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# Research on the Development of an Integrated Urban Supply Chain System for Agricultural Products

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***Abstract:*** *In the rapidly evolving landscape of global agricultural modernization, the research and implementation of integrated urban supply chain systems for agricultural products are encountering new opportunities and challenges. There remains a significant gap between the agricultural supply chain practices in China and those in other nations. In light of the current socio-economic conditions, this paper proposes an innovative integrated supply chain model for agricultural products that encompasses both urban and rural areas. This model is of considerable significance and establishes a comprehensive service system that facilitates the delivery of agricultural products from farmers' fields to consumers' tables. Specifically, this paper introduces a novel urban-rural integrated supply chain model for agricultural products, designed as a one-stop service system that streamlines the supply of agricultural goods from farms to the dining tables of citizens, thereby creating an urban-rural supply chain system for agricultural products.*

***Keywords:*** *Agricultural Supply Chain; Production and Marketing Integration*

## 1. Introduction

In September 2018, the government issued the Strategic Plan for Rural Revitalization (2018-2022). This plan explicitly states that promoting structural reform on the agricultural supply side will be a primary task, with accelerating agricultural modernization identified as a key component of the rural revitalization strategy. The 2024 government has particularly emphasized the importance of establishing a unified national market. The objective of constructing this national unified market is to enhance the efficiency of resource allocation and ensure smooth circulation. As a vital element of China's modern agricultural industrial system, the effective operation of the agricultural product supply chain's circulation system is crucial for advancing the national unified market. Therefore, utilizing modern information technology platforms and establishing a scientifically efficient integration of agricultural product production and marketing within the urban supply chain is an effective approach to promote structural reform on the agricultural supply side, accelerate agricultural modernization, and serve as a key pathway to achieving the rural revitalization strategy.

However, there are numerous issues with the existing agricultural product supply model. The current supply chain for agricultural products suffers from several problems, including excessive layers, significant price fluctuations at both the production and marketing stages due to information asymmetry, disruptions in logistics and distribution during emergencies, road obstructions, delayed delivery times, and insufficient stability in the supply of agricultural products[1-2]. Additionally, the high costs associated with logistics and infrastructure during the production and marketing of agricultural products pose a major challenge that hinders the development of the agricultural supply chain. In some remote areas, the circulation loss rate of agricultural products is elevated due to the lack of cold chain logistics and transportation. Furthermore, the issues of information asymmetry and difficulties in market access are becoming increasingly severe. Due to an inadequate information transmission mechanism, farmers struggle to accurately predict market demand in the absence of sufficient market data, leading to frequent instances of oversupply or undersupply. Consequently, leveraging modern information technology to establish an agricultural product circulation system that facilitates the integrated operation of urban and rural production, supply, and marketing has emerged as a key focus for the transformation and upgrading of China's agricultural product supply system, both now and in the foreseeable future.

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## 2. Literature Review

The issue of supply chain governance is a traditional yet relatively new topic. Li Wei'an et al. systematically proposed a normative analytical framework for research in supply chain governance. Feng (2024) introduced a more advanced and scientifically grounded modern supply chain model, building on an analysis of the shortcomings of traditional supply chain models[3]. During the COVID-19 pandemic, the traditional supply chain system for urban agricultural products faced significant challenges. Despite a strong demand for fresh agricultural products from urban residents, various links in the supply chain encountered serious obstacles due to the pandemic. Additionally, changes in consumer psychology impacted the supply chain, as many individuals began stockpiling necessities out of concerns for food safety and supply stability, further exacerbating the imbalance between supply and demand in the market. The pandemic revealed the vulnerabilities of traditional urban agricultural supply chains, prompting industry scholars to reconsider the structure and resilience of these systems.

Research on agricultural supply chains began in the early 1990s with the examination of the grocery store crisis in the United States[4]. Agricultural supply chains are often referred to as “field-to-fork” and consist of four key components: the supply of production materials, in-production planting and production, post-production grading, packaging, processing, storage, and marketing, and finally, the consumer. Currently, both domestic and international research on agricultural supply chains primarily focuses on supply chain management and optimization, sustainability and environmental impact, digital transformation, risk management and resilience, as well as consumer behavior and market demand.

