Research on the Strategic Path and Implementation Mechanism of Digital Economy-Driven Construction of a Strong Agricultural Region in Guangxi

Siyu Chen[1,2]
[1]*School of Business Administration, Baise University, Baise, Guangxi, China*
[2]*The Revitalization and Development of Old Revolutionary Areas in Guangxi, Baise, Guangxi, China*

Abstract: The deep integration of digital technology and the real economy has made the digital economy the core driving force for high-quality agricultural development. Facing the strategic requirements of national agricultural power construction, designing differentiated digital agriculture development paths based on regional resource endowments has become a research hotspot in the current interdisciplinary field. As an important characteristic agricultural producing area in southern China, Guangxi has laid the industrial, infrastructure and policy foundations for promoting the construction of a strong agricultural region. However, existing studies pay insufficient attention to the particularity of underdeveloped ethnic regions and lack systematic research from a strategic perspective. Based on the strategic management perspective of business administration, this study integrates relevant theories to construct an analytical framework, sorts out the development foundation and practical obstacles of building a strong agricultural region in Guangxi, and puts forward adaptive strategic paths and implementation mechanisms. The study finds that the digital economy can activate the potential of Guangxi's characteristic agricultural resources through factor restructuring and other approaches. Guangxi still faces multiple structural obstacles at present, so it should implement the "four-wheel drive" strategy of resource digitization, industrial intelligence, market networking and governance modernization, and supportingly construct a "four-in-one" implementation guarantee system. This study can provide references for the decision-making of constructing a strong agricultural region in Guangxi and also offer experience for similar regions.

Keywords: Digital Economy; Strong Agricultural Region; Strategic Management; Guangxi; Characteristic Agriculture

1. Introduction

With the deep integration of digital technology and the real economy, the digital economy has become the core driving force for high-quality agricultural development, reshaping traditional agricultural production modes and industrial ecosystems worldwide. According to the Global Agricultural Digitalization Report released by the Food and Agriculture Organization of the United Nations (FAO), the global digital agriculture market scale reached 1.2 trillion US dollars in 2025, with an average annual compound growth rate of over 15%. The penetrating impact of digital technology on the entire agricultural industrial chain has become increasingly prominent. In China, the rural revitalization strategy and agricultural power construction have placed the development of digital agriculture in a prominent position. The National Rural Revitalization Strategic Plan (2021-2025) clearly proposes to "accelerate the digital transformation of agriculture and rural areas". How to design differentiated development paths based on local resource endowments at the regional level has become a research hotspot in the interdisciplinary field of business administration and agricultural economics.

As an important agricultural producing area in southern China and an open gateway facing ASEAN, Guangxi is rich in characteristic agricultural resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops, occupying a unique position in the national agricultural development pattern. The 2026 Government Work Report of Guangxi Zhuang Autonomous Region clearly puts forward the strategic goal of "promoting comprehensive rural revitalization and accelerating the

construction of a strong agricultural region", and emphasizes to "give play to the advantage of Guangxi's rich characteristic resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops", pointing out the direction for agricultural development in Guangxi. Data from the report shows that Guangxi's grain output reached 28.09 billion jin in 2025, achieving "six consecutive increases" in both sown area and total output. The output value of facility agriculture exceeded 300 billion yuan, and the total output value of forestry and grass industry ranked first in China. These achievements have laid a solid industrial foundation for the construction of a strong agricultural region. At the same time, Guangxi's digital economy infrastructure has been continuously improved. The output value of the core artificial intelligence industry exceeded 89 billion yuan, the "South AI Center" was completed and put into use, and the China-ASEAN Artificial Intelligence Application Cooperation Center was approved for construction, providing technical support for digital technology to empower agricultural development.

From the perspective of business administration strategy, the construction of a strong agricultural region in Guangxi is essentially a strategic reconstruction issue based on resources. It requires systematic strategic design and mechanism innovation to deeply integrate digital technology with local characteristic agricultural resources and cultivate new competitive advantages. Although existing studies have generally recognized the promoting effect of the digital economy on agricultural development, there are still obvious deficiencies in research on specific regions: on the one hand, most existing achievements focus on macro analysis of developed eastern regions or the national level, and pay insufficient attention to the particularity of digital agriculture development in underdeveloped ethnic regions; on the other hand, existing studies mostly focus on the discussion of technical application, and systematic research constructing a complete framework from the perspective of strategic management is scarce. In particular, for the specific proposition of "how the digital economy drives the construction of a strong agricultural region in Guangxi", existing literature has not yet given a clear theoretical response and operable scheme design, leaving a significant research gap.

The existence of research gaps means that it is urgent to systematically analyze the internal mechanism and practical obstacles of the digital economy driving the construction of a strong agricultural region in Guangxi based on business administration theories and combined with the latest policy deployment of Guangxi, and put forward an adaptive strategic framework and implementation mechanism. Based on this, this paper focuses on three core research questions: First, what is the strategic logic and action mechanism of the digital economy driving the construction of a strong agricultural region in Guangxi? Second, what are the practical foundations and main obstacles for Guangxi to promote digital agriculture development at present? Third, how to design development paths and guarantee mechanisms in line with Guangxi's regional conditions from the perspective of strategic management?

This study has important theoretical value and practical significance. Theoretically, this paper combines the business administration strategic management theory with the practice of regional digital agriculture development, constructs an analytical framework for digital agriculture development applicable to underdeveloped resource-rich regions, enriches the research perspective in the field of digital economy and agricultural modernization, and supplements case study results at the regional level. Practically, the conclusions of this study directly respond to the strategic deployment in the 2026 Guangxi Government Work Report. The proposed strategic paths and implementation mechanisms can provide references for government decision-making, help Guangxi better leverage its characteristic resource advantages, accelerate the construction of a strong agricultural region, and also provide experience for other similar regions. This paper will subsequently carry out research in the logical order of literature review and theoretical basis, development foundation and challenge analysis, strategic path design, implementation mechanism construction, and policy suggestions.

2. Literature Review and Theoretical Basis

The research on the integration of digital economy and agricultural and rural development is a hot topic in the interdisciplinary field of agricultural economics and business administration. With the rapid iteration of global digital technology and the in-depth advancement

of China's rural revitalization strategy, academic discussions on this proposition have been deepening. This chapter systematically sorts out the domestic and foreign research progress in the field of digital economy driving agricultural development, reviews it from the professional perspective of business administration combined with the latest deployment of the 2026 Guangxi Zhuang Autonomous Region Government Work Report, and clarifies the core theoretical basis relied on by this study to provide academic support and theoretical framework for subsequent analysis.

2.1 Research Progress of Digital Economy Driving Agricultural Development

The research on the integration of digital economy and agricultural and rural development is a hot topic in the interdisciplinary field of agricultural economics and business administration. With the rapid iteration of global digital technology and the in-depth advancement of China's rural revitalization strategy, academic discussions on this proposition have been deepening. From an international research perspective, the research on the impact of digital economy on agricultural development has evolved from single-point technology application to system reconstruction. Early studies mainly focused on the single-point application of information technology in agricultural production links, such as precision agriculture and intelligent agricultural machinery, exploring the role of digital technology in improving production efficiency. With the penetration of digital technology into the entire industrial chain, the research perspective has gradually expanded to industrial organization restructuring and value chain upgrading. Scholars generally believe that the digital economy promotes the transformation of agriculture from traditional production modes to a modern industrial system by reducing transaction costs, optimizing resource allocation, and promoting information sharing. The FAO pointed out in the Global Agricultural Digitalization Report that digital technology is reshaping the global agricultural competition pattern, and regions with rich resource endowments but lagging development can achieve overtaking in corners through digitalization. This conclusion provides theoretical enlightenment for late-developing regions rich in agricultural resources like Guangxi.

In recent years, scholars have carried out a large number of theoretical discussions and empirical analyses around the digital economy driving high-quality agricultural development. Based on provincial panel data, Zhao and Guo found that each unit increase in digital economy development promotes an average 0.18-unit increase in agricultural total factor productivity, and this promoting effect is more significant in resource-rich regions in the central and western regions [1]. Gong et al used panel data of 273 prefecture-level cities in China from 2011 to 2019 and found that the digital economy significantly promotes the improvement of agricultural total factor productivity through technological progress, labor transfer, agricultural land transfer and capital deepening [2]. Based on provincial panel data from 2011 to 2022, Shi found that the digital economy empowers the growth of agricultural total factor productivity by improving capital mismatch and land mismatch, with significant positive spatial spillover effects [3]. Huang and Lu found that the digital economy can significantly boost the progress of agricultural total factor productivity, with the greatest impact in the central region, followed by the eastern and western regions [4]. Sun et al found that the digital economy has a significant positive impact on agricultural total factor productivity, agricultural technological progress and agricultural technological efficiency [5]. Yang and Sun found that the digital economy can improve agricultural green total factor productivity by enhancing economic development resilience and promoting industrial structure upgrading [6]. Jin et al found that digital transformation improves the total factor productivity of agricultural enterprises by improving capital utilization rate, reducing excess employee rate and increasing R&D investment [7]. Li and Hu found that digital inclusive finance not only directly and significantly promotes farmers' income increase, but also indirectly promotes farmers' income through the extension of agricultural industrial chain [8]. Based on cross-country panel data, Zhao found that digital inclusive finance can not only improve agricultural total factor productivity by promoting agricultural scientific and technological innovation, but also promote agricultural capital deepening [9]. Qian and Fang found that digital inclusive finance can significantly improve farmers' common

