Mechanism and Strategy of E-commerce in Ethnic Regions Based on System Dynamics

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Abstract: The ethnic areas in China are important positions in the construction of new countryside, and the agricultural products purchased in farmers' markets and supermarkets are deeply rooted. There are many drawbacks in the production and marketing methods. For example, the sales supply chain is too complicated, farmers have no pricing power, income is always difficult to improve, and quality is uneven. As an important means to promote the process of agricultural modernization, the development of agricultural E-commerce in ethnic areas is of far-reaching significance. The main body of the agricultural E-commerce system mainly includes agricultural industry cooperation organizations, farmers or rural economic people. The driving force behind the development of agricultural E-commerce lies in the interaction mechanism of economic benefits, government support, social needs and technological progress. At present, it is necessary to increase government guidance and assistance, strengthen market discipline, regulatory supervision, and cultivate the main body awareness of farmers or agriculture-related enterprises, and promote the upgrading of agricultural E-commerce in the way of agricultural products circulation.

1. Introduction

E-commerce is a new type of economic activity in which modern information technology and business activities are highly integrated, and has become an important force leading the transformation of production and lifestyle. In recent years, E-commerce has developed rapidly and has become an important part of China's strategic emerging industries. It has penetrated into various industries and penetrated with traditional industries. The market demand is growing stronger and it is an important tool to realize the Internet + strategy. It has played a key role in promoting economic transformation and structural adjustment, and has increasingly become an important engine for promoting China's economic transformation and upgrading.

Under the conditions of traditional agriculture, agricultural producers lack market channels for big data and have a certain lag in understanding the arrangement and price of production. They often decide the production arrangements for this year based on the market conditions of the previous year and their own experience. As a result, the products are out of the market and cause unsalable sales. The agricultural E-commerce relying on modern information technology and the Internet market has greatly improved the predicament of imperfect information. The efficiency of the network, especially the Internet, can make timely and effective information about agricultural policies and market prices, and its interaction makes online trading of agricultural products become Reality and openness have made the agricultural products E-commerce have a broad market space. As long as the Internet is available, farmers or agribusinesses can arrange production operations based on immediate market conditions. Agricultural production is more organized and closer to the goal of agricultural industrialization.

However, the development of E-commerce in China's ethnic areas still faces contradictions and problems such as backward economic development, information occlusion, and imperfect logistics

support. Under the new normal, the economic development model of ethnic areas must meet the requirements of sustainable development, and to achieve sustainable economic development in ethnic areas, it is necessary to find a path of sustainable development. The behaviors of economic subjects in the economic development of ethnic regions differ from the behaviors of the general economic entities, which determine the choice of their development path and mode. They must not only advance with the times, but also reflect the national characteristics. E-commerce effectively alleviates the pressure of traditional economic development model on the sustainable development of ethnic regions, promotes the optimization of industrial structure in ethnic regions, accelerates the development of tertiary industry, creates opportunities for enterprises in ethnic regions, and accelerates the economy of ethnic regions. The process of integration into the world has become a good breakthrough for poverty alleviation in ethnic areas. The construction of new countryside is an important way to solve the three rural issues, and agricultural modernization is an important basis for accelerating the construction of new rural areas. As an important means to promote the process of agricultural modernization, the development of agricultural E-commerce has far-reaching significance. The related factors of the system are related to each other and interact with each other to form the driving force for the development of the system. It is necessary to study the operation mechanism of the system and decide the application strategy according to the dynamic factors that promote its development and perfection. This paper uses the theory of complex adaptive systems to analyze the dynamic mechanism of E-commerce industry development, and provides targeted countermeasures for the sustainable and healthy development of E-commerce in ethnic areas of China.