In the realm of supply chain management and optimization, Liu (2021) enhances the logistics and distribution system for regional agricultural products e-commerce and establishes an information-sharing platform for agricultural products e-commerce[5]. This comprehensive approach aims to drive the intelligent advancement of the agricultural industry, address the structural shortages of agricultural products in China, and meet the public's consumption demands. Bai (2021) examine the impact of the digital economy on the agricultural supply chain, analyze current practices in agricultural supply chain management in China, and explore the internal mechanisms that enable digital economy-driven agricultural supply chain management[6]. They propose a new operational model for the agricultural supply chain within the context of the digital economy and recommend strategies to optimize existing agricultural supply chain management practices. Chen (2021) investigates the supply-demand imbalance in the fresh agricultural products market, compares the value of three existing supply chain models for fresh agricultural products, and advocates for consumer-centered, pull-type supply chain management optimization strategies to address supply chain management challenges[7]. Conversely, Ruan (2019) tackles issues related to price standardization, information communication, and trust in the fresh produce supply chain. He proposes four measures to regulate overall price fluctuations, enhance information flow within the supply chain, coordinate cooperative relationships, and improve the standardization of fresh produce, all aimed at achieving high-quality development of the fresh produce supply chain[8].

Sustainability in the agricultural supply chain involves ensuring the availability of resources for the future, protecting the ecological environment, and promoting socio-economic development while simultaneously meeting current consumer demand. Drawing on the theory of sustainable development and scientific and technological innovation, Ma(2024) identified key influencing factors and developed an evaluation index system to assess the levels of scientific and technological innovation and sustainable development within the agricultural supply chain across 30 regions in China from 2006 to 2021, employing the entropy weight-TOPSIS method[9-10]. Subsequently, a double fixed-effects model was constructed to investigate the impact of scientific and technological innovation and to analyze regional heterogeneity. Finally, Vensim PLE was utilized to simulate sustainable development under three different scenarios and to propose countermeasures. A review of the literature reveals that various factors, including disasters such as heavy rainfall and flooding[10], the agricultural product recycling subsidy system[11], corporate social responsibility[12], and the influence of big data and emerging digital technologies[13], all affect agricultural supply chains to varying degrees, both in the short and long term.

With the arrival of spring, the development of new quality productivity has become essential for promoting high-quality growth. Digital transformation has gradually emerged as an inevitable requirement and trend for the transformation and upgrading of the agricultural supply chain. Lv (2023) analyzed effective pathways to enhance agricultural supply chain management in the context of the digital economy, focusing on five key aspects: improving standardization and quality systems, supporting the construction of intelligent logistics, enhancing circulation capacity, developing a

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comprehensive information platform, and utilizing big data analysis[14]. Lu(2022) integrated blockchain technology into the agricultural supply chain to streamline the flow of business, logistics, capital, and information across the production, trade, and demand stages of agricultural products. This integration aims to create digital circulation channels and models for the entire agricultural product industrial chain[15]. To achieve high-quality development of the intelligent agricultural product supply chain by 2035, Fan (2023) recommend conducting in-depth research on the core technologies of intelligent supply chains, establishing a provincial comprehensive management service big data platform, promoting the digital transformation of each link in the supply chain, and enhancing the agricultural product quality traceability system[16]. These key initiatives will significantly advance the construction and application of smart supply chains, allowing them to fulfill their intended roles effectively.