prosperity level, and high-quality agricultural development has a partial intermediary effect [10]. Liu and Shang found that digital inclusive finance and high-quality agricultural development can promote each other, and the promoting effect of digital inclusive finance is relatively stronger [11]. Tang et al found that digital inclusive finance improves agricultural total factor productivity by promoting rural labor transfer, capital flow and technology diffusion [12]. From a macro perspective, most scholars agree that the digital economy has a significant promoting effect on the improvement of agricultural total factor productivity, and its transmission mechanism mainly includes technological innovation effect and industrial structure optimization effect. From the perspective of regional opening-up, Li further pointed out that digital technology can realize the orderly and efficient flow of production factors, promote agriculture to develop into a higher-level open digital economy, and provide possibilities for late-developing regions to participate in domestic and international dual cycles based on characteristic resources [13]. In terms of regional difference research, existing results show obvious heterogeneous characteristics: the eastern region has achieved remarkable results in digital agriculture infrastructure construction and industrial ecosystem cultivation by virtue of its first-mover advantage, forming a relatively mature business model; while the central and western regions mostly rely on the endowment of characteristic agricultural resources to explore differentiated digital transformation paths, presenting an overall development pattern of "leading in the east, catching up in the central and western regions".

For regional research in Guangxi, existing literature mainly focuses on the digital transformation practice of specific characteristic industries, such as the intelligent transformation research of advantageous industries such as sugarcane, fruits and tea. Existing studies generally believe that Guangxi is rich in characteristic agricultural resources and has great potential for digital transformation, but also faces practical challenges such as weak digital infrastructure, insufficient industrial chain collaboration, and shortage of talent support. For example, research on Guangxi's sugar industry points out that transforming traditional sugarcane production links through Internet of Things (IoT) and big data technologies can significantly improve yield and sugar content and reduce production costs, but the coverage rate of digital transformation is less than 20% at present, leaving a large room for improvement. However, existing studies mostly focus on case analysis and countermeasure suggestions at the technical application level, lack systematic research on the digital economy driving the construction of a strong agricultural region from the perspective of business administration strategic management, and have not yet constructed a complete strategic framework and implementation mechanism, which constitutes the research starting point of this paper.

The 2026 Government Work Report of Guangxi Zhuang Autonomous Region further enriches the policy connotation of this research proposition. The report clearly puts forward the strategic goal of "promoting comprehensive rural revitalization and accelerating the construction of a strong agricultural region", emphasizes to "give play to the advantage of Guangxi's rich characteristic resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops", and puts forward a series of specific quantitative goals: stabilize grain output above 14.05 million tons, stabilize sugarcane planting area above 11 million mu, build 950,000 mu of high-standard farmland, and break through 300 billion yuan in facility agriculture output value [1]. At the same time, the report points out that the output value of Guangxi's core artificial intelligence industry has exceeded 89 billion yuan, the "South AI Center" has been completed and put into use, and the China-ASEAN Artificial Intelligence Application Cooperation Center has been approved for construction. These achievements in digital infrastructure construction provide technical support for agricultural digital transformation [1]. The report also faces up to development shortcomings and clearly proposes to "make up for the shortcomings of rural digital economy", which accurately points out the core bottleneck of Guangxi's current digital agriculture development [3]. From the perspective of business administration, the deployment of the 2026 Guangxi Government Work Report has actually outlined the strategic direction for the construction of a strong agricultural region in Guangxi, but how to transform policy goals into specific feasible strategic paths and implementation mechanisms still requires systematic academic analysis and

theoretical deepening. The Implementation Opinions on Anchoring Agricultural and Rural Modernization and Solidly Promoting Comprehensive Rural Revitalization issued by the CPC Guangxi Zhuang Autonomous Region Committee and the People's Government of Guangxi Zhuang Autonomous Region further refines policy measures, and clearly puts forward specific measures such as "coordinating special bonds and ultra-long-term special treasury bonds to support eligible major projects in the agricultural and rural fields" and "establishing and improving the financial support for agriculture 'white list' mechanism" in terms of innovating investment and financing mechanisms for rural revitalization, providing policy basis for mechanism design [2].

In summary, existing studies have generally recognized the positive promoting effect of the digital economy on agricultural development, and also carried out some preliminary discussions on the digital transformation of characteristic industries in Guangxi, but there are still two obvious deficiencies: first, in terms of research perspective, most analyses are carried out from the perspective of technical economics or agricultural economics, lacking systematic research from the perspective of business administration strategic management, and insufficient attention to key issues such as strategic positioning, path design and mechanism guarantee; second, in terms of research content, most focus on technical application issues of specific industries, failing to combine Guangxi's latest policy deployment to construct a complete theoretical framework for the digital economy driving the construction of a strong agricultural region in Guangxi. These research gaps indicate that it is urgent to carry out systematic research from the professional perspective of business administration, combined with the latest requirements of the 2026 Guangxi Government Work Report, to fill the gaps in existing literature.

2.2 Core Theoretical Basis

Based on the strategic management research paradigm of business administration, this study integrates Resource-Based View (RBV), Innovation System Theory, Strategic Management Theory and Spatial Spillover Theory to construct a multi-dimensional analytical framework, providing theoretical support for the digital economy to drive the construction of a strong agricultural region in Guangxi. These four theories answer the core questions of this study from different levels: Resource-Based View answers "where is the strategic starting point", Innovation System Theory answers "who promotes", Strategic Management Theory answers "how to realize", and Spatial Spillover Theory answers "how to amplify the effect". The four theories are interrelated and progressive, forming a complete analytical logic together.

Resource-Based View (RBV) is a core theory in business administration to explain the sources of competitive advantages of enterprises and regions. The theory holds that the construction of industrial competitive advantages is rooted in the cognition, development and activation of unique resources, and heterogeneous resources with value, scarcity, inimitability and non-substitutability are the fundamental sources of competitive advantages. From the perspective of Resource-Based View, the core strategic logic of constructing a strong agricultural region in Guangxi lies in: Guangxi has unique characteristic agricultural resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops, and this heterogeneous resource endowment constitutes the strategic foundation for building a strong agricultural region, while digital technology is the key lever to activate these stock resources and create new value. The 2026 Guangxi Government Work Report emphasizes "giving play to the advantage of Guangxi's rich characteristic resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops", which is highly consistent with the core logic of Resource-Based View, indicating that the strategic starting point of building a strong agricultural region in Guangxi is precisely differentiated competition based on its own unique resource endowment. The enlightenment of Resource-Based View to this study is that: the digital economy drives the construction of a strong agricultural region in Guangxi, the primary task is to carry out digital transformation of characteristic agricultural resources through digital technology, realize the quantifiability, configurability and tradability of resources, so as to transform potential resource advantages into real competitive advantages.

Innovation System Theory emphasizes that innovation is a process of multi-agent interactive learning and institutional co-evolution. Different subjects such as government, enterprises,

scientific research institutions and financial institutions undertake different functions in the innovation system, and effective interaction between subjects and support of institutional environment are the keys to successful innovation. From the perspective of business administration, the development of digital agriculture is not a single technology application problem, but a systematic innovation process, which requires the construction of a regional innovation system with perfect functions. Guangxi's practice in the development of artificial intelligence industry fully confirms this. The main leaders of the autonomous region government take the lead in promoting the "Artificial Intelligence+" action, completed the construction and operation of the "South AI Center" in only 90 days, introduced a number of leading enterprises from Beijing, Shanghai and Guangzhou, and signed 208 new artificial intelligence industry projects. This "government-guided + market-led" development model proves the key role of multi-agent collaboration in the development of digital industry. The enlightenment of Innovation System Theory to this study is that: the digital economy drives the construction of a strong agricultural region in Guangxi, we should not only focus on technology introduction, but also build a perfect regional innovation ecosystem, promote multi-agent interactive collaboration through institutional innovation, and provide a good institutional environment for digital agriculture innovation. Especially in late-developing regions like Guangxi, the government needs to play a greater guiding role in the initial stage of innovation system construction, improve infrastructure through public investment, attract market players to enter, and gradually form a self-reinforcing innovation ecosystem.

Strategic Management Theory is one of the core theories of business administration. The theory holds that strategic management is a complete process including strategic analysis, strategic positioning, strategic choice and strategic implementation. Clear strategic positioning, scientific path design and effective mechanism guarantee are the three core elements to achieve strategic goals. Strategic Management Theory emphasizes that strategy formulation must be based on external environment analysis and internal resource evaluation, and strategy implementation needs to ensure the implementation of strategic intentions through a perfect organizational system and mechanism design. From the perspective of business administration strategic management, the construction of a strong agricultural region in Guangxi is essentially a regional development strategy issue, which needs to follow the logical framework of strategic management: first, carry out strategic positioning based on Guangxi's resource endowment and digital economy development trend, then design strategic paths in line with regional conditions, and finally construct institutional mechanisms to guarantee strategy implementation. The 2026 Guangxi Government Work Report puts forward the goal and direction for building a strong agricultural region, but from the perspective of Strategic Management Theory, it needs to be further refined into specific strategic paths and implementation mechanisms to form a complete closed loop from goal to action. The guiding significance of Strategic Management Theory to this study is that it provides a systematic analytical framework to ensure that the research can follow scientific logical procedures, and gradually develop into a complete research system from basic analysis to path design and then to mechanism construction.