2. System Dynamics in the Field of E-Commerce

2.1 System Dynamics in Electronic Commerce.

System dynamics is widely used to study economic management issues, and it is also effective in solving problems in E-commerce. Yu (2011) used the analysis theory of system dynamics to construct a model of agricultural E-commerce development dynamic system and explored the influencing factors of agricultural E-commerce development [1]. Zhang (2010) used system dynamics to model the operation of the mobile E-commerce industry chain, and analyzed in depth the constraints of the mobile E-commerce payment problem [2]. Wang (2013) used system dynamics methods to model and analyze E-commerce third-party logistics, and simulated the historical data of Taobao [3]. Guo (2014) applied the theory of system dynamics to study the dynamic mechanism of agricultural E-commerce development. Based on this, it constructed an evaluation index for the development of E-commerce in agriculture and provided theoretical support for studying the development level of E-commerce [4]. Ma (2014) uses system dynamics to establish a dynamic model of word of mouth and purchase intention in online shopping, and analyzes the importance of E-commerce consumer experience and word of mouth [5]. Wang (2011) used the system dynamics method to evaluate the online shopping express logistics service, discussed the influencing factors affecting the logistics service level and proposed corresponding countermeasures [6]. Wu Liang (2014) applied system dynamics principles to discuss the factors of E-commerce in the process of promoting the development of industrialization, and analyzed the influence mechanism of Ecommerce [7]. Xu (2015) constructed a systemic dynamics quantification model of E-commerce knowledge management based on information ecological chain, and simulated and analyzed the model [8]. Sun (2016) used the system dynamics model to analyze the operating mechanism of the E-commerce built an E-commerce ecosystem evaluation model [9]. E-commerce is a dynamic development system, in which the elements change with time and space. The application of system dynamics to the research of industrial development system proves its unique superiority. It is feasible to study the development of E-commerce industry by using system dynamics.

2.2 Dynamic Mechanism of E-commerce Industry.

Dynamics Mechanism refers to the motive force and mode of action that promote the

development of things. It is a mechanism that can promote the system to achieve sustainable development and achieve the intended goal to provide incentives. From a systems theory perspective, the E-commerce industry is an open and complex system that continues to evolve over time as the internal driving forces interact with the external environment. The following analyzes the dynamic mechanism of E-commerce industry development from the perspective of complex adaptive system theory.

3. Basic Characteristics of Cas in E-Commerce Industry

The development of the E-commerce industry not only depends on the interaction within the industry, but also on the relationship between the external social and economic environment and the ability of the system to adapt to the economic environment. Using its own research results to explore the dynamic mechanism of E-commerce industry development is a useful attempt. The following analysis of this wooly aspect of the E-commerce industry determines that it is a complex adaptive system.

3.1 Aggregation Features.

The smaller entities in a complex adaptive system are better developed through aggregation. The main bodies of the E-commerce industry system include the government, E-commerce companies, and E-commerce service providers. The various E-commerce entities will gather for specific goals. For example, in order to integrate China's logistics resources and achieve the sharing of resources, Alibaba took advantage of the scale effect of E-commerce logistics companies, gathered logistics companies such as Tongyi, Shunfeng, and ZJ, and established a cauliflower network. This type of logistics service provider aggregation is through adhesion.

3.2 Non-linear Features.

Non-linearity refers to the change of the internal body of the system and the interaction mechanism between the subject and the environment does not follow the linear principle. The internal relationship of the E-commerce industry system is complex and complex, and when the subject changes, it will have dynamic and complex non-linear relationships. E-commerce is a product of the network information economy, and the network economy is essentially non-linear. In the E-commerce industry chain, the government, enterprises, service providers, consumers and other entities all have their own goals and behaviors, not in the interaction process. Simple causal relationships form a variety of forward and reverse complex feedback chains. At the same time, there are many random factors in the E-commerce industry system, which makes the E-commerce industry development process unpredictable and irreversible. This unpredictability and uncertainty trigger the system's nonlinearity.

3.3 Diversity Features.

The diversified features of the E-commerce industry system are very prominent. It is a new product resulting from the interaction of the E-commerce industry system with politics, economy, and culture. For example, due to changes in the internal and external environment, the E-commerce business model has various modes such as B2B, B2C, C2C, and C2B.

3.4 Identification Mechanism.

The identification can promote the purposeful choice of interactive objects of the system subject, and promote the combination of subjects with a synergistic effect. The aggregation of the subject is performed under the function of the identification mechanism. In the process of forming the E-commerce industry chain, its own goals, resources, and advantages are gathered for the logos. The various stakeholders choose to collaborate with their own development partners to form complementary advantages and create a strong industrial chain to respond to external competitors or Market risk.

3.5 Internal Model Mechanism.

The internal model is a behavioral rule that the subject gradually establishes in the process of adapting to the environment. The subject's adaptive behavior is selective, selective reception of external stimuli, and optimization of internal mechanisms to barely respond to environmental changes. In the development process of the E-commerce industry, it will constantly go in with other industries, continue to grow in the process of adapting to the environment, and form its own internal response mechanism, thus becoming a new industry.

4. Dynamic Mechanism of E-Commerce Industry Development

The stimulus-response model is a basic model that is often used to analyze the dynamics of system development in the theory of complex adaptive systems. Out of coping strategies, directly activate the effector to generate behavior. The intrinsic dynamics of the main body include the promotion of technological innovation and the driving force of economic benefits.

