The Problems Existing in the Development of Rural E-commerce in Henan Province

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ABSTRACT
This paper aims to explore the problems existing in the development of rural e-commerce in Henan Province and propose corresponding solutions. Through the integration of existing research results, combined with field surveys and case analyses, it deeply analyzes the challenges and difficulties in the development of rural e-commerce in Henan Province, thereby providing theoretical support and practical guidance for further development in this field.

KEYWORDS
Rural E-Commerce; Henan Province; Theoretical Support

1. INTRODUCTION
With the continuous development and popularization of information technology, e-commerce has become an important force driving economic development and social progress. Especially in rural areas, e-commerce provides convenient shopping channels for farmers, expands sales markets, and promotes rural economic development. However, the development of rural e-commerce in Henan Province also faces a series of problems and challenges. How to effectively solve these problems and promote the healthy development of rural e-commerce has become one of the urgent issues to be addressed.

2. INFRASTRUCTURE INADEQUACY

2.1. Research on the Current Status of E-commerce Infrastructure Construction in China

Infrastructure is the foundation that supports and promotes economic, social, and environmental development. A well-established logistics network can enhance the efficiency of e-commerce transactions and reduce transportation costs; a comprehensive payment system directly impacts user transaction experiences and trust in the platform; stable and efficient network connectivity ensures smooth online transactions. The improvement of these infrastructures directly promotes the development and prosperity of rural e-commerce.

Therefore, the development of rural e-commerce in China urgently needs support from sound infrastructure. However, the current inadequate infrastructure has become one of the main obstacles. According to a study published by Cheng Sijia, Zhang Ruiwen and Shao Shuhui in the "Agricultural Outlook" in 2022, the analysis of the development path of rural e-commerce logistics in Henan Province shows that rural e-commerce infrastructure construction faces multiple challenges. Insufficient coverage of logistics networks leads to low freight efficiency and prolonged transaction
cycles; the low penetration rate of electronic payment systems restricts the convenience of online transactions; issues with internet access speed and stability affect user experience and business stability.[1]

The solution requires increased investment to improve rural e-commerce infrastructure, including strengthening logistics networks, promoting electronic payment systems, and optimizing internet access facilities to enhance delivery efficiency, penetration rate, and user experience. These measures will effectively promote the healthy development of rural e-commerce and drive the upgrading of rural economies.

2.2. Solution and Recommendations

2.2.1. Increase Investment in Rural E-commerce Infrastructure Construction

Increasing investment in rural e-commerce infrastructure construction is a crucial step in promoting the development of rural e-commerce. It requires both government support and guidance, as well as active participation and investment from enterprises. Zhang Qian and Lin Meishun (2021) pointed out in their article titled "Research on the Current Situation and Countermeasures of Rural E-commerce Logistics Development" published in the journal "Modern Marketing" that the government should increase funding for rural e-commerce infrastructure construction and formulate relevant policies and regulations to provide a better environment and conditions for the development of e-commerce enterprises in rural areas.[2]

Additionally, it is necessary to encourage and guide major e-commerce companies and local enterprises to increase investment in rural e-commerce infrastructure construction. This includes accelerating network construction, enhancing logistics and delivery capabilities, and promoting electronic payment methods. All of these investments can not only meet the basic needs of rural e-commerce development in the short term but also bring more employment opportunities and economic benefits to rural areas in the long run.

Regarding accelerating network construction, the government can attract more network operators and equipment suppliers to participate in rural network construction through bidding and preferential policies, thereby improving network coverage and speed. At the same time, major e-commerce companies such as JD.com, Alibaba, and Pinduoduo can also increase investment in rural network infrastructure, jointly promoting the progress of network construction.

Improving logistics and delivery capabilities is equally crucial as it directly impacts customers' online shopping experience. Therefore, the Henan provincial government and municipal governments should support logistics companies in rural areas to establish distribution centers and storage facilities, optimize delivery routes and service processes to enhance logistics efficiency and service quality. At the same time, e-commerce companies need to strengthen cooperation with logistics partners to overall improve logistics and delivery capabilities.

