THE PROBLEMS AND COUNTERMEASURES OF
E-COMMERCE OPERATION OF AGRICULTURAL
PRODUCTS IN HUBEI PROVINCE

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) เพื่อศึกษาสถานะปัจจุบันและปัญหาของอีคอมเมิร์ซทาง การเกษตรในมณฑลหูเป่ย และ 2) เพื่อวิเคราะห์สภาพแวดล้อมของตลาดอีคอมเมิร์ซทางการเกษตร ในมณฑลหูเป่ย

การวิจัยนี้เป็นการวิจัยเชิงปริมาณ ประชากรคือ ประชากรเป็นแพลตฟอร์มอีคอมเมิร์ซ ซัพ พลายเออร์ในเหอเป่ย ซึ่งไม่ทราบจำนวนที่แน่นอน กลุ่มตัวอย่าง จำนวน 400 คน ใช้วิธีการสุ่มแบบ เฉพาะเจาะจง โดยใช้แบบสอบถามเป็นเครื่องมือในการเก็บรวบรวมข้อมูล สถิติที่ใช้ในการวิเคราะห์ ได้แก่ ค่าความถี่ ร้อยละ ค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน สถิติที่ใช้ในการทดสอบ คือ การวิเคราะห์การ ถดถอยเชิงเส้นแบบพหุ

ผลการวิจัย พบว่า 1) บนแพลตฟอร์มอีคอมเมิร์ซ เกษตรกรและผู้ผลิตทางการเกษตร มีอิทธิพล อย่างมีนัยสำคัญต่อปัจจัยการดำเนินงานที่สำคัญ เช่น ราคาและเวลาในการจัดส่ง ซึ่งส่วนใหญ่สะท้อน ให้เห็นในความต้องการที่สูงในด้านคุณภาพและราคาสินค้าเกษตร และ 2) ตลาดอีคอมเมิร์ซ การเกษตรในมณฑลหูเป่ยมีความคืบหน้าภายใต้ภาระหนัก โดยเผชิญกับความท้าทายหลายประการ แต่ก็มีศักยภาพที่สำคัญเช่นกัน ความซับซ้อนของสภาพแวดล้อมของตลาด ลักษณะเฉพาะของสินค้า เกษตร และการพัฒนาเทคโนโลยีอินเทอร์เน็ต ทำให้เกิดโอกาสใหม่ๆ มากมายสำหรับการดำเนินธุรกิจ อีคอมเมิร์ซทางการเกษตรในมณฑลหูเป่ย

คำสำคัญ: หูเป่ย สินค้าเกษตร การพาณิชย์อิเล็กทรอนิกส์

ABSTRACT

The objectives of this research: 1) to study the current status and problems of agricultural e-commerce in Hubei province; and 2) to analyze the market environment for Hubei agricultural e-commerce.

This research is quantitative research. The population was e-commerce platforms, suppliers in Hebei which the exact number is unknown. A sample of 400 people was used by specific random sampling. By using questionnaires as a tool to collect data statistics used in the analysis These are frequency, percentage, mean and standard deviation. and the statistics used in the test multiple Linear regression analysis.

The research finding were found that: 1) on e-commerce platforms farmers and agricultural producers have significant influence on key operating factors such as price and delivery time. Mainly reflected in their high requirements for agricultural product quality and price; and 2) the Hubei agricultural e-commerce market is making progress under heavy loads, facing multiple challenges, but also has significant potential. The complexity of the market environment, the uniqueness of the characteristics of agricultural products itself, and the development of Internet technology have provided many new opportunities for Hubei agricultural e-commerce operations.

Keywords: Hubei, Agricultural Products, E-commerce

Research Background

In modern society, e-commerce has become an important business model, profoundly changing our ways of life and work. Especially in the field of agriculture, e-commerce offers a broader market and diversified sales channels. Through online platforms, producers can directly connect with global consumers, and consumers can purchase fresh agricultural products from different places with just one click. This is particularly evident during the COVID-19 pandemic, when e-

commerce ensured the circulation of goods and promoted the stable development of the economy.