4.1 Intrinsic Power Mechanism.

4.1.1 Economic benefits.

With the advancement of E-commerce technology, E-commerce has penetrated into all walks of life in the mad society, and has brought about a positive role in promoting the economic efficiency of enterprises and the longevity of the national economy. The economic benefits of E-commerce are represented by microscopic corporate profits and macroscopic economic growth. At the micro level, as a profitable economic organization, enterprises use E-commerce to conduct business activities, which can reduce business costs and improve the operating efficiency of enterprises, thus ensuring survival and development of the enterprise, the E-commerce company's pursuit of interests is the internal driving force to promote the development of the E-commerce industry. On the macro-level, E-commerce can create employment opportunities, promote the transformation and upgrading of traditional industries, and stimulate economic growth. The government will enhance the strategic position of E-commerce to promote its development.

4.1.2 Technology innovation.

The progress of science and technology from within the E-commerce industry to provide them with development opportunities and support for the transformation of business models is an internal driving factor in the development of E-commerce. The adoption of advanced technologies can promote the development of E-commerce from two aspects: First, the combination of the Internet and traditional businesses has spawned E-commerce. With the continuous improvement of the level of science and technology, the development of cloud computing and big data technologies has promoted the E-commerce operating model. The change, E-commerce is rapidly moving toward the era of mobile Internet. Secondly, scientific and technological advances can change the mode of production and circulation of commodities, increase the production efficiency of enterprises, reduce costs, and accelerate the popularization and application of E-commerce. The application of Internet of Things technology can improve logistics efficiency and efficiency.

4.2 External Power Mechanism.

4.2.1 Market demand.

With the development of the economy, market demand will show diversity and dynamic changes. The development of the E-commerce industry will require strong market demand. The formation of the E-commerce industry is due to the fact that it meets the consumer demands of modern consumers and meets the characteristics of the social environment. The demand for the E-commerce market is huge, including the sum of the E-commerce needs of individuals, businesses, governments, and other organizations. In the era of fragmentation, fast-paced life has led to the rapid formation of

consumer demand for E-commerce consumption. Consumers can find inexpensive and appropriate products through online platforms and enjoy convenient online shopping experiences. Enterprises can use E-commerce. The platform expands product sales channels and markets, reduces transaction costs, and realizes its economic benefits; the government implements online purchasing through E-commerce, and strengthens internal management and provides public services through E-government.

4.2.2 Government supports.

E-commerce is a new thing. At the same time, it is also a strategic emerging industry of the country. Its technological development speed and business model have changed rapidly, and its role in promoting the transformation and development of the economy has become obvious. It has become a new driving force for economic growth. Government policy Promoting and guiding is an important and indispensable quantity for the development of the E-commerce industry. Policy support not only enhances the integration of social resources, but also provides guidance for the development of E-commerce. The rapid development of E-commerce in the United States benefits from the government's appropriate macro-control and the creation of a good technological innovation environment. The role of the government in promoting the development of E-commerce should first be actively promoted and then gradually standardized.

4.2.3 Industrial environment.

Environmental factors are the umbrella of laws and regulations, economic environment, and market mechanisms that support and guarantee the development of E-commerce. They are the foundation for obtaining resources such as capital, technology, and talent. In addition to a sound market environment, the healthy development of E-commerce should also enact laws and regulations to protect its development. E-commerce development also requires a good economic environment. Under a good E-commerce economic environment, enterprises can use the network to carry out procurement and production activities at a low cost and settle through financial E-commerce channels. At the same time, human resources can be communicated through the Internet. Recruitment reached. A good system, laws, and economic environment provide guarantees for the development of E-commerce and effectively promote industrial innovation and development.

5. Conclusions

The development of the E-commerce industry is a complex and dynamic process, but mastering the key factors that affect the development of E-commerce, clarifying the interaction mechanism between E-commerce and economic growth, and simplifying the complexity of E-commerce industry development analysis. This paper uses the complex adaptive system theory to analyze the dynamic mechanism of the development of the E-commerce industry, and further builds a dynamic model for the development of the E-commerce industry. It analyzes the causality of various variables within the E-commerce industry development system and divides the system into points. Different simulation policies are designed based on government guidance, technological progress, logistics level, and market demand variables. The study finds that the development of E-commerce industry is affected by many factors and needs to be based on various factors. The government guidance, logistics level, and technological progress all have a greater positive effect on the development of the E-commerce industry.

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