In the agricultural sector, ensuring the quality of the entire supply chain—encompassing production, processing, and transportation—is of paramount importance. Huang (2013) highlighted in his study on the quality traceability system for agricultural supply chains that, in response to food safety issues in retail supermarkets, there is a pressing need to enhance the safety of agricultural products[17]. To address this, a robust quality traceability system for agricultural products will be actively implemented in major supermarkets across China. However, the rapid expansion of supermarket chains has revealed regulatory weaknesses concerning the quality and safety of agricultural products. These challenges underscore the difficulty in ensuring product safety throughout the supply chain, necessitating a reduction in the length of circulation channels[18]. The essence of these channels is to facilitate convenient access to agricultural products for consumers. Retail, as a crucial component of this channel, must adapt to changes in the market environment and leverage technological advancements to foster innovation and improvement[19].

The research presented above offers a comprehensive overview and a solid foundation for an in-depth examination of the construction of modern agricultural supply chains. However, most scholarly explorations are conducted from a specific perspective and have not developed into a systematic framework, particularly regarding the supply chain service system, which has been largely overlooked in previous studies. Consequently, this paper will focus on exploring how to ensure farmers' peace of mind by establishing a stable and efficient agricultural production and supply system, thereby stabilizing farmers' incomes and contributing to rural revitalization.

## 3. Creation of Integrated Urban Supply Chain Systems for Agricultural Products

### *3.1 "Thousand Acres Base + Farmers" Platform*

The inadequate infrastructure in rural areas encompasses not only outdated warehousing, cold chain, and freight equipment but also, more critically, the absence of a unified system platform for standardized, digital management and maintenance of various types of equipment. Without sufficient talent and technology to sustainably manage this infrastructure, even the significant investment in expensive equipment by farmers cannot realize its full potential. The development of a local, data-driven agricultural logistics platform should involve the collaboration of farmers, third-party logistics companies, government agencies, technicians, and other stakeholders. Professional representatives from all parties must come together to contribute to the construction of the local agricultural logistics platform, serving as a think tank across different fields. Ultimately, this collaboration will ensure the successful construction, operation, maintenance, and management of the platform. Before initiating many tasks, it is essential to clarify the primary functions that the platform will perform. These functions include the collection and storage of production data, visualization and tracking of logistics data, application and sharing of logistics data, analysis and mining of logistics data, and the operation and management of the logistics platform. The participants and users of the logistics platform are identified as five key parties: farmers, third-party logistics enterprises, government departments, technicians, and consumers. Additionally, similar agricultural production enterprises and agricultural trade organizations can also engage with the logistics platform, either through self-built systems or outsourced solutions, depending on their specific roles within the agricultural logistics supply chain.

The establishment of the "Thousand acres base + farmers" system platform is aimed at solving the problem of agricultural supply from the source and helping farmers to prosper. The key to this model is to establish a stable and efficient agricultural production and supply system to ensure the quality of agricultural products and the stability of supply. Determining the base size and the way of cooperation with farmers, it is necessary to determine the specific size and geographic location of the 1,000 mu

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base in order to meet the production demand for agricultural products. Secondly, to establish a close cooperative relationship with farmers, farmers can be encouraged to actively participate in the cultivation and management of agricultural products by signing long-term cooperation agreements and providing technical support and training.

The establishment of the “Thousand acres base + farmers” model requires a multifaceted approach, including determining the size of the base and the mode of cooperation between farmers, optimizing the planting structure and improving production efficiency, establishing a quality control system, providing financial support and policy guarantees, as well as continuous innovation and optimization. Through the implementation of these measures, it is possible to improve the quality and stability of supply of agricultural products, promote the development of agriculture and increase farmers' incomes, and at the same time ensure that production does not stop in the event of an emergency.

### *3.2 Standardized Production in Factories and Sorting Centers*

Improving the standardized system for agricultural products and enhancing the quality orientation of these products are essential measures to deepen the structural reform of the agricultural supply side and promote the revitalization of rural industries. The implementation of standardized production for agricultural products holds significant value, as it facilitates the advancement of production and processing to the high end of the industrial chain, comprehensively enhances product quality, ensures the safety of agricultural goods, and meets the growing demands of the populace for a better quality of life. Standardization is a crucial prerequisite for guaranteeing the quality and safety of agricultural products. It encompasses every aspect of the production and sales process, from pre-planting and cultivation to management, harvesting, cleaning, handling, and sales. Enforcing strict standards at all stages regulates producer behavior and prevents the illegal or improper use of chemicals, as well as the excessive application of pesticides and fertilizers in the pursuit of yield and profit. During the storage and transportation of agricultural products, stringent standards help mitigate quality and safety issues that may arise from substandard practices or operational errors. By establishing a standardized framework for agricultural products, we ensure that every link in the production and marketing chain adheres to safety, environmental sustainability, and quality requirements, thereby effectively safeguarding the integrity of agricultural products.