Promoting electronic payment methods requires concerted efforts from the government and enterprises. The government should formulate relevant policies and regulations to support the widespread adoption and promotion of electronic payment tools (such as Alipay, WeChat Pay, UnionPay, etc.) and set up convenient electronic payment service points in rural areas. E-commerce companies should also actively promote electronic payment methods to provide users with more convenient and secure payment options.

2.2.2. Improving Network Coverage and Speed

The development of rural e-commerce requires an increase in network coverage and speed, which are crucial aspects. To address this issue, the following measures are outlined in the "China Internet Development Report":

1. The government should increase investment in rural network infrastructure construction, including fiber optic cabling, wireless network equipment, etc.

2. Reasonable network planning and layout schemes are necessary, taking into account factors such as terrain, population distribution, etc., to ensure broader and more stable network coverage. It is essential to plan the direction and location of network construction nodes reasonably.

3. Adopting more advanced network technologies and equipment, such as 5G technology, fiber optic networks, etc., will enhance the transmission speed and bandwidth of rural area networks, ensuring that rural users can enjoy high-speed and stable network services.

4. Promoting smart hardware is also an effective means to improve network coverage and signal stability, such as smart routers, signal boosters, and other devices, thereby enhancing users' internet experience.

5. The government and relevant departments must strengthen supervision of rural network construction, and network service providers should promptly address network faults and issues to ensure network service quality.

2.2.3. Establishing a More Comprehensive Logistics Network

The further development of rural e-commerce is inseparable from the promotion of electronic payments. Therefore, multiple measures need to be taken to promote the widespread adoption and application of electronic payments in rural areas.

Increasing Technological Literacy:

Enhancing technological literacy involves promoting the adoption of mobile payments, electronic wallets, and other electronic payment tools in rural areas. Additionally, it entails strengthening training and education for farmers to increase their acceptance of electronic payments.

Establishing Convenient Service Points:

Creating convenient service points is crucial. This can be achieved by setting up convenient electronic payment service points in rural areas, such as community service stations and village-level outlets. These points will offer fast and convenient electronic payment services, addressing the issue of limited payment channels for farmers.

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Establishing Convenient Service Stations:

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Strengthening Security Measures:

Strengthening security measures is also indispensable. This includes enhancing the security and reliability of electronic payment systems, establishing sound risk control mechanisms and regulatory systems to safeguard user funds, enhance user confidence, and thus improve the sustainability of electronic payments.

Lastly, promoting merchant applications is also essential. Encouraging rural e-commerce platforms and offline merchants to provide electronic payment services and offering corresponding preferential policies and incentives can attract more users to use electronic payments, promote the convenience
and scale development of rural e-commerce transactions. The comprehensive implementation of these measures can effectively promote electronic payments, stimulate the development and prosperity of rural e-commerce.

3. LAGGING INFORMATIONIZATION LEVEL

3.1. Low Information Literacy Among Rural Residents

Currently, the insufficient information literacy level among rural residents is also one of the factors hindering the development of rural e-commerce, mainly manifested in the lack of understanding and application ability in information technology among farmers. According to the "China Informationization Development Report," rural residents have very limited knowledge of the basic principles of the Internet and network security, which prevents them from effectively using the Internet for information retrieval and communication.

3.2. Low Penetration Rate of Information Equipment

Compared to urban areas, rural residents have a lower penetration rate of information equipment, posing challenges for their participation in online information exchange and learning. According to the "China Informationization Development Report," data shows that the penetration rate of information equipment in rural areas is significantly lower than that in urban areas, leading to difficulties for rural residents in accessing online information and engaging in online learning.

The low penetration rate of information equipment in rural areas is mainly manifested in several aspects: 1. Insufficient supply and support of information equipment in rural areas, making it difficult for rural residents to access devices such as computers and smartphones; 2. Due to the relatively lower economic level in rural areas, some residents cannot afford the high prices of information equipment, resulting in a low penetration rate of devices; 3. Some rural areas lack sufficient infrastructure and network coverage, limiting the use and penetration of information equipment.