Spatial Spillover Theory originates from regional economics. The theory holds that the digital economy has significant network externalities and spatial spillover effects, can break through geographical space restrictions, promote the cross-regional flow of knowledge, technology and factors, and amplify development effects through regional collaboration. Business administration research shows that under an open economy, enterprises and regions can obtain external knowledge and technology through spatial spillover to enhance their competitiveness. As the frontier and window of China's opening-up and cooperation facing ASEAN, Guangxi has a unique geographical advantage. The approval and construction of the China-ASEAN Artificial Intelligence Application Cooperation Center provide a platform support for cross-border cooperation in digital agriculture. The enlightenment of Spatial Spillover Theory to this study is that: Guangxi's digital agriculture development should not be limited to the autonomous region, should make full use of the geographical advantage facing ASEAN, obtain spatial spillover effects through cross-border

cooperation, on the one hand, introduce advanced technologies and concepts to improve its own development level, on the other hand, promote "Guangxi-brand" agricultural products to enter the ASEAN market through digital channels, expand development space, and form a virtuous cycle of "promoting development through opening-up". The 2026 Guangxi Government Work Report proposes to "actively participate in international food and agriculture governance, deepen agricultural and poverty alleviation cooperation with ASEAN countries", which is an active utilization of spatial spillover effects.

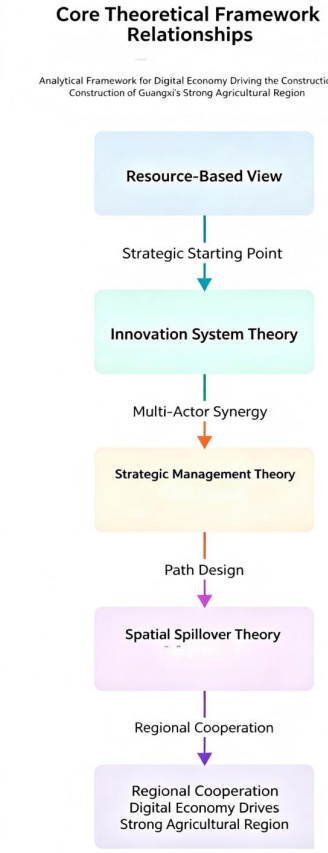

Figure 1. Logical Relationship Diagram of the Core Theoretical Framework of This Study

In summary, Resource-Based View, Innovation System Theory, Strategic Management Theory and Spatial Spillover Theory provide theoretical support for this study from four dimensions: strategic foundation, innovation ecology, implementation methodology and open expansion. There is a clear logical progressive relationship between the four, as shown in Figure 1: Resource-Based View clarifies the strategic starting point, Innovation System Theory constructs ecological support, Strategic Management Theory provides an analytical framework, and Spatial Spillover Theory expands development space, together forming a complete theoretical system guiding this study. Based on this, combined with Guangxi's actual situation and latest policy deployment, this study systematically analyzes the strategic paths and implementation mechanisms of the digital economy driving the construction of a strong agricultural region in Guangxi.

3. Foundation and Challenges of Building a Strong Agricultural Region in Guangxi

3.1 Analysis of Development Foundation

From the perspective of business administration industrial development, Guangxi has accumulated a solid foundation in resource endowment, industrial scale, policy system and digital infrastructure for the construction of a strong agricultural region, and has favorable conditions for transforming to high-quality development. Resource-Based View holds that the core of constructing regional industrial competitive advantages lies in the development and utilization of unique resources, and Guangxi has distinct comparative advantages in agricultural resource endowment. Located in the subtropical monsoon climate zone, Guangxi is abundant in water and heat resources and has the richest subtropical agricultural biological resources in China. This unique resource endowment provides a natural foundation for the development of characteristic agriculture. The leader clearly pointed out during his inspection in Guangxi that we should "give play to the advantage of Guangxi's rich characteristic resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops, and vigorously develop modern characteristic agricultural industries", which accurately grasps the core advantage of Guangxi's agricultural development.

From the perspective of industrial development foundation, Guangxi's agriculture has formed a characteristic and large-scale industrial system, and its comprehensive production capacity has been steadily improved. According to the 2026 Guangxi Government Work Report data, Guangxi's grain output reached 28.09 billion jin in 2025, achieving "six consecutive increases" in both sown area and total output, and grain production capacity stabilized above 14.05 million tons, making an important contribution to ensuring national food security. As one of Guangxi's most competitive characteristic

industries, sugarcane planting area has remained stable above 11 million mu, and sugar output hit a 10-year high, playing an irreplaceable role in ensuring national sugar security. Facility agriculture has developed rapidly, with output value exceeding 300 billion yuan, becoming an important growth pole promoting agricultural modernization; the total output value of forestry and grass industry ranks first in China, and forestry resource advantages have been effectively exerted. The cluster development of characteristic industries shows a good momentum, 3 new national modern agricultural industrial parks and 1 advantageous characteristic industrial cluster have been newly created, Xiangzhou and Yizhou have been selected as national rural revitalization demonstration counties, and the industrial spatial layout has been continuously optimized. From the perspective of business administration, this distinctive industrial system has laid a good industrial organization foundation for the subsequent embedding of digital economy and the improvement of industrial chain value.

Breakthroughs have been made in digital infrastructure construction, providing technical support for the deep integration of digital economy and agriculture. Seizing the historical opportunity of artificial intelligence development, Guangxi implemented the "Artificial Intelligence+" action, completed the construction and operation of the "South AI Center" in only 90 days, introduced a number of leading enterprises from Beijing, Shanghai and Guangzhou, and the output value of the core artificial intelligence industry exceeded 89 billion yuan. The China-ASEAN Artificial Intelligence Application Cooperation Center and China-ASEAN Artificial Intelligence Innovation Cooperation Center have been approved by the state for construction, and the development path of "R&D in Beijing, Shanghai and Guangzhou + Integration in Guangxi + Application in ASEAN" has been accelerated, providing an important technological innovation platform for digital agriculture development. Rural infrastructure has been continuously improved, 99% of towns are connected to third-class and above highways, the popularization rate of rural sanitary toilets has reached 95.3%, and public service capabilities such as tap water, sewage and garbage treatment, radio and television, communications, postal express have been continuously improved. These improvements in basic conditions have created a favorable environment for the extension and coverage of digital technology to rural areas.

The policy support system has been continuously improved, providing a strong institutional guarantee for the construction of a strong agricultural region. In 2026, the People's Government of Guangxi Zhuang Autonomous Region issued the Implementation Opinions on Anchoring Agricultural and Rural Modernization and Solidly Promoting Comprehensive Rural Revitalization, making systematic deployment for the construction of a strong agricultural region, and clearly putting forward a series of specific goals and tasks such as "building 950,000 mu of high-standard farmland with high quality", "promoting the transformation and upgrading of fruits and vegetables, edible fungi, fishery and other industries", and "building a modern 'blue granary' in the Beibu Gulf". In terms of investment and financing policies, the document clearly puts forward specific measures such as "coordinating special bonds and ultra-long-term special treasury bonds to support eligible major projects in the agricultural and rural fields", "establishing and improving the financial support for agriculture 'white list' mechanism", and "supporting eligible agricultural-related enterprises to carry out direct financing through listing (listing on the New Third Board), issuing bonds, etc.", providing strong financial guarantee for the construction of a strong agricultural region. From the perspective of strategic management, this clear policy goal and supporting guarantee system construction have provided a good institutional environment for the construction of a strong agricultural region and reduced the uncertainty of strategy implementation.

The advantage of opening-up and cooperation is prominent, expanding a broad space for the construction of a strong agricultural region. As the frontier and window of China's opening-up and cooperation facing ASEAN, the Beibu Gulf Port in Guangxi has reached more than 200 ports in more than 100 countries and regions around the world, with more than 100 container routes, more than 10,000 sea-rail intermodal trains, and container throughput historically exceeding 10 million TEUs. Imports and exports to ASEAN increased by 8%, and border trade and cross-border RMB settlement volume have ranked first in western and border provinces for

many years. This geographical advantage provides unique conditions for developing cross-border agricultural e-commerce facing ASEAN and promoting digital agriculture technology to "go out". According to the autonomous region's implementation opinions, Guangxi will "smooth the import and export channels of agricultural products, realize the model of 'produced in ASEAN + distributed in Guangxi + sold well in China'. Actively participate in international food and agriculture governance, deepen agricultural and poverty alleviation cooperation with ASEAN countries". This opening-up positioning is highly consistent with Guangxi's geographical characteristics, injecting opening-up power into the construction of a strong agricultural region.