According to the relevant data reveals that e-commerce has facilitated the sale of 4.73 billion agricultural products, with an average of 13 million parcels sold daily. In August 2023, Oriental Selection's self-branded smoked potatoes achieved over 20,000 orders within an hour. With the advancement of internet technology, agricultural products have increasingly benefited from digital transformation. However, unlike other trending products, agricultural goods face significant challenges in achieving standardization due to inherent limitations, which hinder their ability to become ensure product quality and standardize production, it is essential to leverage technology. This approach will help secure a reliable supply of agricultural products at the source, supported by the establishment of factories or sorting centers, thereby addressing the challenge of converting non-standard products into standardized ones.

First, foremost, factories and sorting centers must establish stringent production standards tailored to the characteristics of agricultural products and market demand. This includes developing comprehensive guidelines for planting, breeding, processing, packaging, and other relevant aspects. It is essential to ensure that these production standards comply with food safety regulations and industry norms to enhance the market competitiveness of the products. Additionally, the introduction of advanced technology and equipment is crucial for improving production efficiency and product quality. Regular maintenance and upgrades of this equipment are necessary to guarantee its stability and reliability. Furthermore, optimizing the sorting process is vital to enhance both efficiency and accuracy. Implementing intelligent sorting systems can significantly improve sorting quality. Strengthening staff training and management is also important; enhancing employees' professional skills and quality awareness will contribute to a more effective management system that ensures adherence to production standards. Finally, establishing a robust quality control system, including a dedicated quality control department, is essential for monitoring and testing all aspects of the production process. Regular sampling and testing of finished products will help ensure that product quality consistently meets established standards.

To ensure that agricultural products continue to generate benefits, we must make a concerted effort in both storage and logistics. Blueberries are highly commercialized fruits, particularly in Yunnan, where the high altitude, low latitude, and significant temperature differences between day and night

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allow them to accumulate more sugar. This advantage has enabled Yunnan blueberries to quickly become popular among domestic agricultural products. However, despite their popularity, blueberries are prone to deterioration during transportation. To address this issue, local growers in Yunnan rent cold storage facilities in advance and perform pre-cooling treatments on the blueberries. They then transport the fruit via aircraft or cold chain vehicles to ensure timely delivery: major cities in the country can receive them within one day, while major cities worldwide can receive them within three days. Similarly, Oriental Selection collaborates with third-party logistics providers and establishes front warehouses to enhance logistics efficiency. The company has set up 20 self-supporting product warehouses to provide nationwide logistics services, ensuring that warehousing and distribution are managed by SF Express. Additionally, the company has partnered with JD Logistics, leveraging its integrated supply chain solutions that combine commerce and logistics, as well as its extensive nationwide distribution network. This collaboration enables self-managed products to be delivered on the same day or the next day for orders within the same city, and within 72 hours for interprovincial orders. Therefore, in addition to transforming agricultural products from non-standard to standard quality, it is essential for factories and sorting centers to establish a stable and efficient warehousing and logistics system.

### *3.3 A "farmers + cooperatives + enterprises + e-commerce" Network Trading Platform*

Under the live broadcast e-commerce model embedded within the agricultural supply chain, a live broadcast module has been incorporated, typically resulting in an agricultural supply chain characterized by the components of "supply side - live broadcast side - platform side - consumption side"[20]. The model of "farmers + cooperatives + enterprises + e-commerce" merges traditional agriculture with modern information technology and innovative business models. Its objective is to achieve the standardization, branding, and marketization of agricultural products through resource integration, process optimization, and efficiency enhancement. This approach ultimately promotes the upgrading of the agricultural industry and increases farmers' income.

