee for motivating farmers to participate in standardized production and ensuring the supply of high-quality raw materials. It is conducive to forming a community where all ends of the industrial chain share risks and benefits, thus strengthening the micro-foundation for optimal industrialization operation[12].

4.2 Government – Industry – University – Research insititule – Application integrated support system The government-industry-university-research insititule-application integrated support system promotes the dual-wheel model of branding plus standardization. It ensures that the industrialization system maintains its innovation vitality. This system integrates resources from the government, industry, universities, research institutions, and users. All parties share consistent goals, collaborate synergistically, and jointly address technical challenges, talent issues, and policy obstacles in industrial upgrading. The government needs to play a guiding and safeguarding role, formulating forward-looking industrial plans, providing financial and tax incentives, and establishing special development funds. These policy tools can create favorable conditions for integrated innovation. In particular, it should take the lead in building public technical service platforms, providing quality inspection services, standard certification services, and information consulting services. These inclusive services can reduce the innovation costs for enterprises, especially helping SMEs reduce innovation risks. At the same time, market supervision needs to be strengthened to protect regional public brands and ensure fair market competition order. Universities and research institutions are the core of technological innovation. It is necessary to prompt universities and research institutes to focus their resources on key areas such as breeding new tea plant varieties, green pest control technologies, deep processing techniques, and digital intelligent equipment according to the actual needs of the industry, conducting applied basic research and technical research.

It is necessary to establish physical carriers such as industrial technology research institutes, expert workstations, and postdoctoral innovation practice bases to allow scientific and technological achievements to gradually mature and complete pilot-scale transformation[13]. Talent cultivation is directly integrated into industrial practice, supplying the industry with high-quality technical and managerial professionals. Industry stakeholders and end-users propose demands, apply outcomes, and provide feedback on benefits. Leading enterprises should expand the doors to application scenarios, actively invest in R&D and collaboration for technology projects, and take the lead in transforming innovative achievements into significant productivity and market competitiveness. Furthermore, an evaluation and feedback mechanism should be established, with user satisfaction at its core, to accurately feed back market information such as consumers' taste preferences, health needs, and usage experiences to the R&D and standard-setting links. This ensures that technological innovation and standard updates always follow the market, forming a complete cycle from innovation to application and then to re-innovation, continuously providing momentum for industrial upgrading.

5 Strategies, suggestions, and prospeots

To promote the integration of branding and standardization in the tea industry for high-quality development and to construct an optimized industrialization operation system, several suggestions and future prospects are proposed. It is necessary to strengthen top-level design. Local governments should place the branding and standardization construction of the tea industry at the height of regional development strategy, formulate specialized development plans, clarify development paths and responsible entities, and provide sustained financial, monetary, and policy support. Especially in the construction of public platforms and the protection of regional brands, local governments should play a leading role. Attention should be paid to the implementation of the standard system, where leading enterprises and cooperatives can play a demonstrative role in driving small-scale farmers toward standardized production. Digital technology can assist in establishing a full-chain traceability system to ensure the proper execution of standards, thereby laying the foundation for brand credibility. In the field of innovation, it is essential to strengthen the collaboration among government, industry, academia, research, and application, establish an industrial innovation fund to promote R&D and commercialization of key technologies, and develop mechanisms for talent recruitment and training to provide intellectual and technical support for industrial upgrading. Ultimately, the goal is to deepen the integration of business models, allowing the tea industry to merge more closely with cultural tourism, health and wellness, and digital e-commerce. This can extend the value chain and find new growth points. In the future, competition in the tea industry will shift from resources and scale to brand value and standard discourse power.

By systematically establishing the dual-wheel drive model, China's tea industry can break through the predicament of being locked in inefficiency, transform from a traditional agricultural product to a high-end consumer good, and ultimately form a batch of globally renowned brands and standards. This will not only promote the local economy but also enhance the core competitiveness and leadership of Chinese tea in the global tea landscape.

6 Conclusion

This article, from the macro perspective of local high-quality economic development, systematically explores how China's tea industry can construct an optimal industrialization operation system through the dual-wheel drive model of branding and standardization. It explains the core connotation of high-quality development theory, analyzes the mutually supportive and synergistic relationship between branding and standardization, and clearly points out that these two are the keys for the tea industry to break through the low-end lock-in and achieve value leap. We deeply analyzed the development trends of the tea industry and found that brand development lags behind, standard implementation is not fully effective, and synergy among various links of the industrial chain is insufficient. Based on these problems, strategies are proposed. A path promoting independent enterprise brands through regional public brands is constructed. A dynamic standardization system covering the entire industrial chain is built. Through the dual design of the industrial chain synergy optimization mechanism and the government-industry-university-research-application integrated support system, the integrity and sustainability of the industrialization operation system are guaranteed. Implementation suggestions are proposed from multiple dimensions such as policy, technology, talent, and business integration.

The research shows that this study proves the "branding + standardization" is an effective model for achieving high-quality development in the tea industry. This system can promote product added value, enhance industrial competitiveness. The tea industry is gradually moving towards intensive development, and the transformation to high-end and green is also being implemented. Regional economy thereby gains new momentum. This case provides a reference for the modernization and upgrading of traditional characteristic agriculture, containing both a theoretical framework and practical paradigms.

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