3.3. Solutions and Suggestions

3.3.1. Conducting Rural E-commerce Information Education and Training

The implementation of rural e-commerce information education and training is a crucial measure to enhance the information literacy and skills of farmers. By organizing training activities on basic computer operations, internet usage skills, and e-commerce knowledge, it can effectively improve the rural residents' capabilities and literacy in information technology.

Conducting rural e-commerce information education and training is of great significance for promoting e-commerce development in rural areas. This training can help farmers master basic computer operation skills, allowing them to use electronic devices more proficiently for work and learning. Training in internet usage skills also enables rural residents to flexibly utilize internet resources for information acquisition and online communication. Moreover, through e-commerce knowledge training, farmers can understand the basic concepts, operational processes, and market rules of e-commerce, thereby enabling them to participate more effectively in e-commerce activities.

When implementing rural e-commerce information education and training activities, it is essential to fully consider the actual situation and needs of rural residents and adopt targeted training content and methods. Additionally, attention should be paid to the construction of training instructor teams to improve the quality and effectiveness of training, ensuring that farmers can truly benefit and apply the knowledge learned to practical production and life.
3.3.2. Establishing an Online Learning Platform

With economic development and social progress, information technology has been widely applied in various industries. Establishing a rural e-commerce online learning platform is an important means to enhance farmers' information literacy and learning abilities. The platform provides rich online courses and learning resources, allowing farmers to learn anytime and anywhere through the internet and improve their information literacy and skill levels.

According to relevant research in the "China Informationization Development Report," establishing an online learning platform is of great significance for promoting information education in rural areas. The platform can offer farmers high-quality online courses covering e-commerce knowledge, network security, information technology, and other fields, enriching their learning resources. Additionally, the platform breaks geographical restrictions, freeing farmers from time and location constraints, enabling them to learn and improve themselves anytime and anywhere. Moreover, the platform provides personalized learning services, offering targeted teaching and guidance based on farmers' learning needs and levels, thereby enhancing learning effectiveness and outcomes.

When establishing an online learning platform, it is necessary to fully consider the actual situation and characteristics of rural areas, design user-friendly interfaces and operation methods, provide stable and efficient network services, and ensure that farmers can smoothly engage in online learning. Additionally, efforts should be made to strengthen the promotion and publicity of the platform, allowing more farmers to understand and utilize this learning resource, continuously improving their information literacy and learning abilities.

3.3.3. Promoting Digital Education Tools

Promoting digital education tools is an effective way to enhance farmers' awareness and capabilities in information technology. By promoting smartphone applications and online teaching software, farmers can conveniently access knowledge and improve their information literacy levels.

The promotion of digital education tools holds significant importance in promoting information education in rural areas. Smartphone applications and online teaching software can offer a diverse range of learning content, including agricultural knowledge, e-commerce skills, and more, catering to the diverse learning needs of farmers. These digital education tools allow learning anytime and anywhere, breaking the constraints of time and space, and increasing the convenience and flexibility of learning. Moreover, digital education tools can provide personalized learning paths and tutoring services, offering targeted teaching based on farmers' learning progress and interests, thereby enhancing learning effectiveness and outcomes.

When promoting digital education tools, it is crucial to strengthen training and guidance for farmers, improving their awareness and usability of these tools. Governments and enterprises also need to enhance the research and development of digital education tools, continuously improving their functionality and service levels to meet the growing learning needs of farmers.

3.3.4. Strengthening Community Informationization Construction

Community informationization is a significant aspect of development in the information age and an important extension of China's informationization efforts. By promoting digital education tools such as smartphone applications and online teaching software within communities, farmers can effectively acquire knowledge and cultivate information technology skills.

Community informationization can provide farmers with convenient learning resources and an educational platform, making it easier for them to access the necessary knowledge and skills. It can also facilitate communication and cooperation among farmers, enhance information sharing and interaction, further improve farmers' information literacy and social participation capabilities, and provide personalized learning support and tutoring services based on their needs and interests, thereby enhancing learning effectiveness and outcomes.
In the process of strengthening community informationization, it is crucial to fully consider the actual situation and characteristics of rural communities, formulate reasonable promotion plans and training programs, and encourage farmers to actively participate in informationization efforts. Additionally, there is a need to enhance the research and development of digital education tools and optimize them to ensure that their functionalities and services can meet farmers' learning needs and practical application scenarios.