By empowering rural e-commerce through the Internet of Things, farmers—who are the primary producers of agricultural products—cultivate or raise these products under the guidance of cooperatives. This collaboration aligns with market demand and adheres to the standards set by e-commerce platforms, ensuring the quality and safety of agricultural goods. The cooperatives offer technical guidance and training to assist farmers in enhancing production efficiency and lowering production costs. Additionally, cooperatives can consolidate the procurement of production materials, allowing them to benefit from discounted prices on bulk purchases.

Secondly, cooperatives facilitate resource integration and coordination. Serving as a bridge between farmers and enterprises, cooperatives are responsible for consolidating farmers' agricultural resources and conducting unified acquisition, grading, packaging, and storage to meet the requirements of e-commerce platforms for agricultural products. Additionally, they establish a rigorous quality control system to assess the quality of agricultural products, ensuring that these products meet the standards set by e-commerce platforms and consumers. Furthermore, cooperatives form partnerships with logistics companies to guarantee that agricultural products are delivered efficiently and safely to the warehouses designated by e-commerce platforms or directly to consumers. Cooperatives serve as a bridge connecting various sectors by fulfilling several key functions. First, they enhance the agent delivery function. Second, they improve logistics by reducing costs and increasing speed. Third, they strengthen the supply chain system, facilitating the aggregation of agricultural products, industrial goods, and household items. This comprehensive supply chain system ensures that sellers can confidently market their products, with follow-up support that alleviates concerns. Lastly, cooperatives focus on targeted talent development, including recruitment and training in areas such as e-commerce operations, live streaming, artwork, customer service, and after-sales support.

Enterprises are responsible for brand building and market promotion. To enhance the added value and market competitiveness of agricultural products, they engage in brand planning, packaging design, and promotional activities. By leveraging their market resources and collaborating with e-commerce platforms, enterprises can expand the sales channels for agricultural products and implement an omnichannel marketing strategy that integrates both online and offline sales. Additionally, they optimize supply chain management by utilizing their resources to ensure a stable supply and reasonable pricing of agricultural products, while also reducing inventory and operating costs.

Finally, e-commerce is responsible for online trading platforms and data analysis. The e-commerce platform offers a user-friendly interface and a convenient transaction process, facilitating the online

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display, search, purchase, and payment of agricultural products. The data visualization features of the e-commerce platform provide farmers, cooperatives, and enterprises with market trend forecasts, consumer demand analyses, and marketing strategy recommendations by collecting and analyzing user behavior data. In terms of marketing and promotion, the e-commerce platform employs big data analysis, social media marketing, and other strategies to accurately identify target customer groups and enhance the visibility and sales of agricultural products.

The e-commerce platform offers complete traceability of agricultural products from field to table, thereby enhancing consumer trust in these products. By integrating the efforts of cooperatives, the production, logistics, and marketing costs associated with agricultural products have been significantly reduced. The collaboration between e-commerce platforms and logistics companies facilitates rapid circulation and efficient distribution of agricultural goods, improving the responsiveness and flexibility of the supply chain. This model encourages the development of agriculture towards standardization, branding, and marketization, while also fostering the upgrading and transformation of the agricultural industry. The + cooperatives + enterprises + e-commerce creates a highly efficient and synergistic supply chain system for agricultural products through close cooperation and resource integration among all parties involved, providing a solid foundation and ample opportunities for the growth of online trading in agricultural products.