3.2 Identification of Main Obstacles

Although Guangxi has many favorable foundations for building a strong agricultural region, from the perspective of business administration strategy implementation, it still faces many structural and institutional obstacles. These obstacles are intertwined and restrict the driving effect of the digital economy on the construction of a strong agricultural region. Specifically, the main obstacles are reflected in the following four aspects:

3.2.1 The digital infrastructure divide is still prominent, and rural digital economy shortcomings are obvious

Although Guangxi has made remarkable progress in the construction of new infrastructure such as artificial intelligence, the unbalanced distribution of urban and rural digital infrastructure is still prominent, and indicators such as network coverage quality and broadband access rate in rural areas still lag behind urban areas. Especially in remote mountainous and border areas, insufficient coverage of 5G networks and optical fiber broadband restricts the application of digital technologies such as the Internet of Things and big data in agricultural production. Li Rao's research points out that Guangxi needs to "promote the digitalization of the entire agricultural industrial chain, make up for rural digital economy shortcomings, and improve the guarantee and support system", which also reflects that rural digital infrastructure shortcomings have become the primary bottleneck restricting digital agriculture development from the side. From the perspective of resource allocation, the urban-rural gap in digital infrastructure leads to the difficulty of inclusive sharing of "digital dividends", and the majority of small farmers are difficult to effectively integrate into the digital agriculture development system.

3.2.2 Insufficient digital collaboration of agricultural industrial chain and weak value-added links

From the perspective of industrial chain management, the digital transformation progress of each link of Guangxi's agricultural industrial chain is uneven, with obvious risks of "chain breakage". The digital transformation of production links is relatively lagging, most small and medium-sized farmers still adopt traditional production methods, and the popularization rate of intelligent equipment is low; the primary processing ratio in processing links is high, intensive processing is insufficient, and the application of intelligent grading, packaging and storage systems is not extensive; the cold chain logistics system in circulation links is imperfect, and the construction of digital traceability system lags behind, affecting the quality and safety management and brand value improvement of agricultural products. Although the overall scale of facility agriculture is large, the digital management and control level inside facilities is not high, and there is still a large room for improvement in resource utilization efficiency and output benefits. This mismatched digitalization degree of each link leads to low industrial chain collaboration efficiency and difficulty in forming an integrated competitive advantage.

3.2.3 Weak digital agriculture talent support system and serious shortage of compound talents

The key to strategy implementation lies in people. The development of digital agriculture requires a large number of compound talents who understand both agricultural production technology and digital technology, but the construction of Guangxi's digital agriculture talent team is obviously lagging behind at present. On the one hand, a large number of young and middle-aged rural laborers go out to work, the labor force staying in rural areas has an aging age structure and low education level, low popularization rate of digital skills, and is difficult to skillfully use various intelligent agricultural equipment; on the other hand, the introduction and cultivation of high-end talents in the field of digital agriculture are insufficient, especially the serious shortage of compound

talents with both agricultural industrial knowledge and digital technology capabilities, which is difficult to support the scientific and technological innovation and industrial development of digital agriculture. The 2026 Guangxi Government Work Report takes "deepening the comprehensive reform of education, science and technology and talents" as a key work, which also reflects that the talent problem has become a key bottleneck restricting high-quality development from the side. From the perspective of Innovation System Theory, talent shortage directly affects the efficiency of multi-agent innovation collaboration and restricts the formation of digital agriculture innovation ecosystem.

3.2.4 Imperfect digital agriculture investment and financing mechanism and incomplete risk sharing system

Digital agriculture projects often have the characteristics of large investment scale, long return cycle and high uncertainty, and need a diversified investment and financing system support. However, Guangxi's current investment and financing mechanism adapting to the characteristics of digital agriculture development has not been fully established. Although the policy level has put forward measures such as "establishing and improving the financial support for agriculture 'white list' mechanism" and "encouraging the initiation of agricultural industrial investment funds through the 'government guidance + social capital participation' model", in actual operation, financial institutions have an imperfect risk assessment system for digital agriculture projects, high credit access thresholds, and the enthusiasm of social capital to participate in digital agriculture has not been fully mobilized. At the same time, the innovation of insurance products for digital agriculture is insufficient, and there is a lack of effective sharing mechanisms for data security risks and market risks, which to a certain extent inhibits the willingness of business entities to invest in digital agriculture. From the perspective of business administration, this defect in investment and financing and risk sharing mechanisms directly affects the resource guarantee capacity of digital agriculture strategy implementation.

3.2.5 Low degree of agricultural management organization and insufficient application scenarios of digital technology

Guangxi's agricultural business entities are mainly small farmers, with small land management scale and obvious fragmented management characteristics. This management pattern limits the large-scale application scenarios of digital technology, making it difficult to exert the scale benefit of digital technology application. Although new agricultural business entities have developed rapidly in recent years, they are generally small in scale and weak in strength, with insufficient investment capacity and willingness for digital technology transformation. From the perspective of industrial organization theory, there is a lack of effective organizational connection mechanism between small farmers and the digital agriculture market, and the driving ability of new agricultural business entities such as leading agricultural industrialization enterprises and farmers' cooperatives to small farmers still needs to be improved, which also restricts the penetration of digital technology into the traditional agricultural production system to a certain extent.

4. Strategic Path Design: "Four-Wheel Drive" Model Based on Business Administration Perspective

4.1 Resource Digitization and Industrial Intelligence Strategies

From the perspective of business administration Resource-Based View, the construction of industrial competitive advantages is rooted in the cognition, development and digital activation of unique resources. As one of the most agriculturally resource-rich provinces in China, Guangxi has diverse characteristic agricultural resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops, and this unique resource endowment constitutes the core strategic foundation for building a strong agricultural region. The essence of resource digitization strategy is to digitize traditional agricultural resources through digital technology, transform scattered and hidden agricultural resources into measurable, matchable and value-added data assets, thereby optimizing resource allocation efficiency and creating new value growth space. This strategy is in line with Li Rao's development idea of "making efforts in the intelligent collection and analysis of agricultural data", and is the logical starting point for promoting the digital

transformation of the entire agricultural industrial chain.

The implementation of resource digitization strategy needs to focus on the characteristics of Guangxi's agricultural resources and clarify the key transformation directions. First, cultivated land resource digitization. Combined with the goal of "building 950,000 mu of high-standard farmland with high quality" proposed in the 2026 Guangxi Implementation Opinions, use remote sensing satellites, IoT sensors, geographic information systems and other technologies to conduct comprehensive digital mapping of cultivated land in the region, establish a digital archive of cultivated land resources containing multi-dimensional information such as soil texture, nutrient content, fertility status and topography, and realize dynamic monitoring and precise management of cultivated land quality. On this basis, we can explore the establishment of a "digital ID card" system for cultivated land, providing data support for subsequent production decisions such as precise fertilization and intelligent irrigation, which is essentially a business administration practice of improving cultivated land resource allocation efficiency through digital technology. Second, biological germplasm resource digitization. In view of Guangxi's rich subtropical agricultural biological resources, focus on building gene databases of characteristic crop germplasm resources such as forestry, fruits, vegetables, livestock, poultry and sugar crops and a big data platform for growth environment monitoring, combine traditional germplasm resource protection with modern digital technology, which is not only conducive to germplasm resource protection, but also provides data support for new variety breeding. Third, climate and ecological resource digitization. Guangxi has diverse climate types and superior ecological environment. By building a meteorological and environmental monitoring network covering the main agricultural production areas in the region, digitize climate, hydrology, ecological and other data, providing decision support for agricultural production disaster prevention and mitigation and green development.

Industrial intelligence strategy is the value extension and upgrading after resource digitization, and its core is to fully embed digital technology into the entire industrial chain links such as agricultural production, processing and circulation, realize the intelligent transformation of production mode, and improve the overall industrial competitiveness. From the perspective of industrial chain management, industrial intelligence needs to promote the collaborative upgrading of each link to form an integrated intelligent system. In the production link, promote the application of adaptive intelligent equipment according to the differentiated characteristics of different characteristic industries in Guangxi: focus on promoting technologies such as intelligent sowing, precise fertilization and drone plant protection in grain production; explore the combination of full mechanization and intelligence in sugarcane production to improve production efficiency; focus on developing intelligent environmental management and control systems in facility agriculture to realize fully automatic precise regulation of temperature, light, water and fertilizer, in line with the requirement of "tapping the potential of modern facility agriculture" proposed in the autonomous region's implementation opinions. In the processing link, focus on developing intelligent grading, precise packaging and intelligent storage systems for agricultural products, especially for fresh agricultural products such as Guangxi fruits and vegetables, improve product consistency and standardization through intelligent processing and grading, and enhance product added value and market competitiveness.

