Study on the Operating Mechanism of Taobao Village Ecosystem from the Perspective of Information Management

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Abstract. Taobao village ecosystem is the product of the development of information age. From the perspective of information management, it is of great significance to study the operation mechanism of Taobao village ecosystem for its sustainable development. According to the characteristics of online transactions and management needs of Taobao villages, the research framework of Taobao village ecosystem is constructed from the perspective of information management, and exploring the operation mechanism of taobao village ecosystem under information management, which can provide reference for entrepreneurs and the balanced development of Taobao village ecosystem. Establishing a perfect information management system, extracting valuable information effectively can promote the upgrading of ecosystem industry in Taobao village, and it will realize the healthy development of Taobao village ecosystem.

1. Introduction

With the effective application of informatization in rural areas of China, the proportion of rural e-commerce network sales to online retail sales is increasing. The rapid growth of the number of rural online stores and the development of “Internet + Rural” will be accompanied by many different third-party e-commerce platforms: Taobao, Pinduoduo, Yunji, and so on. The difficulty of information management is also increasing. In order to promote rural economic development and precise poverty alleviation policies, the No. 1 Document of the Central Committee proposed the implementation of the digital rural strategy in 2019 to help the rural areas create a new situation of “double innovation”, it would strengthen the agricultural brand with the help of information technology, and enhance the preservation and appreciation of rural agricultural products. Technology development of smart agriculture to promote rural industrial upgrading\(^[1]\).

Since the Taobao Village ecosystem is a unique phenomenon in rural China, the current research on Taobao Village focuses on development models, influencing factors, spatial distribution, and evolution mechanisms. However, the information management of Taobao Village's ecosystem is not involved. The Taobao Village ecosystem is not linearly expanded, but has gradually grown through metabolism, both the disappearance of growth\(^[2]\) and the rise of the new village. The rise of the new village is inseparable from the application of information technology, and the disappearance of growth also originates from the application of information technology. With the increasing use of information technology, the intensity of information management has not increased. How to implement information management of Taobao Village ecosystem is worth exploring.
2. The importance of information management to the ecosystem of Taobao Village

Information technology plays an important role in enterprise information management \cite{3}, and information management is the key to enterprise development. Within the rural space area, the Taobao Village ecosystem transmits various information through the network, and each “species” in the Taobao Village ecosystem manages and applies the most effective information in the massive information to improve the overall operational efficiency of the enterprise \cite{4}, and in a relatively stable state for a certain period of time. In this open and complex system, in order to maintain its own state, the subjects exchange ecological materials, information and energy to achieve an ecological balance between species and species or within species. Improving the efficiency of information utilization not only saves human resources, material resources, and financial resources, but also enables enterprises to operate more smoothly and enhance their market competitiveness. On this basis, it is also possible to use digital technology \cite{5} to establish a complete information feedback system, which should be corrected in time when there is a deviation in planning or decision-making, so as to avoid huge losses caused by mistakes. The effective control of the organization to the organization must rely on all kinds of information from inside and outside the organization. All management activities are inseparable from information. All effective management is inseparable from the management of information.

3. Problems in Taobao Village Ecosystem in Information Management

3.1 Infrastructure of informatization is backward

In recent years, although the speed of rural economic development has obviously accelerated, with the aging problem becoming more and more serious, the proportion of rural information infrastructure is not high. Because of the rapid replacement of electronic information equipment, many problems such as old electronic communication equipment, inadequate supply facilities and incomplete information collection in rural areas have become increasingly prominent, seriously affecting the competitive position of Taobao Village in the market, resulting in Taobao Village becoming "hollow village".

3.2 Disordered information collection channels

In the process of information management, blind and massive collection of information greatly increases the difficulty of information identification. It disrupts the way of thinking, and is easy to fall into the "dead end" of thinking. At the beginning, entrepreneurs fail because of insufficient information recognition. They cannot collect effective information scientifically and have weak information discrimination ability, which increases the difficulty for entrepreneurs to enter the market. In addition, the lack of multi-channel scientific collection, multi-angle thinking and multi-method solving ability, the clarity of the information collected is not high, and the inability to accurately grasp the market trend leads to the elimination of some taobao villages from the ecosystem.

3.3 Lack of Professional Talents

The rural areas are in economically underdeveloped areas, and the information management personnel lack relevant professional skills. Although many rural areas have established rural service stations, due to the large number of young people in rural areas to urban development, the introduction of talents is seriously inadequate, and the utilization efficiency of rural service stations is also very low. The utilization efficiency of the basic facilities of rural service stations is low, which cannot effectively attract the attention of residents, and the limitations of information management are large.

4. Application of Information Management in Ecosystem of Taobao Village

Online trading activities in Taobao Village ecosystem are derived from the relatively mature information technology. Enterprises use their keen business sense to establish a third-party Taobao e-commerce platform, which becomes an independent "new species" - core species in Taobao Village ecosystem, and through the initial free business model of the platform. A large number of merchants are gathered in order to achieve the purpose of late fee profit. With the growth of Taobao e-commerce
platform, key species (agricultural producers, non-agricultural producers, consumers, Taobao village merchants) have gradually formed and developed through the bridge of Taobao e-commerce platform. The development of Taobao e-commerce platform not only helped to find sales channels for marginal commodities all over the country, but also produced parasitic species (objects). Flow enterprises, network marketing service providers, suppliers, online payment enterprises) and supporting species (government, e-commerce associations, village committees, financial institutions) drive the common development of multi-industry (see figure 1).