For Hubei Province, an important agricultural production area in China, the development of e-commerce for agricultural products has important practical significance. Many agricultural products produced in Hubei Province, such as Hubei fish, Hubei rice, and Hubei eel, are of high quality and reputation. However, due to insufficient market development and limited sales channels, they often fail to get sufficient market response and economic returns. E-commerce offers a new solution that can help Hubei agricultural products expand the market and improve sales conditions.

However, e-commerce of agricultural products in Hubei, especially cross-regional e-commerce, is no easy task. It involves many issues, such as how to effectively carry out online sales, how to handle after-sales service, how to solve the problem of logistics distribution, and how to connect with consumer demand in different regions, etc. The solution to these issues requires targeted research and strategies.

Therefore, this paper will focus on the current issues and countermeasures of e-commerce operation of agricultural products in Hubei, aiming to understand the operation status, existing issues and possible solutions of e-commerce of agricultural products in Hubei through empirical research, and provide strong theoretical support and strategic suggestions for the further development of e-commerce of agricultural products in Hubei.

The introductory section will mainly explain the research background and purpose. Next, we will detail the current situation of e-commerce of agricultural products in Hubei, and analyze the main issues existing in its operation. Then, based on the nature and characteristics of the problems, we will propose corresponding solutions. At the same time, we will empirically analyze the feasibility and validity of the proposed solutions through case studies, data analysis and other methods. Finally, we will summarize the whole paper, reflect on the conclusions and solutions drawn, and look forward to future research directions.

We hope that the research and analysis in this paper can provide

useful references for the e-commerce of agricultural products in Hubei and promote the healthy development of the agricultural economy and social economy in Hubei.

1.2 Research Objective

1.2.1 Revealing the main issues in the operation of Hubei's agricultural e-commerce, by gaining a deep understanding and analysis of the current situation to identify existing problems and challenges.

1.2.2 Using Porter's Five Forces model to analyze the market environment and competitiveness of Hubei's agricultural e-commerce. This will help us gain a deeper understanding of the industry dynamics and market trends of Hubei's agricultural e-commerce.

1.2.3 Finally, based on our research and analysis, we will look for and formulate feasible solutions and suggestions for the operational issues of Hubei's agricultural e-commerce to provide reference for policy makers and business practitioners.

1.3 Research Scope

In this research, the researcher has defined the scope of research as follows:

1.3.1 Content Scope

Focus on the study of factors including Several Factors Affecting the Operation of Hubei's Agricultural E-commerce

Independent :

1. Porter's Five Forces Model

1.1 Bargaining Power of Suppliers

1.2 Bargaining Power of Buyers

1.3 Threat of New Entrants

1.4 Threat of Substitute Products or Services

1.5 Intensity of Competitive Rivalry within the Industry

Dependent :

2. Characteristics of Agricultural Products

2.1 Seasonality of Agricultural Products

2.2 Regionality of Agricultural Products

2.3 Diversity of Agricultural Product Varieties

1.3.2 Area Scope

The geographical scope of this study is the Hubei region, more specifically, we will focus on the e-commerce operations in its main agricultural production areas and main market areas.

1.3.3 Population Scope

The main population of interest in this study are the agricultural product producers (farmers) and consumers in the Hubei region, with the consumers mainly being urban residents in the Hubei region and users of e-commerce platforms.

1.3.4 Time Scope

The time range mainly considered in this study is the data and information within the last five years (from 2019 to 2024), to ensure that the questions and measures studied are timely and targeted.

1.4 Definitions of specific terms

1.4.1 E-commerce: E-commerce (Electronic Commerce) is generally defined as various commercial activities conducted on the Internet. In this study, agricultural e-commerce refers mainly to the sale of agricultural products through online platforms, including but not limited to product display, online purchasing, logistics distribution, etc.