4. LACK OF SPECIALIZED TALENT SUPPORT

4.1. Current Situation and Challenges of Rural E-commerce Talent Development

The shortage of e-commerce talent has always been a significant issue hindering the development of rural e-commerce. Rural areas lack young talents with specialized skills and experience, such as e-commerce operations, marketing, logistics management, and other professional talents, which restricts the speed and quality of rural e-commerce development.

Due to the insufficient experience in managing and operating e-commerce platforms in rural areas, rural e-commerce platforms need more effective operation models and strategies to attract more users and merchants. However, due to the talent shortage, many rural e-commerce platforms face operational difficulties.

Rural e-commerce also faces a shortage of professional talents in marketing. In a highly competitive market environment, rural e-commerce requires professional talents capable of devising effective marketing strategies and promotion plans. However, the reality is that there is a lack of such talents, which hinders the promotion and marketing efforts of rural e-commerce.

Challenges also exist in logistics management. Logistics is a crucial aspect of e-commerce development, but due to the lack of logistics infrastructure and professional talents in rural areas, there are issues such as low logistics efficiency and unstable delivery services, which affect the development of rural e-commerce.

Therefore, to address the current situation and challenges of rural e-commerce talent development, a series of measures need to be taken. For example, strengthening talent training and education in the field of rural e-commerce, promoting the training and enhancement of relevant professional talents; encouraging various talents to transition to the field of rural e-commerce, improving the overall level and quality of rural e-commerce talents; at the same time, governments and enterprises can collaborate to establish mechanisms for cultivating rural e-commerce talents, delivering more outstanding professional talents for the development of rural e-commerce.

4.2. Solutions and Suggestions

4.2.1. Establishing Rural E-commerce Talent Development Mechanism

Establishing a rural e-commerce talent development mechanism is one of the key measures to promote the development of rural e-commerce. Strengthening cooperation with universities and training institutions can establish specialized rural e-commerce talent development plans and curriculum systems to cultivate talents with professional e-commerce skills.

Meanwhile, universities, as the main base for talent cultivation, possess abundant teaching resources and professional knowledge. Therefore, local universities can offer e-commerce-related courses to cultivate students' e-commerce awareness and skills. Additionally, collaborative practical projects between universities and enterprises can help students better grasp practical skills in e-commerce operations, marketing, and more.
Collaboration with training institutions is also an effective approach to cultivating rural e-commerce talents. Conducting e-commerce training courses for different levels and needs of people, covering various aspects such as e-commerce operations, marketing, and logistics management, can enhance the comprehensive qualities and professional abilities of trainees.

Establishing specialized rural e-commerce talent development plans and curriculum systems is also crucial. Educational institutions can combine the actual needs of rural e-commerce to develop course content and training programs that meet industry standards and requirements, ensuring that the talents cultivated can meet the needs of rural e-commerce development.

Therefore, the suggestion to strengthen cooperation with universities and training institutions and establish specialized rural e-commerce talent development plans and curriculum systems will help address the shortage of rural e-commerce talents, thereby promoting the development and growth of rural e-commerce.

4.2.2. Attracting Professional Talents to Return to Rural Areas for Entrepreneurship

The government should attract more professionals with e-commerce expertise to return to rural areas for entrepreneurship through policy support and project assistance, thereby stimulating the vitality and innovation of rural e-commerce development.

The government can formulate tax incentives, fiscal subsidies, and other policies to encourage high-tech talents with e-commerce expertise to return to rural areas for entrepreneurship. Additionally, providing support for start-up capital, venue rental subsidies, and other measures can reduce the cost of entrepreneurship for young people, attracting more talents to participate in rural e-commerce development.

Project assistance is also an effective way to attract professional talents back to rural areas for entrepreneurship. By establishing entrepreneurship incubators, providing entrepreneurship training, and guidance services, professionals can better understand the development opportunities and challenges of rural e-commerce, increasing their chances of entrepreneurial success. Moreover, introducing support such as funds, technology, and resources can promote the implementation and development of rural e-commerce projects.