![Information Flow Model of Taobao Village Ecosystem](image)

**Fig. 1 Information Flow Model of Taobao Village Ecosystem**

### 4.1 Core species
The core species mainly refers to Taobao e-commerce platform enterprises in Taobao village ecosystem, which plays a decisive and leading role in it, and it also is a platform for information transmission between businesses and consumers. E-commerce platform enterprises attract merchants through information technology to formulate convenient trading rules, symmetrical information mechanism and fair trading environment circulation mechanism, not just to provide products and services. Taobao e-commerce platform is a huge data system, there is management with data. Because Taobao village e-commerce platform is maintained and controlled by relevant enterprises, problems such as imperfect management, frequent and unreasonable changes in rules and information asymmetry have always existed in the process of operation. Relevant departments should strengthen e-commerce. Platform information management should improve relevant laws and regulations, strengthen regulatory measures, and give full play to the advantages of Taobao e-commerce platform.
4.2 Key species
The key species include two parts, one is agro-related producers, non-agro-related producers and shop practitioners in Taobao Village, and the other is consumer groups, which play a key role in the ecosystem of Taobao Village. In the process of exploring the formation mechanism of the ecosystem, it is found that asymmetric information, uneven quality of products, low degree of product differentiation, individualized products, low value-added products and low product innovation are the main reasons for consumers to give up participating in the platform transaction or even terminate the platform transaction. Among them, information asymmetry is the most likely cause of contradiction between the two sides of the transaction.

4.3 Supporting species
Supporting species are composed of financial institutions, e-commerce associations, village committees and other social organizations as well as government organizations. The main role of these organizations is to assist and support the development of Taobao village ecosystem. They do not aim at interests and provide effective information and help to Taobao village ecosystem in varying degrees. It has promoted the development of Taobao Village ecosystem. The participation of social organizations and governments has provided tremendous support to the ecosystem of Taobao Village. At the same time, it has standardized the trading rules in the system and supervised and guided the activities in the ecosystem of Taobao Village to be carried out within the scope of morality and law. Although supporting species have made great contributions to the development and growth of Taobao village ecosystem, they are the organizational groups serving key species in the ecosystem, assisting the production and Entrepreneurship of key species under imperfect laws and regulations, and assisting key species in commodity trading activities.

4.4 Parasitic species
Parasitic species are composed of suppliers and distributors, village logistics enterprises, online marketing service providers (web page production or commodity photography display) and other enterprises. They exist because of the existence of Taobao village ecosystem, mainly providing supply, transportation, technology and other needs for Taobao village merchants. Logistics enterprises are the fundamental guarantee of network transaction. Network marketing service enhances the visual impact of commodities, achieves twice the result with half the effort in the transaction, and at the same time enhances the brand benefit.

5. Application enlightenment of information management in the ecosystem of taobao village

5.1 Improving the Utilization of Information
Information construction can not be separated from the development of information technology and information management. Information technology has become an important field of scientific and technological competition in the 21st century. Meanwhile, effective management of information has become an important part of ecosystem construction in Taobao Village. Efficient, accurate and timely information management will also be an ecosystem in Taobao Village. Unified construction provides a good environment for development, which can promote the development of urbanization, industrialization and modernization. It can be seen that the establishment of information management system to improve the efficiency of information utilization is particularly important for the ecosystem of Taobao Village. Enterprises should not only pay attention to information collection, but also pay attention to the efficiency of information utilization and highlight the competitive advantages of enterprises in the market.

5.2 Perfecting Information Management System and Mechanism
Information management is a social activity, which has universality and sociality. Information management involves a wide range of social individuals, groups and the national level. Although
Taobao Village has obvious ecosystem characteristics, it is unevenly distributed and lacks standardization and systematicness in information management. To achieve accurate information sharing in Taobao Village ecosystem, firstly, we must establish a sound information management system and mechanism to ensure that the public can get accurate and comprehensive information from the information platform; secondly, the government should play a leading role in Taobao Village ecosystem information management, they can formulate relevant preferential policies and promote information. Share in an all-round way to improve people's enthusiasm for innovation and entrepreneurship.

5.3 Reducing Information Asymmetry
The serious information asymmetry is one of the important reasons why the ecosystem of Taobao Village disappears under growth. Information asymmetry leads to serious deviation in market analysis of Taobao Village ecosystem, which leads to adverse selection and loss of competitive advantage. Reducing information asymmetry, establishing a perfect information management system, maintaining the party who suffers losses due to information asymmetry, and reducing or eliminating the dissemination of false information can promote the sustainable development of Taobao Village ecosystem.

6. Conclusion
To sum up, the application of information management in Taobao village ecosystem is not perfect. Establishing the informatization development of Taobao village ecosystem is a long-term and systematic project, which is the basic guarantee for the sustainable development of Taobao village ecosystem. Therefore, it is necessary for the government and relevant enterprises to make joint efforts to establish an information management system to manage the ecosystem of taobao village while developing the ecosystem of taobao village.

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