1.4.2 Agricultural products: Agricultural products typically refer to the direct products of agricultural production, which include grains, vegetables, fruits, livestock, poultry, and egg products. In this study, we will focus on the main types of agricultural products in the Hubei region. These agricultural products are not only the lifeblood of Hubei's economy but also an important support for the development of e-commerce. A study of their online sales can provide a deeper understanding of the current state of e-commerce for agricultural products in the Hubei region and identify key factors that influence its development.
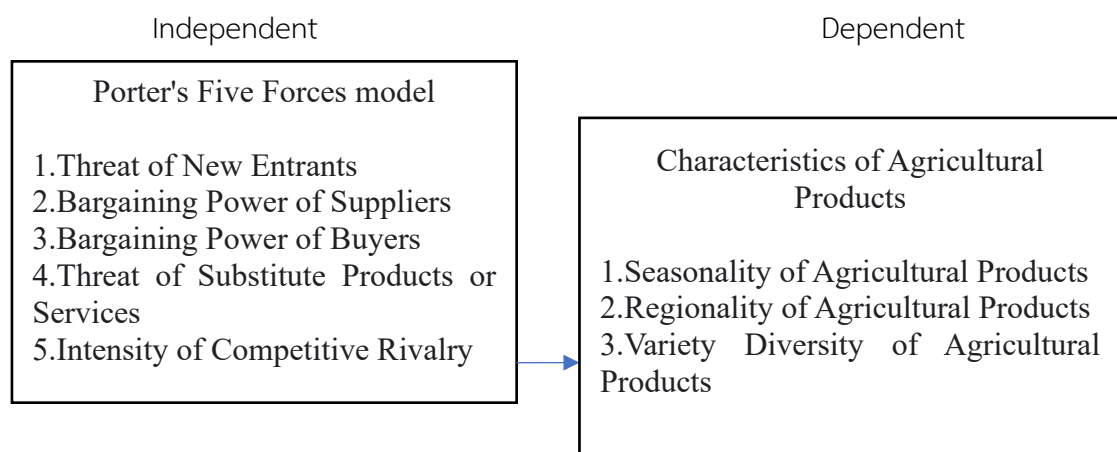
1.4.3 Porter's Five Forces Model: The Porter's Five Forces model, proposed by Michael Porter of Harvard University in 1980, consists of five forces: the threat of new

entrants, the bargaining power of suppliers, the bargaining power of buyers, the threat of substitutes, and competition among peers within the industry. In the research of this thesis, we will apply the Porter's Five Forces model to analyze the market environment and competitive intensity of e-commerce for agricultural products in the Hubei region. This model can help us gain a deep understanding of the competitive landscape of the market, uncover the competitive advantages and threats in the industry, and provide strategic recommendations for the further development of e-commerce for agricultural products in Hubei.

1.4.4 Supply Chain Management: Supply Chain Management (SCM) is the integrated management of all activities in the supply chain through strategic partnership relationships to achieve the maximization of customer value and own core comparative advantages. In this study, we will focus on the issues of supply chain management in agricultural e-commerce.

1.4.5 Marketing Strategy: The market strategy is one or a series of action plans taken to gain advantage in market competition. In this study, we will analyze and propose the market strategy for Hubei's agricultural e-commerce.

1.5 Research Framework

Independent   Dependent

Porter's Five Forces model
1.Threat of New Entrants 2.Bargaining Power of Suppliers 3.Bargaining Power of Buyers 4.Threat of Substitute Products or Services 5.Intensity of Competitive Rivalry

Characteristics of Agricultural Products
1.Seasonality of Agricultural Products 2.Regionality of Agricultural Products 3.Variety Diversity of Agricultural Products

1.6 Expected Benefits

The expected benefits of this research are mainly as follows:

1.6.1. Strategic Help for Backward Areas: This study can deeply reveal the current situation and problems of the operation of agricultural e-commerce in Hubei, and provide specific countermeasures for these problems, which is particularly beneficial for areas like Hubei where agricultural products are rich but the participation in e-commerce is relatively low.

1.6.2. Reference Value for Policy Formulation: By analyzing the problems and countermeasures of Hubei's agricultural e-commerce operation, it provides references for policy makers, helps to optimize relevant policies, and promotes the application of e-commerce in the field of agricultural products sales.

1.6.3. Inspiration for Commercial Practice: The theoretical analysis and empirical research in this study can provide valuable business experience and marketing strategies for enterprises or individuals engaged in agricultural e-commerce.

1.6.4. Driving Academic Research: The analysis methods and research frameworks used in this study can provide reference and inspiration for subsequent related studies, promoting academic exploration in areas such as agricultural e-commerce.

1.6.5. Contribution to Socio-Economic Development: By promoting the healthy development of e-commerce in Hubei's agricultural products, it is expected to drive the growth of agricultural production and farmers' income, and have a positive impact on local economic and social development.