The promotion of industrial intelligence strategy needs to focus on the transformation and upgrading needs of Guangxi's characteristic industries and find breakthroughs and focal points. The 2026 Guangxi Implementation Opinions clearly put forward "promoting the transformation and upgrading of fruits and vegetables, edible fungi, fishery and other industries", which points out the key direction for industrial intelligence transformation. For the fruit and vegetable industry, a number of intelligent fruit and vegetable planting demonstration bases can be built in advantageous production areas, and IoT monitoring systems and intelligent picking equipment can be promoted to improve yield and quality; for the fishery industry, deep-sea aquaculture and land-based circulating water aquaculture are the development priorities, and the application of intelligent systems such as water quality monitoring, automatic feeding and disease early warning can improve the level of

aquaculture intelligence and help achieve the strategic goal of building a modern "blue granary" in the Beibu Gulf. From the perspective of business administration innovation, industrial intelligence is not only technological transformation, but also the reshaping of production organization mode and industrial organization structure. Through intelligent transformation, agricultural production is promoted from experience-driven to data-driven, and from scattered small-scale farmer production to large-scale, standardized and intensive production, which is the core logic of digital economy enhancing agricultural competitiveness.

Resource digitization and industrial intelligence are mutually supporting and organic unities. Resource digitization provides data foundation for industrial intelligence, and industrial intelligence provides application scenarios for resource value realization. The two together constitute the power core of the "four-wheel drive" model, and their strategic goal is to activate the potential of Guangxi's characteristic agricultural resources through digital technology, promote the quality, efficiency and power changes of agricultural development, and lay a solid industrial foundation for the construction of a strong agricultural region.

4.2 Market Networking and Governance Modernization Strategies

Market networking strategy is an open strategy constructed based on business administration spatial location theory and value chain theory, relying on Guangxi's unique geographical advantages. Its core is to open up the two markets and two resources at home and abroad through digital technology, build a digital agricultural market network connecting domestic and foreign countries, expand the market influence of "Guangxi-brand" agricultural products, and enhance the strategic position of Guangxi's agriculture in the dual-cycle pattern. As the frontier and window of China's opening-up and cooperation facing ASEAN, Guangxi has the unique geographical advantage of "one bay connecting eleven countries, benign interaction between east, central and west". This geographical characteristic determines that Guangxi's agricultural market networking must take into account both domestic and international dimensions and build a development pattern of mutual promotion of "dual cycles".

In the domestic market dimension, the focus of market networking strategy is to use digital technology to promote the deep docking of "Guangxi-brand" agricultural products into the national unified market, and solve the problems of many circulation links, high costs and information asymmetry of traditional agricultural products. From the perspective of business administration marketing, the construction of digital market network can be promoted from three levels: first, digital brand communication, rely on e-commerce platforms, short video platforms and other new media channels to carry out brand marketing of "Guangxi-brand" characteristic agricultural products, tell the story of Guangxi agricultural brands, and enhance the popularity and influence of regional public brands such as "Guangxi Fragrant Rice", "Guangxi Camellia Oil" and Guangxi fruits; second, digital transformation of circulation network, build a digital circulation platform for Guangxi agricultural products, integrate logistics information resources in production and sales areas, optimize circulation paths, reduce logistics costs, and solve the "last mile" problem of fresh agricultural products; third, digital production-marketing docking, develop new production-marketing docking models such as order agriculture and direct supply and direct sales, analyze consumption demand trends through big data, guide the production end to optimize variety structure and product supply, and achieve precise matching between supply and demand. This process of digitally reconstructing the market network is essentially a business administration practice of reducing market transaction costs and improving market allocation efficiency through digital technology.

In the international market dimension, the core of market networking strategy is to rely on the China-ASEAN cooperation platform, give play to Guangxi's geographical advantages, build a cross-border agricultural product e-commerce network facing ASEAN, and deeply integrate into the regional agricultural industrial chain and supply chain. The 2026 Guangxi Implementation Opinions clearly put forward that we should "smooth the import and export channels of agricultural products, realize the model of 'produced in ASEAN + distributed in Guangxi + sold well in China'. Actively participate in international food and agriculture governance,

deepen agricultural and poverty alleviation cooperation with ASEAN countries", which points out the direction for the internationalization of Guangxi's agricultural market networking. Specifically, focus on promoting the construction of three aspects: first, intelligent cross-border e-commerce infrastructure, rely on the construction of China-ASEAN Artificial Intelligence Innovation Cooperation Center to build a smart agricultural e-commerce platform facing ASEAN, and improve the digital and convenient level of customs clearance, logistics, settlement and other links; second, digital collaboration of cross-border supply chain, use blockchain, IoT and other technologies to build a cross-border agricultural product traceability system, improve supply chain transparency and reliability, and enhance consumer trust; third, digital docking of market rules, explore the docking of digital agriculture standards with ASEAN countries, promote the mutual recognition of inspection and quarantine, certification and accreditation information, and reduce institutional transaction costs. From the perspective of strategic management, this market networking layout facing ASEAN can give full play to Guangxi's geographical advantages, create differentiated competitive advantages, and expand the development space of Guangxi's agriculture.

Governance modernization strategy is an inevitable requirement for the innovation of agricultural and rural governance system under the background of digital economy, and its core is to optimize agricultural and rural governance structure through digital technology, improve governance efficiency, and provide institutional guarantee for strategy implementation. From the perspective of business administration governance theory, governance modernization is essentially optimizing the multi-agent collaboration mechanism through technology empowerment, reducing institutional transaction costs, and stimulating the vitality of each subject. Governance modernization strategy mainly covers two core areas: first, digital rural public governance, and second, digital industrial governance system.

In terms of digital rural public governance, focus on promoting the extension of "Internet + government services" to rural areas and opening up the "last mile" of government services. Relying on the construction of digital government, promote the online and handheld handling of agricultural-related government service items, realize "more data running, less people running errands", and improve the efficiency and accessibility of rural public services. For example, promote the digitalization of rural collective "three assets" (funds, assets, resources) management, establish and improve a digital supervision and management platform for rural collective assets, and improve the transparency and standardization of asset management; use digital technology to improve rural governance grids and enhance the response speed and accuracy of grassroots governance. These digital governance measures can effectively improve the overall efficiency of rural governance system and create a good institutional environment for the construction of a strong agricultural region.

In terms of digital industrial governance system, focus on governance innovation in key areas such as finance and quality and safety. In the field of financial governance, in view of the financing difficulties of agricultural business entities, innovate agricultural financial service models relying on digital technology. The 2026 Guangxi Implementation Opinions clearly put forward "establishing and improving the financial support for agriculture 'white list' mechanism" and "innovating agricultural characteristic credit products and local characteristic agricultural product insurance types", which are highly consistent with digital governance innovation. By building a digital credit evaluation system for agricultural business entities, we can effectively reduce the information collection costs and risk assessment costs of financial institutions, enhance the willingness of financial institutions to provide credit support to agricultural business entities, and solve the investment and financing problems. In the field of quality and safety governance, use blockchain, IoT and other technologies to build a full-chain agricultural product quality and safety traceability system, realize full traceability "from field to table", strengthen the whole-chain supervision of food safety, and enhance consumer trust in "Guangxi-brand" agricultural products, which plays an important supporting role in building regional public brands and improving product premium.

Market networking and governance modernization are also complementary organic wholes. Market networking expands the

development space of Guangxi's agriculture and puts forward higher requirements for the modernization of governance system; while governance modernization provides institutional guarantee for the efficient operation of market network and reduces the uncertainty and transaction costs of market operation. The two together constitute the external support of the "four-wheel drive" model, and form a synergistic effect with resource digitization and industrial intelligence to jointly promote the realization of the strategic goal of digital economy driving the construction of a strong agricultural region in Guangxi. From the perspective of business administration system view, the four dimensions of "four-wheel drive" support and promote each other: resource digitization consolidates the foundation of competitive advantages, industrial intelligence improves production efficiency, market networking expands value realization space, and governance modernization provides institutional guarantee. The four together constitute a logically rigorous and internally unified strategic path system, providing a clear action framework for the digital economy to drive the construction of a strong agricultural region in Guangxi.

5. Implementation Mechanism Construction: "Four-in-One" Guarantee System

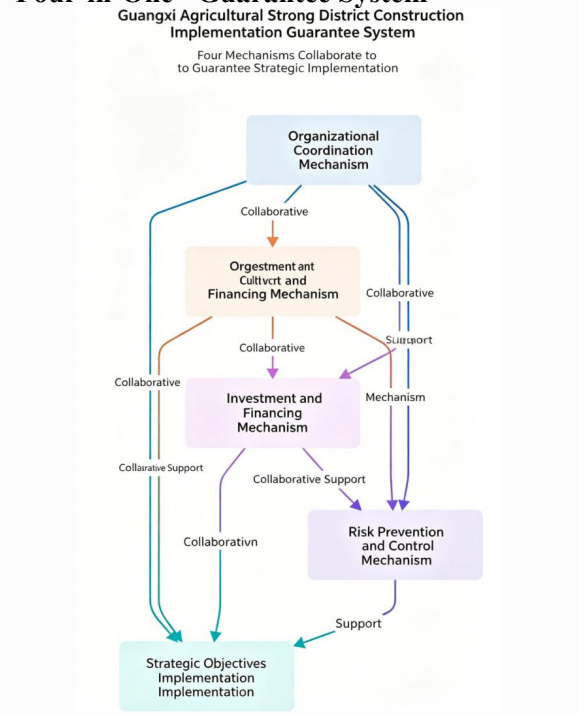

Figure 2. Structure Diagram of "Four-in-One" Implementation Guarantee System

The realization of strategic goals is inseparable from effective mechanism guarantee. From the perspective of business administration strategy implementation theory, a scientific and perfect implementation mechanism is the key intermediary to transform strategic intentions into actual results, which can coordinate the interests of different subjects, optimize resource allocation, prevent and control implementation risks through institutional arrangements, and ensure that strategic paths advance in the predetermined direction. Based on the strategic positioning of Guangxi's digital economy driving the construction of a strong agricultural region and the "four-wheel drive" path design, combined with the deployment requirements of the 2026 Guangxi Government Work Report and the autonomous region's implementation opinions, this paper constructs a "four-in-one" guarantee system with "organizational coordination, investment and financing, talent training, risk prevention and control" as the core, providing systematic institutional support for strategy implementation, as shown in Figure 2. This chapter focuses on the two core components of organizational coordination and investment and financing mechanisms, talent training and risk prevention and control mechanisms.