### *3.4 Development of Distribution Centers at the Point of Sale*

The marketing of agricultural products is directly linked to the livelihoods and well-being of farmers, serving as a crucial component of the rural economy. During the special period of epidemic prevention and control, the purchasing, exporting, and marketing chain for agricultural products faced unprecedented challenges. Due to the implementation of traffic controls and mobility restrictions, vegetable vendors were unable to visit farms to purchase agricultural products as they typically would. Additionally, the transportation of these products was severely hindered, resulting in a significant number of fresh vegetables not being shipped out of production areas in a timely manner. This situation has not only caused substantial economic losses for vegetable farmers but has also had a serious impact on their lives, threatening their basic livelihoods. During the epidemic, various networks emerged, including friends' circles, WeChat groups for urban district owners, and urban housing communities, which began to facilitate the marketing of agricultural products. These networks leveraged the supply chain advantages of agricultural product security, coordination, and the operation of community terminal outlets.

Wang (2021) explores the integration of business, logistics, information, and capital flows through new technologies, including intelligent logistics, big data, and 5G, to develop a supply chain operation model for fresh agricultural products within WeChat-based and live-streaming community e-commerce[21]. This model aims to establish a part-time sales team within residential districts, primarily targeting community members with idle resources, such as square dancers and residents interested in part-time sales. These individuals often possess social networks and influence within the community, enabling them to effectively communicate with neighbors and leverage their experience in purchasing agricultural products. To recruit these community members, diverse channels such as community bulletin boards, WeChat groups, and local events are employed to disseminate recruitment information and attract potential participants. Focusing on the communication skills, sales techniques, community impact, and teamwork of the sales force to ensure the effective selection of potential part-time salespeople. Concurrently, part-time salespeople receive training in agricultural knowledge, sales skills, teamwork, and other areas to enhance their overall capabilities. Additionally, there is a strong emphasis on kitchen live streaming to attract traffic, along with training in live streaming techniques and culinary skills.

### *3.5 Online and Offline Netflix Supermarket*

Under the model, there is significant economic and social importance for the operational framework of the dual-channel supply chain in supermarket chains, as well as for the overall development of the supermarket industry. In the context of offline sales channels or a dual-channel sales approach that combines online and offline methods, the pricing of supermarket commodities can be influenced by external factors. Specifically, the costs associated with consumer visits and the operational expenses of supermarkets serve as exogenous parameters in determining the pricing strategy for supermarket products. This optimal pricing strategy aims to maximize profits[22]. The dual-channel agricultural supermarkets, which incorporate Netflix-like attributes, sell agricultural products such as specialty

ISSN 2706-6827 Vol. 7, Issue 1: 19-27, DOI: 10.25236/IJFS.2025.070104

fruits, organic vegetables, and high-quality grains and oils through a blend of online e-commerce platforms and offline physical stores. These supermarkets typically possess distinctive brand identities, marketing strategies, and supply chain systems that effectively meet consumer demand for high-quality agricultural products. In terms of offerings, both online and offline agricultural supermarkets prioritize the quality and flavor of their products, often selecting premium agricultural goods for sale. These supermarkets frequently cultivate a unique brand image and reputation, attracting a significant number of consumers who are interested in their offerings. By integrating online e-commerce platforms with offline physical stores, they create a seamless shopping experience that allows consumers to shop conveniently at any time and from anywhere. The marketing strategies employed by these online and offline agricultural supermarkets leverage social media, live streaming, and other innovative marketing techniques to enhance brand awareness and boost sales.

In terms of operational modes, online operations involve establishing an independent e-commerce platform or utilizing third-party platforms, such as Taobao and Jingdong, for the online sale of agricultural products. Additionally, social media platforms like WeChat, Weibo, and Jittery Voice are leveraged for brand promotion and product marketing to attract consumer attention and drive purchases. Collaborating with online influencers or popular streamers to conduct live product demonstrations can further enhance product visibility and sales. On the other hand, offline operations focus on opening physical stores in high-traffic shopping districts or communities to provide in-person shopping and experiential services. Collaborating with local communities to organize group purchasing activities offers residents a convenient shopping experience. Furthermore, participation in various agricultural product fairs allows us to showcase and sell our products while increasing brand awareness and influence. Reason: Improved clarity, vocabulary, and technical accuracy while maintaining the original meaning.

Typical examples include Freshippo, Alibaba's new retail supermarket that offers an integrated online and offline shopping experience. Emphasizing the quality and taste of agricultural products, Freshippo ensures freshness and quality by developing its own supply chain and logistics system. Additionally, Freshippo leverages big data to analyze consumer preferences and deliver a personalized shopping experience. Jingdong Fresh, another new retail supermarket from Jingdong, is dedicated to providing consumers with high-quality fresh food and daily necessities. Jingdong Fresh achieves rapid delivery and efficient management of agricultural products through its self-developed logistics and supply chain management systems. Furthermore, Jingdong Fresh prioritizes collaboration with agribusinesses and farmers' cooperatives to promote the standardization and branding of agricultural products.

With the advancement of big data, artificial intelligence, and other technologies, the establishment of online and offline agricultural supermarkets increasingly emphasizes digital transformation to enhance operational efficiency and service quality. By optimizing the supply chain management system, these supermarkets achieve rapid delivery and efficient management of agricultural products, reduce operating costs, and improve profitability. Additionally, by collaborating with the community and organizing activities such as group purchases, they strengthen interactions with consumers, thereby enhancing customer satisfaction and loyalty.

## 4. Conclusions and perspectives

The business model of the agricultural supply chain should, in principle, be tailored to local conditions, adapting to the varying risk levels—high, medium, and low—present in the region. Additionally, the current economic development environment in China is not optimistic, and the trend of anti-globalization has compelled us to implement a dual-cycle strategy, with the inner cycle serving as the primary focus. As a major agricultural nation, rural revitalization has emerged as the key arena for executing the inner-cycle strategy. Consequently, this paper adopts an innovative approach to develop a new model of the agricultural supply chain characterized by urban-rural integration, aimed at promoting agricultural revitalization, as shown in Figure 1.

Future research should concentrate on multi-model integration, data-driven decision-making, green and sustainable development, the agricultural-supermarket docking model, and rural revitalization alongside consumer poverty alleviation. An in-depth exploration of these research areas will offer significant theoretical support and practical guidance for optimizing and upgrading China's agricultural industry chain, ultimately contributing to the goals of increasing farmers' incomes and promoting rural revitalization.

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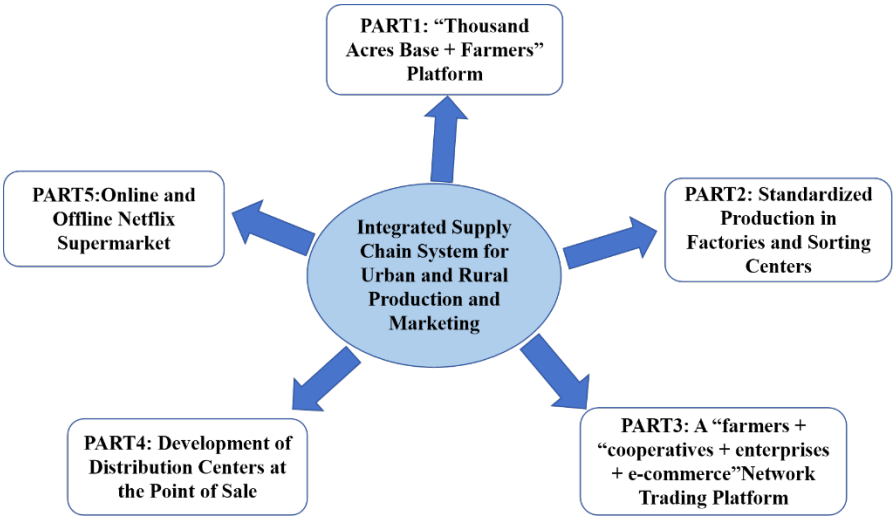


*Figure 1: Integrated Supply Chain System for Urban and Rural Production and Marketing*

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**Conflict of interest**

The authors declare that the research was conducted without any commercial or financial relationships that could be perceived as a potential conflict of interest.

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