Furthermore, local governments should strengthen cooperation with enterprises, industry associations, and other institutions. Collaboratively implementing talent introduction and training programs will help supply more professionals with e-commerce expertise for rural e-commerce development. These measures will contribute to breaking the shortage of rural e-commerce talents and advancing rural e-commerce development to a new level.

4.2.3. Providing Industry Internship Opportunities and Training Programs

The government and universities can create practical opportunities and professional training courses through rural e-commerce industry internship programs for students and practitioners, enhancing their professional skills and practical experience.

Internship programs offer participants the chance to engage in actual e-commerce projects and activities, enabling them to understand industry operation models, market demands, and competitive environments while gaining practical experience and problem-solving abilities. Tailored training courses covering e-commerce operations, marketing, customer service, logistics management, and more can be provided for students and practitioners at different levels and needs, comprehensively improving their professional capabilities and competitiveness.

Equally important, the government and universities can collaborate with e-commerce enterprises, industry associations, etc., to organize training programs and internship plans, utilizing industry resources and professional talents to create a learning and growth platform for students and practitioners. All these initiatives will help cultivate more rural e-commerce talents with practical skills and innovative spirit, promoting the healthy development of the rural e-commerce industry.
4.2.4. Enhancing Rural E-commerce Talent Exchange and Collaboration

The exchange and cooperation of talents in rural e-commerce are crucial for its development. Establishing a dedicated talent exchange platform can provide a space for professionals from different fields to communicate and collaborate, promoting the sharing of knowledge and experience and driving the collective growth and development of rural e-commerce talents. This platform can include online discussion forums, professional sharing sessions, industry seminars, etc., allowing talents to exchange viewpoints, share experiences, and learn about the latest industry trends more conveniently. Additionally, the platform can provide opportunities for talent collaboration on projects, deepening mutual understanding and cooperation through practical collaboration projects, and promoting technological innovation and development in the field of rural e-commerce.

5. INSUFFICIENT SUPERVISION OF RURAL E-COMMERCE

5.1. Current Status and Issues Analysis of Supervision

There are numerous issues in the supervision of rural e-commerce market, mainly focusing on the lack of professionalization in regulatory agencies, outdated regulatory methods, and challenges in effectively tackling illegal activities.

Due to the unique and complex nature of the rural e-commerce sector, regulatory agencies lack relevant professional knowledge and skills, leading to challenges in their regulatory work. The lack of professional regulatory personnel and teams also makes regulatory work more difficult.

With the rapid development of rural e-commerce, regulatory methods and approaches also need continuous upgrading and improvement to adapt to market changes and development. However, the current regulatory methods are relatively outdated, unable to timely and effectively address new regulatory issues and challenges, thus restricting regulatory work.

It's also worth noting that the difficulty in effectively tackling illegal activities is a major challenge in the current regulatory landscape. Due to outdated regulatory methods, lack of professionalization, and other reasons, some illegal activities are difficult to promptly investigate and handle, leading to certain chaos and uncertainty in the market order and impacting the healthy development of the rural e-commerce market.

Therefore, relevant departments should pay attention to the analysis of the current status of supervision in the rural e-commerce market. To address these issues, it is necessary to strengthen the professionalization of regulatory agencies and enhance the professional knowledge and skills of regulatory personnel. Additionally, timely updating of regulatory methods and approaches in sync with market developments is required. Strengthening cooperation and coordination to form regulatory synergy, intensifying efforts to combat illegal activities, and promoting the orderly and healthy development of the rural e-commerce market.

5.2. Solutions and Recommendations

5.2.1. Strengthening the Professionalization of Regulatory Agencies

Enhancing the professionalization of regulatory agencies is a crucial aspect that needs attention. Relevant departments should focus on building and cultivating regulatory teams, enhancing the professional competence and proficiency of regulatory personnel to better meet the regulatory needs of the rural e-commerce market.

In the process of strengthening the professionalization of regulatory agencies, attention should be paid to recruiting talents with backgrounds in the e-commerce industry and professional knowledge to ensure that regulatory personnel possess necessary professional competence. Additionally, regular
training and learning activities should be conducted to enhance the business proficiency and response capabilities of regulatory personnel, enabling them to be familiar with the operational rules of the e-commerce market and regulatory policies, thus fulfilling regulatory responsibilities more effectively.