5.1 Organizational Coordination and Investment & Financing Mechanisms

From the perspective of business administration organization theory, an effective organizational coordination mechanism is the primary guarantee for strategy implementation, which can improve strategy execution efficiency by clarifying the division of powers and responsibilities and building a collaborative network to reduce institutional transaction costs. The digital economy driving the construction of a strong agricultural region in Guangxi is a systematic project involving many fields and departments, so it is necessary to build a hierarchical, clear, collaborative and efficient organizational coordination system to ensure that all strategic measures are implemented.

The construction of organizational coordination mechanism needs to be promoted synergistically from both vertical and horizontal dimensions to form a composite organizational structure of "vertical linkage, horizontal collaboration". In the vertical dimension, a four-level digital agriculture promotion system of autonomous

region-city-county-township should be built, and a power and responsibility division mechanism of "overall planning by autonomous region, coordinated promotion by city, organizational implementation by county, and specific implementation by township" should be established to ensure the smooth transmission of policies from top to bottom. The autonomous region level is mainly responsible for top-level design, overall planning and policy formulation, and overall coordination of major cross-regional and cross-departmental issues; the municipal level is responsible for refining implementation plans combined with local actual conditions and promoting the construction of major projects in the jurisdiction; the county and township levels focus on policy implementation, responsible for organizing various business entities to participate in digital agriculture construction, and coordinating and solving specific problems. This layered and responsible vertical structure is in line with the institutional foundation of the "economic operation joint scheduling mechanism" established in Guangxi, and can give full play to the institutional advantage of joint scheduling in coordinating the implementation of major strategies. In the horizontal dimension, it is necessary to break departmental barriers, establish a normalized cross-departmental collaborative linkage mechanism, led by the agricultural and rural department, establish a regular consultation system with industry and information technology, science and technology, finance, finance, commerce and other departments, and jointly promote key work such as digital agriculture infrastructure construction, technological innovation, industrial cultivation and policy support. From the perspective of business administration organizational collaboration, this cross-departmental collaboration can effectively integrate the resource advantages of different departments, avoid resource dispersion and policy conflicts caused by "nine dragons managing water", and form a joint force to promote digital agriculture development.

In terms of organizational coordination method innovation, we can learn from the successful experience of Guangxi in promoting the development of artificial intelligence industry, establish a special leading group for digital agriculture development led by main leaders, and implement the promotion mechanism of "one project, one leader, one special class, one grasp to the end" for major projects. This centralized coordination mechanism has shown significant efficiency in the construction of the "South AI Center", completing the project construction and putting into use in only 90 days, proving its effectiveness in promoting major emerging industrial projects. At the same time, we should give full play to the decisive role of the market in resource allocation, actively cultivate intermediary organizations such as industry associations and industrial alliances, encourage leading enterprises, scientific research institutions, new agricultural business entities to participate in digital agriculture standard formulation, technology promotion, brand building and other work, and form a diversified collaborative governance pattern of "government guidance + market leadership + social participation", which is highly consistent with the multi-agent interactive innovation logic emphasized by Innovation System Theory.

Investment and financing mechanism is the core institutional arrangement to guarantee the capital demand of digital agriculture development. From the perspective of business administration capital operation, digital agriculture projects have the characteristics of large investment scale, long return cycle and high uncertainty, and a single investment and financing model is difficult to meet their capital needs. It is necessary to build a diversified investment and financing system of "financial guidance, diversified participation, market operation", broaden capital sources and optimize capital allocation structure.

The guiding role of financial funds is the primary premise. Priority should be given to ensuring the input of general public budget in the agricultural and rural fields, improve the dynamic monitoring mechanism of budget implementation, and ensure the sustained and stable growth of financial input. In terms of specific capital use, we should make overall use of policy funds such as special bonds and ultra-long-term special treasury bonds, focus on supporting public and basic projects such as digital agriculture infrastructure construction and major technology research and development and promotion, and give play to the leveraging role of policy funds. As a western underdeveloped region, Guangxi has a weak foundation in digital agriculture, and it is difficult to achieve rapid infrastructure coverage completely relying on

the market mechanism. The early investment of policy funds can effectively reduce the risk of subsequent market investment and attract social capital to follow up and participate, which is in line with the general law of infrastructure project development in the field of business administration.

Social capital participation is the core direction of broadening capital sources. We should encourage the initiation of Guangxi Digital Agriculture Industrial Investment Fund through the "government guidance + social capital participation" model, focusing on investing in market-oriented projects such as digital agriculture equipment manufacturing, digital agriculture platform construction and agricultural digital transformation. For mature digital agriculture enterprises, we should support them to carry out direct financing through listing (listing on the New Third Board), issuing bonds, etc., broaden direct financing channels and reduce financing costs. At the same time, we should improve the government-bank-enterprise docking mechanism, establish and improve the financial support for agriculture "white list" mechanism, use financial discount policies to guide commercial banks to increase credit support for digital agriculture projects, innovate credit products with the characteristics of digital agriculture, promote the credit loan model based on agricultural big data, and solve the problem of insufficient mortgage guarantee for light-asset digital agriculture enterprises. From the perspective of business administration financing structure theory, this diversified investment and financing model can realize the complementary advantages of different types of capital, policy funds bear early risks, social capital provides market-oriented operation vitality, and jointly meet the capital needs of different stages of digital agriculture development.

In addition, we should give play to the role of government financing guarantee institutions in supporting agriculture, implement special guarantee plans for private investment, provide financing credit enhancement support for eligible digital agriculture projects, allow agricultural-related enterprises and farmers to extend and renew loans, ease the pressure of maturity repayment, and stabilize the investment expectation of market entities. At the same time, we should continue to optimize the business environment, implement various enterprise-benefiting policies, reduce the operating costs of digital agriculture enterprises, enhance the attractiveness to social capital, and let more market entities be optimistic about Guangxi, choose Guangxi and take root in Guangxi's digital agriculture field.

5.2 Talent Training and Risk Prevention & Control Mechanisms

Talent is the first resource. From the perspective of business administration strategic human resource management, the quality of talent team directly determines the effectiveness of strategy implementation. The digital economy driving the construction of a strong agricultural region in Guangxi urgently needs to build a multi-level and compound digital agriculture talent training system to solve the development bottleneck of weak talent support. Combined with the requirement of "deepening the comprehensive reform of education, science and technology and talents" proposed in the 2026 Guangxi Government Work Report, the construction of talent training system should be promoted synergistically from two levels: high-end talent introduction and local talent training.

High-end talent introduction is the key to improving the innovation ability of digital agriculture. Relying on national-level platforms such as China-ASEAN Artificial Intelligence Application Cooperation Center and China-ASEAN Artificial Intelligence Innovation Cooperation Center, implement a more open talent introduction policy, introduce top scientists, leading entrepreneurs and high-level innovation and entrepreneurship teams in the field of digital agriculture at home and abroad. Guangxi has accumulated valuable experience in the development of artificial intelligence industry. Through the development path of "R&D in Beijing, Shanghai and Guangzhou + Integration in Guangxi + Application in ASEAN", it has successfully introduced a number of leading enterprises from Beijing, Shanghai and Guangzhou. This model of combining talent introduction with intelligence introduction is also applicable to the field of digital agriculture, and high-end talents can be introduced relying on major digital agriculture projects through the "project + talent" model to realize the virtuous interaction between talent agglomeration and industrial development. At the same time, we should improve supporting policies for talent introduction, provide preferential support in housing, scientific

research funds, children's education, entrepreneurship support, etc., lower the threshold for talent inflow, build an attractive talent development environment, and let high-end talents be introduced, retained and used well.

Local talent training is the foundation for expanding the digital agriculture talent team. In view of the actual situation in rural Guangxi, we should focus on strengthening the digital skills training of professional farmers, implement the "Digital New Farmers" cultivation plan, integrate digital skills into the farmer education and training system, carry out targeted training around practical skills such as intelligent agricultural machinery operation, agricultural big data application, agricultural product e-commerce live broadcast, and improve the digital literacy of ordinary farmers and new agricultural business entities. From the perspective of business administration human capital theory, this localized skill training can directly improve the quality of rural labor force, transform the population quantity advantage into human capital advantage, and is the fundamental measure to solve the digital divide problem. At the same time, we should give play to the main position of talent training in local universities and scientific research institutes, support Guangxi University, Guangxi Agricultural Vocational and Technical University and other institutions to set up digital agriculture-related majors or directions, deepen the integration of industry and education, school-enterprise cooperation, establish a joint training base of industry-university-research-application, and cultivate a number of local compound talents who understand both agricultural production technology and digital technology to meet the needs of different levels of talents for regional digital agriculture development.

In addition, we should improve the talent incentive mechanism, encourage scientific and technological personnel in the field of digital agriculture in universities and scientific research institutes to participate in the industrialization development of digital agriculture through part-time entrepreneurship, technology shareholding, etc., share the benefits of industrial development, and stimulate the enthusiasm of scientific and technological personnel for innovation and entrepreneurship. For digital agriculture talents serving at the rural grassroots, we should improve treatment guarantee, broaden career development space, and guide more talents to sink to the rural frontline to serve the construction of a strong agricultural region. This all-round talent training system of "introducing talents + cultivating talents + retaining talents" can provide continuous talent support for the digital economy driving the construction of a strong agricultural region.

From the perspective of business administration risk management theory, strategy implementation is always accompanied by various uncertainties. It is necessary to establish a systematic and perfect risk prevention and control mechanism, identify, evaluate and respond to various potential risks, reduce the impact of uncertainty on strategy implementation, and ensure the healthy and orderly development of digital agriculture. Combined with Guangxi's actual situation, the development of digital agriculture needs to focus on preventing and controlling two core types of risks: technical risks and market risks, and build a full-chain risk prevention and control system driven by "technology + market".

Technical risk prevention and control is the foundation for the safe development of digital agriculture. The development of digital agriculture is highly dependent on data collection, storage, analysis and application, and data security has become one of the most important security issues in the digital era. Therefore, it is necessary to formulate Guangxi's digital agriculture technical standards and data security management specifications, clarify the security requirements of each link of data collection, transmission, storage and use, implement the main responsibility of data security, and ensure the security of agricultural and rural data. Especially for sensitive data such as cultivated land resources and germplasm resources, a hierarchical and classified management system should be established, strengthen security protection, and prevent data leakage and abuse. At the same time, we should strengthen the quality supervision of digital agriculture technical products, establish access standards and inspection and testing systems, avoid unqualified technical products flowing into the market and causing losses to agricultural production. From the perspective of technological innovation risk management, this standardized supervision system can reduce the uncertainty of technology application and enhance the confidence of agricultural business

entities in adopting digital technology.

Market risk prevention and control is the key to ensuring the income of business entities. Agricultural production is affected by both natural conditions and market conditions, with large price fluctuations and high market risks. Although digital technology can improve the ability to obtain market information, it cannot completely eliminate market risks, and a perfect market risk prevention and control system needs to be established. Specifically, we should rely on big data technology to build a Guangxi agricultural product market monitoring and early warning system, conduct real-time monitoring and analysis of production, consumption, price, import and export data of major agricultural products, timely release market early warning information, guide business entities to reasonably arrange production and operation decisions, and reduce losses caused by price fluctuations. At the same time, we should innovate agricultural insurance products, develop local characteristic agricultural product insurance types according to the characteristics of digital agriculture, expand the scope of insurance coverage, strengthen the insurance guarantee function, and give play to the important role of insurance in risk sharing. For new business entities developing intelligent planting and breeding, we can explore the pilot of digital agriculture insurance, include technical investment losses in the scope of insurance guarantee, and reduce the risk concerns of business entities in digital transformation.

In addition, in view of the risks faced by small farmers integrating into the digital agriculture system, we should improve the interest connection mechanism, give play to the driving role of new agricultural business entities such as leading agricultural industrialization enterprises and farmers' cooperatives, integrate small farmers into the industrial chain division of labor through order agriculture, share cooperation and other ways, share the dividends of digital economy development, and help small farmers share market risks. From the perspective of business administration inter-organizational relationship theory, this interest connection mechanism driven by leading enterprises can effectively reduce the uncertainty faced by small farmers, improve the risk resistance capacity of the entire industrial chain, and achieve win-win results for all parties.

In summary, organizational coordination and investment and financing mechanisms, talent training and risk prevention and control mechanisms are interrelated and mutually supporting, together forming a "four-in-one" implementation guarantee system: organizational coordination mechanism provides organizational structure guarantee, investment and financing mechanism provides capital resource guarantee, talent training mechanism provides human capital guarantee, risk prevention and control mechanism provides safe operation guarantee. The four are organically unified, providing all-round institutional support for the implementation of the digital economy driving the construction of a strong agricultural region in Guangxi, ensuring the smooth progress of the "four-wheel drive" strategic path, and finally realizing the strategic goal of building a strong agricultural region.

6. Policy Suggestions

Based on the previous systematic analysis of the basic conditions, obstacle identification, strategic paths and implementation mechanisms of the digital economy driving the construction of a strong agricultural region in Guangxi from the perspective of business administration strategy, combined with the 2026 Guangxi Government Work Report and the latest deployment of the autonomous region government, this paper puts forward the following targeted policy suggestions from the perspective of strategy implementation to provide decision-making references for Guangxi to accelerate the construction of a strong agricultural region.

Strengthen top-level design and overall coordination, and formulate special development plans. From the perspective of business administration strategic management theory, clear strategic positioning and top-level design are the prerequisites to ensure the correct development direction and efficient resource allocation. At present, Guangxi's digital agriculture development still has problems such as decentralized promotion by departments and insufficient policy collaboration. It is recommended that the autonomous region formulate the Special Action Plan for Digital Agriculture Development in Guangxi (2026-2030), clarify development goals, key tasks, timetable, roadmap and responsibility division. In terms of organizational promotion mechanism, we can directly learn from the

successful experience of Guangxi in promoting the "Artificial Intelligence+" action, establish a special leading group for digital agriculture development led by main leaders, implement the promotion mechanism of "one project, one leader, one special class, one grasp to the end" for major projects, give play to the institutional centralized coordination advantage, and solve cross-departmental coordination problems. At the same time, establish a regular consultation system led by the Department of Agriculture and Rural Affairs of the autonomous region, with the participation of industry and information technology, science and technology, finance, finance, commerce and other departments, form a working pattern of vertical linkage and horizontal collaboration, avoid policy fragmentation and resource dispersion, and improve the overall efficiency of strategy implementation.

Increase investment in infrastructure and make up for rural digital economy shortcomings. Digital infrastructure is the physical foundation for digital agriculture development. From the perspective of business administration resource allocation, rural digital infrastructure has strong public goods attributes and requires the government to play a leading role. In accordance with the requirement of "making up for rural digital economy shortcomings" in the 2026 Guangxi Government Work Report, we should focus on increasing investment in rural network infrastructure construction in remote mountainous and border areas, and gradually narrow the urban-rural digital divide. In terms of capital guarantee, we should strictly implement the requirements of the autonomous region's implementation opinions, coordinate special bonds and ultra-long-term special treasury bonds to support eligible major digital agriculture and rural infrastructure projects, and give priority to supporting basic public projects such as digital transformation of high-standard farmland, agricultural IoT monitoring platform, and digital cold chain logistics system of agricultural products. Provide differentiated policy inclination for digital infrastructure construction in poverty alleviation areas and border areas, reduce the proportion of local financial supporting funds, and accelerate the full coverage of 5G networks and optical fiber broadband in large-scale agricultural production areas, creating basic conditions for digital technology application.

Innovate investment and financing system and mechanism, and guide diversified capital participation. Digital agriculture projects have the characteristics of large investment scale, long return cycle and high uncertainty. From the perspective of business administration capital operation, a diversified investment and financing system is needed to meet the capital needs of different stages. On the basis of giving play to the guiding role of financial funds, we should innovate financial service models in accordance with the requirement of "establishing and improving the financial support for agriculture 'white list' mechanism" proposed in the autonomous region's implementation opinions, guide commercial banks to increase credit support for digital agriculture projects, promote credit loan products based on agricultural big data, and solve the problem of insufficient mortgage guarantee for new business entities. Encourage the initiation of Guangxi Digital Agriculture Industrial Investment Fund through the "government guidance + social capital participation" model, focusing on investing in market-oriented projects such as digital agriculture equipment manufacturing, platform construction and technological transformation; support mature digital agriculture enterprises to carry out direct financing through listing (listing on the New Third Board), issuing bonds, etc., broaden direct financing channels. At the same time, give play to the role of government financing guarantee institutions, provide financing credit enhancement support for eligible digital agriculture projects, allow eligible agricultural-related entities to extend and renew loans, stabilize market investment expectations, and enhance the confidence of social capital investment.

Deepen Opening-Up and Cooperation, and Build an ASEAN-Oriented Digital Agriculture Innovation Network

From the perspective of business administration spatial location theory, Guangxi’s greatest strength lies in opening-up, and orienting toward ASEAN is a unique strategic positioning that distinguishes Guangxi’s digital agriculture development from other provinces. We should fully leverage national-level platforms such as the China-ASEAN Artificial Intelligence Application Cooperation Center and the China-ASEAN Artificial Intelligence Innovation Cooperation Center to build a regional digital agriculture innovation center, integrate domestic

and foreign innovation resources, focus on joint research and development in characteristic fields including tropical and subtropical agriculture and cross-border agricultural e-commerce, and enhance Guangxi's digital agriculture innovation capacity. Guided by the autonomous region's implementation opinions, we will deepen cooperation with ASEAN countries in digital agriculture, promote the alignment and mutual recognition of agricultural digital technology standards, build an ASEAN-oriented digital supply chain system for cross-border agricultural products, realize a virtuous cycle of "Produced in ASEAN + Distributed in Guangxi + Sold Well in China", enhance Guangxi's voice in regional digital agriculture governance, and foster a new pattern of development driven by opening-up. Meanwhile, we will strengthen cooperation with domestic provinces advanced in digital agriculture, learn from their experience, introduce cutting-edge technologies and mature models, conduct localized adaptation based on Guangxi's realities, and raise the starting point of development.

Strengthen the Talent Team and Improve the Talent Introduction, Cultivation and Retention System

Talent is the core element of strategy implementation. From the perspective of business administration strategic human resource management, a multi-tier talent system is the fundamental guarantee for the sustainable development of digital agriculture. In line with the requirement of "deepening the comprehensive reform of education, science and technology and talents" in the 2026 Report on the Work of the Guangxi Government, we will build an all-round talent system featuring "talent introduction + talent cultivation + talent retention". For high-end talent introduction, relying on national-level innovation platforms, we will implement a more open talent recruitment policy, introduce top scientists and leading talents in digital agriculture from home and abroad, achieve a virtuous interaction between talent agglomeration and industrial development through the "Project + Talent" model, and improve supporting policies for housing, research funding, children's education and other aspects to attract, retain and make good use of talents. For local talent cultivation, we will focus on implementing the "Digital New Farmers" cultivation program, integrate digital skills into the farmer education and training system, carry out targeted training on practical skills such as intelligent agricultural machinery operation, agricultural big data application and agricultural product e-commerce live streaming to enhance the digital literacy of local business entities; support universities in Guangxi to launch majors and programs related to digital agriculture, deepen the integration of industry and education as well as school-enterprise cooperation, cultivate local compound talents, and meet the regional demand for talents at all levels.

Improve the Monitoring and Evaluation System to Ensure the Effective Implementation of Policies and Measures

From the perspective of business administration strategic control theory, scientific monitoring and evaluation are key links to adjust strategic directions timely and ensure implementation effectiveness. It is recommended that the autonomous region establish a statistical monitoring system for digital agriculture development and formulate an evaluation index system for the effectiveness of digital agriculture development, conducting regular monitoring and evaluation from multiple dimensions including infrastructure construction, industrial digital transformation, economic benefits and entity satisfaction. A dynamic adjustment mechanism will be established to timely optimize and adjust policies, measures and key tasks based on monitoring and evaluation results, addressing new problems arising in the implementation process. Drawing on the performance appraisal mechanism in the Government Work Report, we will incorporate the effectiveness of digital agriculture development into the performance appraisal system of local governments, improve the incentive and restraint mechanism, reward regions with strong promotion and remarkable results, supervise regions with slow progress, press responsibilities at all levels, ensure the full implementation of various policies and measures, truly translate strategic plans into actual development outcomes, and promote the digital economy to better drive the construction of a strong agricultural region in Guangxi.

7. Conclusions and Prospects

This paper takes the digital economy-driven construction of a strong agricultural region in Guangxi as the research theme. Based on the strategic management perspective of business administration, it systematically sorts out

relevant research findings on the digital economy and agricultural development at home and abroad, integrates the Resource-Based View, Innovation System Theory, Strategic Management Theory and Spatial Spillover Theory to construct a multi-dimensional analytical framework. Combined with the 2026 Report on the Work of the Guangxi Government and the latest deployment of the autonomous region government, it deeply analyzes the development foundation and practical challenges of building a strong agricultural region in Guangxi, systematically designs the "Four-Wheel Drive" strategic path, constructs a "Four-in-One" implementation guarantee mechanism, and finally puts forward targeted policy suggestions, forming a logically complete research system.

From the perspective of business administration strategic analysis, this study draws the following core conclusions: Firstly, the digital economy can effectively activate the potential of Guangxi's rich characteristic agricultural resources through multiple approaches such as reshaping the allocation of production factors, optimizing the organizational structure of the agricultural industry, and innovating institutional arrangements for agriculture and rural areas, providing a historic opportunity for the high-quality development of agriculture and the construction of a strong agricultural region in Guangxi. This conclusion verifies the applicability of the Resource-Based View in regional agricultural development strategies, indicating that digital transformation relying on local characteristic resources is an effective path for underdeveloped ethnic regions to build agricultural competitive advantages. Secondly, Guangxi has accumulated a solid foundation for building a strong agricultural region in terms of industrial scale, infrastructure, policy system and opening-up cooperation, but it also faces multiple structural obstacles including a prominent digital divide, insufficient digital collaboration of the industrial chain, a shortage of compound talents, and an imperfect investment and financing mechanism. These intertwined obstacles restrict the full play of the driving effect of the digital economy. The 2026 Report on the Work of the Guangxi Government clearly puts forward the requirement of "making up for the shortcomings of the rural digital economy", which is a policy response to these practical challenges. Thirdly, based on Guangxi's regional conditions and the strategic logic of business administration, the digital economy-driven construction of a strong agricultural region in Guangxi should implement the "Four-Wheel Drive" strategic path of resource digitization, industrial intelligence, market networking and governance modernization. These four dimensions support and promote each other, jointly forming a logically rigorous strategic system. Fourthly, to ensure the smooth implementation of the strategic path, it is necessary to build a "Four-in-One" implementation guarantee system covering organizational coordination, investment and financing, talent training and risk prevention and control. Through institutional arrangements, we will optimize resource allocation, coordinate stakeholder relations, prevent and control potential risks, and ensure the realization of strategic goals.

This study has important theoretical contributions and practical value. Theoretically, this paper systematically applies the strategic management theory of business administration to the research field of regional digital agriculture development. In view of the specific characteristics of underdeveloped resource-rich regions, it constructs a complete analytical framework of "strategic analysis – path design – mechanism guarantee", enriches the research perspective in the field of digital economy and agricultural modernization, and supplements theoretical research results on digital agriculture development in ethnic regions. Practically, the conclusions of this paper directly respond to the strategic deployment of "promoting comprehensive rural revitalization and accelerating the construction of a strong agricultural region" proposed in the 2026 Report on the Work of the Guangxi Government. The proposed strategic paths and implementation mechanisms are highly targeted and operable, which can provide decision-making references for governments at all levels in Guangxi to formulate relevant policies, help Guangxi better leverage the advantages of characteristic resources including forestry, fruits, vegetables, livestock, poultry and sugar, as well as the opening-up advantage oriented toward ASEAN, accelerate the construction of a strong agricultural region, and provide experience for other similar regions.

This study still has certain limitations. As a normative theoretical study, this paper focuses

on strategic framework construction and mechanism analysis, without conducting quantitative evaluation on the implementation effectiveness of the proposed strategic paths or in-depth analysis of typical cases. These shortcomings need to be further addressed in future research. Looking ahead, research in this field can be deepened and expanded in three directions: Firstly, empirical research on the benefit evaluation of digital agriculture development can be carried out, a scientific evaluation index system can be constructed, the contribution of the digital economy to the growth of agricultural total factor productivity and farmers' income in Guangxi can be quantitatively measured, and the practical effectiveness of the strategic framework proposed in this paper can be tested. Secondly, research on cross-border digital agriculture cooperation can be deepened. Relying on Guangxi's unique geographical advantage oriented toward ASEAN, the model of China-ASEAN digital agriculture collaborative innovation and industrial cooperation can be explored to expand the spatial dimension of digital agriculture development. Thirdly, research on the governance mechanism of the digital divide can be strengthened, focusing on how remote mountainous areas and small farmer groups can better integrate into the digital agriculture development system, and designing a more inclusive policy system to ensure that the "digital dividend" can benefit all rural people more fairly and achieve inclusive growth.

In short, the digital economy-driven construction of a strong agricultural region is a major strategic task for Guangxi to promote agricultural and rural modernization, which is in line with the development direction of the 2026 Report on the Work of the Guangxi Government and also an important application scenario of business administration theory in the field of regional agricultural development. This study shows that as long as the strategic positioning is clear, the path selection is scientific and the mechanism guarantee is strong, Guangxi can completely rely on its own characteristic resource advantages to take a road of digital agriculture development with local characteristics. It will not only accelerate the realization of the goal of building a strong agricultural region, but also contribute the "Guangxi Solution" to the national agricultural modernization. It is expected that more high-quality research will focus on this field in the future to jointly promote the sustainable and healthy development of digital agriculture in Guangxi.

Acknowledgments

This paper is supported by the Key Research Base of Humanities and Social Sciences of Universities in Guangxi Zhuang Autonomous Region "Research on the Industrial Revitalization and Development of artificial Intelligence empowering Zuoyoujiang Old Revolutionary Base Area" (2025JDZD025).

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