Literature Review

The topic of this research is the current issues and countermeasure analysis of Hubei's agricultural product e-commerce operation. To make the research results practical and achieve the set literature review division, this chapter is divided into 5 parts:

2.1 Theory of Independent Theory 1: This part will introduce the theoretical foundation of Porter's Five Forces Model and its application in the analysis of Hubei's agricultural product e-commerce.

2.2 Theory of Independent Theory 2: This part will provide an overview of another crucial independent theory, like supply chain management theory, and discuss its application in the analysis of Hubei's agricultural product e-commerce operation.

2.3 Dependent Theory: This part will introduce the theory of agricultural product characteristics, which explains how the seasonality, regionality and other features of agricultural products affect e-commerce operations.

2.4 Scope Topic: This part will identify the specific scope of Hubei's agricultural product e-commerce operation based on our research, including specific agricultural products involved, e-commerce platforms operated, etc.

2.5 Related Research: This part will review existing related studies, including research on the current situation of e-commerce development in Hubei region, problems and countermeasures of agricultural product e-commerce, etc. to position and contribute to our research.

Research Methodology

The objectives of this research are:

(1) To study the current status and problems of agricultural e-commerce in Hubei province;

(2) To analyze the market environment for Hubei's agricultural e-commerce using Porter's five forces model;

(3) To propose solutions and measures based on the analysis results as follows

      3.1 Research Model

      3.2 Population and Sample

      3.3 Research Tools

      3.4 Data Collection Methods

      3.5 The statistics used in data analysis

Research Model

This study uses Porter's Five Forces model. The model, proposed by Michael Porter in the early 1980s, is an important tool for analyzing an enterprise's competitive environment and formulating competitive strategies. The model includes the following five aspects:

      3.1.1 Supplier bargaining power: Analyzes the influence and bargaining ability of suppliers in the environment of agricultural e-commerce, and how the number, scale, concentration, level of differentiation, and uniqueness of products influence the bargaining power of suppliers.

      3.1.2 Buyer bargaining power: Analyzes the impact and bargaining power of buyers (consumers) in the agricultural e-commerce environment, and the influence of buyer volume, procurement volume, information transparency, and brand loyalty on buyer bargaining power.

      3.1.3Threat: Analyzes the threshold for new competitors to enter the market and their potential impact on the current e-commerce environment. The impact of factors such as capital, technology, market promotion, and regulations on their entry is also analyzed.

      3.1.4 Competitive conditions: Examines the main competitors in the market and the basic situation of competitors in the agricultural e-commerce market, such as scale, diversity, services, pricing, marketing strategies, and more.

      3.1.5Threat of substitutes: Studies substitute products or services in the agricultural e-commerce market, and the level of consumer acceptance of such alternatives.

Through the analysis of the above five aspects, a comprehensive and in-depth understanding of the market environment of Hubei's agricultural e-commerce can be obtained, providing a basis for decision-making in strategic planning.

Population and Sample

The population covered by this study includes all companies engaged in agricultural e-commerce in Hubei Province and their users (Zhang Tianyu, 2024). Given the vast scope and complexity of Hubei's agricultural e-commerce, we consider all relevant enterprises and consumer groups within the whole Hubei province as the research population.

As for research samples, we selected specific companies and consumers drawn from the above-mentioned population. Using the formula proposed by Taro Yamane in 1973, we determined the sample size as 400 at a 95% confidence level and a 5% margin of error. Our chosen samples aim to represent the overall situation of Hubei agricultural e-commerce as best as possible, thereby enabling us to more accurately and effectively study and understand the current operation of Hubei agricultural e-commerce, identify existing problems, and propose solutions.

Research Tools

The main subject of this study is the agricultural e-commerce market in Hubei province, from which we collect information through questionnaires. The questionnaire mainly includes the following parts:

1.General information of the respondents: This includes basic information such as the respondents' gender, age, education level, and occupation, as well as their roles in agricultural e-commerce (for example, suppliers, consumers, etc.).

2.Respondents' opinions: This is mainly measured using the Likert scale, which is divided into five levels: strongly agree (5 points), agree (4 points), neutral (3 points), disagree (2 points), and strongly disagree (1 point). This part mainly studies the respondents' views on the current state and existing issues of Hubei agricultural e-commerce.

3.Suggestions: In the final part of the questionnaire, we encourage respondents to offer their suggestions on how to optimize the operation of Hubei's agricultural e-commerce and solve existing issues.

Then, we will scientifically organize and analyze the collected data to draw detailed and in-depth research conclusions.

Data Collection Methods

This research The researcher has collected the data as follows:

3.4.1 Primary Data: Mainly collected through distributing questionnaires to the sample group. The questions designed in the questionnaire aim to understand the perceptions, demands, and expectations of users and suppliers of agricultural e-commerce in Hubei Province regarding its current situation and existing issues.

3.4.2 Secondary Data: The researcher collects data from existing related documents and studies. These data may include past research results, statistical data, and industry analysis reports, etc. These data will provide some background information and references for this study, helping us to understand more comprehensively the operational status and challenges faced by agricultural e-commerce in Hubei.

The statistics used in data analysis

In the research process, we mainly used descriptive statistical methods to analyze the collected data. The following details the data processing for each part:

3.5.1 Firstly, for the data of general information of respondents collected in the first part of the questionnaire, we used the method of frequency and percentage for preliminary processing. Specifically, for each answer option of each question, we counted the number of respondents choosing each item and calculated its percentage in the total number of respondents, thus getting the distribution of each option.In addition, we also calculated the mean values of sample information (such as age, education level, etc.) to more accurately grasp the characteristics of the respondent group.

3.5.2 For the attitude data of respondents on the current operation and existing problems of agricultural e-commerce collected in the second part of the questionnaire, we mainly processed it by calculating the average score and standard deviation of each question. We first converted each respondent's answer into a numerical score according to the 5-point grading standard, and then calculated the average score of the total sample for each question. The standard deviation reflects the degree of divergence in respondents' opinions on each question.

Score Level

Strongly Agree	means	a score of	5 points
Agree	means	a score of	4 points
Neutral	means	a score of	3 points
Disagree	means	a score of	2 points
Strongly Disagree	means	a score of	1 point

3.5.3 Finally, based on the average scores obtained, we qualitatively categorized the overall attitudes of the respondents into five categories: strongly agree, agree, neutral, disagree, and strongly disagree, according to a certain interpretation range. The specific judgement standards are:

An average score of 4.20-5.00 is interpreted as "strongly agree".

An average score of 3.40-4.19 is interpreted as "agree".

An average score of 2.60-3.39 is interpreted as "neutral".

An average score of 1.80-2.59 is interpreted as "disagree".

An average score of 1.00-1.79 is interpreted as "strongly disagree".

Through the above statistical analysis methods, we can more accurately and comprehensively understand and reveal the current problems and countermeasures analysis of Hubei agricultural e-commerce operation.

Conclusion

According to the main results of the research, we can divide the conclusion of this study into the following four parts:

1. In-depth analysis of the market environment: We applied the Porter's Five Forces model to the core of Hubei agricultural e-commerce market, and analyzed and identified the key dynamics of this market. Beginning with the bargaining power of suppliers and buyers, we found that on e-commerce platforms, suppliers (farmers, agricultural producers) have significant influence on key operating factors such as price and delivery time. At the same time, consumers or buyers also have a certain impact, mainly reflected in their high requirements for agricultural product quality and price and their ability to choose between multiple online sales platforms. The threat of new entrants is mainly manifested in the relatively low threshold of Hubei agricultural e-commerce market, many e-commerce platforms easily flood into the market, and the resulting competitive pressure cannot be ignored. The threat of substitutes comes from consumers' overly abundant choices. They can simply get the agricultural products they need through other channels or platforms. In addition, there is fierce competition within the industry, which is partly reflected in the serious homogeneity of products, competitive products are everywhere, and buyers hope to gain market share by falling into a price war. These factors together constitute the complex market environment of Hubei agricultural e-commerce operations.

2. In-depth interpretation of agricultural product attributes: We conducted an in-depth discussion on Hubei agricultural product characteristics from four dimensions: quality, variety, price, and supply seasonality. These four aspects are key internal factors affecting Hubei agricultural e-commerce operations. In terms of quality, high-quality agricultural products can meet consumers' demands for food safety, taste, etc., thereby attracting more consumers. The diversity of varieties is related to e-commerce in terms of product line layout and market share acquisition strategy. The richer the varieties, the more they can meet the needs of more consumer groups, thereby expanding the product's market coverage. Price factors mainly affect the profit margin of farmers and the sales volume of products, and also play a key role in the competitiveness and attractiveness of the agricultural e-

commerce market. The supply seasonality of Hubei agricultural products brings additional challenges to e-commerce operations. How to innovate e-commerce models, improve the flexibility and efficiency of inventory management in response to supply-demand imbalance, is a key issue that Hubei agricultural e-commerce needs to actively address.

3. In-depth discussion of development strategy: This study further proposed that Hubei agricultural e-commerce should optimize operational strategies to adapt to the market environment. The focus is on optimizing the functionality and user experience of e-commerce platforms and better utilizing and guiding the participation of farmers. E-commerce platforms should provide a more convenient and faster shopping experience, while equipped with rich product information and user evaluations, so that consumers can make better purchase decisions. For farmers, in addition to providing easy-to-use e-commerce training, we should create and balance supply-demand relationships and let farmers get more benefits on e-commerce platforms. In addition, the optimization of the agricultural product logistics system is also an important link for the sustainable development of Hubei agricultural e-commerce. It directly affects multiple links such as product quality assurance, logistics speed, and product loss rate. Therefore, consider building an efficient agricultural product logistics system, especially addressing the issue of agricultural product supply seasonality, and further improve the flexibility and efficiency of inventory management and logistics distribution.

4. An in-depth analysis of policy recommendations: Based on the current situation of Hubei agricultural e-commerce and the problems it faces, this study suggested that policymakers and relevant departments propose a series of targeted policies to further promote its development. In particular, this policy must encourage and guide farmers to participate in e-commerce actively, improve sales channels, increase agricultural product sales, and ultimately effectively improve farmers' income and living standards. In addition, relevant policies should also include the standardization and supervision of e-commerce platforms, such as the implementation of strict quality monitoring and fair transaction rules, to ensure the protection of the rights and interests of farmers and consumers. At the same time,

provincial and municipal governments can make some fiscal subsidy policies to encourage e-commerce platforms to better serve farmers and promote the healthy development of Hubei agricultural e-commerce. In general, these policy suggestions aim to promote the overall progress of Hubei agricultural e-commerce industry and contribute to Hubei's agricultural economic and socio-economic development.

In conclusion, the Hubei agricultural e-commerce market is making progress under heavy loads, facing multiple challenges, but also has significant potential. The complexity of the market environment, the uniqueness of the characteristics of agricultural products itself, and the development of Internet technology have provided many new opportunities for Hubei agricultural e-commerce operations, but also brought new challenges. Therefore, accurate and targeted strategies are needed to better utilize these advantages and seize development opportunities. Among them, optimizing e-commerce platforms, better utilizing and guiding farmers' participation, and efficient construction of agricultural product logistics systems are the focus of current Hubei agricultural e-commerce operations. In addition, the implementation of corresponding policies will also become key to further promoting Hubei agricultural e-commerce. In general, by improving existing operational strategies and improving policy support, Hubei's agricultural e-commerce is expected to achieve broader development in a complex and diverse market. The conclusions and suggestions of this research hope to provide valuable references and inspirations for policymakers and the development of Hubei agricultural e-commerce.

Suggestion

Based on the current situation of Hubei's agricultural e-commerce operations, we offer the following suggestions:

1. Strengthen the standardization and supervision of agricultural e-commerce platforms: In order to ensure the fair operation of e-commerce platforms, market regulatory authorities need to enhance the standardization and supervision of e-commerce platforms. This not only pertains to fair trade and transaction transparency but also includes strict product quality monitoring. For consumers, they can make better purchasing decisions through comprehensive product information and fair

trading rules. For farmers, they can guarantee their economic benefits better in a transparent and fair market environment. Therefore, the government and market regulatory agencies need to formulate a series of comprehensive rules and policies to enhance the credibility of Hubei's agricultural e-commerce operations and increase consumer and farmer trust in e-commerce platforms.

2. Improve farmers' e-commerce literacy: Farmers play a crucial role in the process of agricultural e-commerce. Therefore, their e-commerce knowledge and skills must be enhanced. By offering online or physical training courses, providing intuitive and easy-to-understand instructional videos, or even one-on-one guidance, farmers can effectively master the procedures of product listing, order management, and refund processing on e-commerce platforms. On the other hand, farmers also need to understand consumer purchasing habits, how to effectively showcase their products to consumers, and how to provide after-sales service. This ensures that farmers can better utilize e-commerce platforms to increase product sales, thereby increasing their income level and boosting their confidence in e-commerce.

3. Construct a comprehensive agricultural product logistics distribution network: For Hubei agricultural e-commerce, building and managing logistics distribution is crucial. An effective and swift logistics delivery system can ensure the quickest possible delivery of agricultural products to consumers, reduce losses during transportation, and enhance the consumer shopping experience. Presently, due to Hubei's complex geographical location, consisting of lakes, plains, and mountain areas, regional and type-specific logistics network designs must be considered to handle the challenges of different geographical environments. Besides, logistics network design should also focus on information technology. With the help of modern technologies like big data, AI, real-time tracking of logistics orders can be achieved, allowing farmers and consumers to obtain delivery information at any time and facilitating ecommerce platforms in optimizing logistics distribution.

4. Promote innovative operation models of agricultural e-commerce: Development of Hubei's agricultural e-commerce needs to adapt to market changes and advances in consumer needs. Therefore, innovative operational models are of utmost importance. For example, the "Internet + farmers" model can be explored

and promoted, which integrates farmers into the service scope of e-commerce platforms. Under this model, the platform can provide farmers with one-stop services like scientific planting guides, high-quality seed supply, sales channel expansion, and post-service support. This ensures farmers can sell more efficiently through the platform and get real-time market feedback to optimize their product planting and sales strategies. This emerging operational model can effectively eliminate geographical and information constraints, fuse traditional agriculture with modern e-commerce, and promote the prosperous development of Hubei's agricultural e-commerce.

4. Improve the policy environment for e-commerce: Policy formulation and implementation play an important leading and promoting role in the development of Hubei's agricultural e-commerce. Therefore, the central and local governments need to take proactive measures, introducing a series of related policies and measures, like implementing tax benefits, supporting the development of e-commerce platforms, and providing training for farmers on Internet technology and e-commerce operations. On the one hand, these policies can stimulate and protect the spirit of enterprise innovation, providing a robust market environment to attract more investment and entrepreneurs into the field of agricultural e-commerce. On the other hand, updating and improving current e-commerce regulations can better regulate e-commerce behavior, safeguard consumer rights and fair competition, eliminate vicious competition on e-commerce platforms, and ensure healthy, sustainable development of agricultural e-commerce. Overall, Hubei's agricultural e-commerce can only develop significantly in a robust policy environment.

Limitations and research prospects

This section will discuss the limitations and shortcomings of this study, and propose possible optimization suggestions and future prospects for future research.

Firstly, we need to acknowledge that though this study conducted a solid analysis of the development of agricultural e-commerce in Hubei using the Porter's Five Forces model, the findings of this study may still have certain limitations due to constraints of time, resources, and methodology. For instance, we might not have

been able to fully explore all factors related to the development of agricultural e-commerce in Hubei, which might impact our conclusions to some extent.

Secondly, this study mainly focuses on the development of agricultural e-commerce in the Hubei area, and due to regional differences, our conclusions may not be fully applicable to other areas. Hence, caution needs to be taken when applying the conclusions and suggestions of this study to other regions.

Despite these limitations, we still consider this study to be of significant importance for understanding the current development and issues of agricultural e-commerce in Hubei. For future research, we suggest increasing the number of samples from different areas to compare and analyze the development of agricultural e-commerce in different regions. Furthermore, additional important factors in agricultural e-commerce, such as logistics, financial support, and technological applications, can be further explored and studied.

Lastly, the future prospects for research are still vast. With the development of internet technology and the increasing prevalence of e-commerce, agricultural e-commerce will continue to flourish. Therefore, conducting in-depth research and understanding of agricultural e-commerce, and formulating effective development strategies and countermeasures, are significant for driving the development of agricultural economy in Hubei and even the entire country.

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