Furthermore, advanced information technology can be utilized to establish efficient regulatory information systems and data analysis platforms, achieving real-time monitoring and data analysis of the rural e-commerce market, providing scientific basis and support for regulatory decision-making. These measures will contribute to enhancing regulatory efficiency and effectively addressing market changes and challenges.

5.2.2. Improving Regulatory Measures

It is worth noting that the application of technologies such as big data analysis and artificial intelligence monitoring can effectively enhance the monitoring and early warning capabilities of the rural e-commerce market, enabling timely detection and handling of irregularities to maintain market order and protect consumer rights.

Therefore, the introduction of big data analysis technology will help regulatory authorities gain a more comprehensive understanding of the operation of the rural e-commerce market. By collecting and analyzing a large amount of data, it is possible to monitor and evaluate market entities, transaction behaviors, product quality, etc., promptly identify potential risks and issues, and take corresponding measures for resolution.

Simultaneously, the use of artificial intelligence monitoring systems can significantly improve the real-time and precision of regulation. Leveraging artificial intelligence technology enables automatic monitoring and analysis of rural e-commerce activities, detecting anomalies and irregularities, issuing timely warning signals, and conducting targeted regulatory interventions to prevent further escalation of issues. Such a monitoring system helps enhance regulatory efficiency and response speed.

5.2.3. Strengthening Industry Self-Regulation

Currently, enhancing the industry self-regulation of rural e-commerce enterprises is considered a key issue that urgently needs to be addressed. By establishing industry associations or organizations and strengthening information sharing and cooperation among enterprises, it is possible to effectively reduce irregularities, enhance market competitiveness, and promote sustainable industry development.

To achieve the goal of industry self-regulation, it is necessary to establish a sound organizational structure and management mechanism to ensure the effective operation of industry associations or organizations. Additionally, emphasis should be placed on enhancing communication and cooperation among members, establishing an information-sharing platform, promptly conveying market information and regulatory policies, and enhancing internal cohesion and cooperative awareness within the industry. This can effectively supervise and constrain enterprise behaviors, promoting standardized industry development.

Furthermore, it is essential to strengthen self-restraint and supervision mechanisms within enterprises, establish sound internal management systems and standardized operational procedures, and enhance enterprises' integrity awareness and self-discipline capabilities. This self-regulation mechanism not only helps reduce irregularities but also enhances the overall image and credibility of enterprises, increases consumer trust, and promotes healthy market development.

5.2.4. Improving Regulatory Laws and Policies

At present, it is crucial to improve rural e-commerce regulatory laws and policies. Regulations and policies related to e-commerce can strengthen supervision over e-commerce platforms, transaction behaviors, and other aspects to ensure the healthy operation of the rural e-commerce market. Sound regulatory laws and policies can effectively enhance regulatory efficiency, maintain market order, and promote the healthy development of rural e-commerce.
To improve regulatory laws and policies, it is necessary to assess and revise existing regulations to ensure their compatibility with the development of the e-commerce market. Additionally, clear responsibilities and authorities of regulatory departments should be defined to ensure orderly regulatory work. Furthermore, it is essential to strengthen supervision over e-commerce platforms, transaction behaviors, and other aspects, establish sound regulatory mechanisms and measures, promptly detect and address irregularities, and maintain a fair competitive environment in the market. During implementation, relevant departments should pay attention to gathering opinions from various parties, forming consensus among multiple stakeholders, and enhancing the enforcement and pertinence of laws and policies. This can effectively address contradictions and issues in supervision and promote the healthy and orderly development of the rural e-commerce market.

6. CONCLUSION

By analyzing and studying the problems existing in the development of rural e-commerce in Henan Province, this article proposes a series of solutions and suggestions aimed at providing theoretical support and practical guidance for promoting the healthy development of rural e-commerce. At the same time, it is hoped that relevant departments and enterprises can pay attention to these issues, take effective measures, and promote the sustainable and healthy development of the rural e-commerce industry.

REFERENCE: