

The Effect of E-Commerce on Economic Growth in Rural Areas – A Case Study of the Red River Delta

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ABSTRACT

In the context of strong digital transformation in Vietnam, e-commerce is a crucial tool that helps promote economic development in rural areas, where there are many barriers to accessing markets, technology, and information. This study aims to examine the impact of e-commerce on the economic life of rural residents in the Red River Delta. Data was gathered through in-depth interviews with rural business households, local officials, and business representatives. The findings indicate that e-commerce not only helps increase income and expand markets for agricultural products but also shifts people's production mindset and business organization models. However, the study also highlights several challenges, such as limitations in digital infrastructure, operational capacity, and the lack of coordinated support policies. Based on these insights, the article suggests policy recommendations and solutions to foster the sustainable development of e-commerce in rural areas of the Red River Delta.

Keywords: rural economic development, e-commerce, Red River Delta

INTRODUCTION:

In recent decades, e-commerce has become a major driver in reshaping traditional business models, encouraging innovation, and broadening access to global markets. E-commerce is not only transforming how urban residents shop but is also gradually reaching rural areas, which previously faced many limitations in infrastructure, information, and technology. As digital transformation becomes a central part of Vietnam's socio-economic development strategy, the importance of e-commerce in boosting productivity, expanding markets for agricultural products, and improving rural livelihoods is increasingly evident.

According to the Ministry of Industry and Trade (2024), the value of e-commerce transactions in Vietnam grows by an average of 20 to 25 percent per year. The participation of rural areas, which comprise 60 to 65 percent of the population, is showing signs of strong growth, thanks to the popularity of smartphones, social networking platforms, and support from e-commerce platforms such as Postmart, Voso, Shopee, and others. Many online sales models have enabled farmers to reach consumers and nations nationwide, with some even exporting agricultural products through cross-border e-commerce. However, access to and the application of e-commerce in rural areas still face many barriers, including digital infrastructure, technology skills, logistics, cashless payments, and specific socio-cultural factors.

The Red River Delta is the hub of industry, trade, and services in Vietnam, characterized by a high population density, improving infrastructure, and great potential for agricultural and craft village products. It serves as a typical area for studying how trade impacts rural economic development. However, research on e-

commerce has mainly focused on the national or urban level (Nguyen & Trinh, 2021; Le, 2024), with limited specific experimental evidence in rural areas, especially in the Red River Delta. Most current studies emphasize quantitative methods, but understanding changes in economic behavior, production organization, and social impacts in rural communities requires detailed observation and interpretation within specific contexts. Additionally, the roles of youth, women, local organizations, and the factors that spread technological innovation in promoting e-commerce in rural areas remain unclear.

Therefore, this study adopts a qualitative approach to thoroughly explore how e-commerce affects production, business activities, livelihoods, and the economic structure of rural households in Vietnam. Using the Sustainable Livelihoods Framework (SLF) and Diffusion of Innovation theory, the study not only examines the benefits and challenges but also identifies the conditions needed for e-commerce to become a true driver of sustainable development in rural areas of the Red River Delta.

2. Literature review

E-commerce refers to buying and selling goods and services electronically, especially via the internet. As digital transformation progresses, e-commerce is increasingly becoming a vital part of the economy in both urban and rural areas. For rural communities, e-commerce provides numerous opportunities for economic growth by expanding markets, shortening supply chains, and improving connections between producers and consumers.

Studies worldwide show that e-commerce can help rural areas overcome many traditional barriers such as remote location, high intermediary costs, and lack of market information (UNCTAD, 2020; OECD, 2019). E-commerce not only boosts income but also encourages innovation in production and business models, creating opportunities for farmers to access financial services, logistics, training, and branding of local products.

In Vietnam, recent years have seen a significant rise in e-commerce initiatives aimed at supporting rural areas, such as “Bringing agricultural products to the floor,” developing OCOP products online, and deploying digital platforms like Postmart, Voso, and SendoFarm. However, their effectiveness varies between localities due to differences in access to technology, people’s operational capacity, and support policies from local governments (Nguyen, 2024).

Economic development in rural areas involves enhancing the income, quality of life, and labor productivity of rural residents by promoting diverse production and business activities such as agriculture, non-agriculture, and services, along with improving infrastructure, education, and access to technology. According to Ellis and Biggs (2001), rural development is not limited to agricultural growth but also encompasses diversification of livelihoods, expansion of the labor market, and the adoption of new technologies to foster economic mobility and regional integration.

Additionally, according to IFAD (International Fund for Agricultural Development, 2016), rural economic development is a key part of sustainable development, requiring a mix of economic growth with social justice, sustainable resource management, and access to modern technology, where e-commerce is seen as a potential support tool.

In Vietnam, according to the Ministry of Agriculture and Rural Development (2020), rural economic development involves labor restructuring, enhancing the value of agricultural products, increasing labor productivity, and encouraging people's participation in modern value chains and consumer markets.

3. Methodology

The paper uses research methods in economics, including analytical, statistical, comparative, and synthesis methods, to accomplish the research task.

- Analytical methods: Analyze the effects of e-commerce on economic growth in rural areas of the Red River Delta.

- Data collection methods: The paper employs secondary data collection methods, sourcing information from textbooks, documents, publications,

and websites related to the research topic. Additionally, it uses primary data collection through in-depth interviews with 20 rural business households, 10 local officials, and 10 business representatives in the Red River Delta to evaluate the challenges faced by rural residents in participating in e-commerce.

4. Results and Discussion

4.1. The effect of e-commerce on rural people’s businesses and income

The rapid growth of e-commerce in Vietnam in recent years has brought big changes to how rural people do business. In the past, product sales mostly happened through traditional markets, traders, or middlemen. Now, more farmer households, cooperatives, and individual business owners are beginning to use digital platforms like Shopee, Postmart, TikTok Shop, Facebook Marketplace, and Zalo OA to connect with customers.

4.1.1. Changes in business and distribution models

Many households have shifted from passive sales to actively engaging with the market by creating their own online booths, taking product photos, livestreaming sales, and interacting directly with customers. Instead of relying solely on traders to buy on the spot, they now promote themselves through Zalo groups, Facebook fan pages, or by registering to sell on e-commerce platforms.

The process from production to consumption is becoming faster, allowing sellers to better control the product value chain and to flexibly adjust prices and output based on market demand. Some households also expand their reach by collecting products from nearby households to form community sales groups.

Previously, business activities in rural areas primarily involved direct exchange, sales at traditional markets, or through intermediaries. However, with the advancement of digital infrastructure and policies supporting rural digital transformation, people have started to use e-commerce platforms and social networking sites to sell goods.

According to a report by the Central New Rural Coordination Office, by the first quarter of 2025, the share of key products sold by communes through e-commerce channels will reach 35%, nearly doubling compared to 2024. Currently, more than 9,000 communes in Vietnam are offering priority items such as fresh agricultural products, processed foods, regional specialties, handicrafts, herbs, and others on platforms like Buudien.vn (the predecessor of Postmart), Voso, Tiki, Shopee, and the national agricultural product floor nongsan.buudien.vn.

Table 1: Business forms before and after engaging in e-commerce

Business Activities	Before	After
Main sales channels	Local market, traders	E-commerce platform, Facebook, Zalo, TikTok
Target customers	Local consumers	Customers outside provinces and urban areas
Product valuation	Passive	Active
Sales time	Seasons	All year round

Business Activities	Before	After
Average income	6-9 million VND/month	8-15 million VND/month

Source: In-depth interview results (2025)

4.1.2. Enhancing income and growing the market

Access to the online market helps many farmer households expand their customer base from within the province to outside it, even exporting small quotas through digital platforms. According to the results of in-depth interviews, households actively selling online have experienced a 15-30% increase in income compared to before, thanks to higher selling prices, avoiding large discounts for traders, and reducing waste at the inventory stage.

In particular, local specialty products such as jams, teas, mushrooms, organic vegetables, and handicrafts have the opportunity to reach customer groups with higher demand in urban areas. Some households also receive regular orders from loyal customers, creating a more stable and sustainable source of income. However, income increased, but differentiation persisted. Participation in e-commerce brings significantly higher income levels to effective business households. The results of the in-depth interview showed:

- More than 70 percent of households participating in e-commerce see an increase in income after 6 months.
- 25 percent of households said their income increased by 20 percent.
- About 20 percent of households dropped out due to lacking the skills to manage the booth.

4.1.3. Developing a new business mindset and enhancing digital capabilities

Participating in e-commerce has encouraged people to understand the concepts of marketing, order management, standard packaging, and customer service. Many households that were once afraid of technology have now taught themselves how to use smartphones, sales management software, or enroll in free online courses organized by government agencies or e-commerce platforms. However, this transformation process also faced challenges such as limited technological skills, difficulties in maintaining consistent product quality, information security issues, electronic payment problems, and logistics in remote areas.

4.1.4. Typical models

Hanoi has over 2,000 OCOP products, including many from traditional craft villages such as Bat Trang pottery, Van Phuc silk, and Phu Vinh rattan and bamboo, which are now available on Postmart, Voso, Shopee, and Lazada. While many craft villages once depended heavily on tourists, they now maintain steady revenue through online sales.

In Hai Duong province, Thanh Ha lychee is sold through e-commerce and exported via cross-border e-commerce platforms (Alibaba, Sendo, Voso). In 2023, hundreds of tons of lychee will be sold online, helping farmers expand their markets and decrease their reliance on traders.

In Hung Yen province, Hung Yen longan features a traceability stamp, which is displayed on e-commerce

platforms and consumed in Hanoi, Ho Chi Minh City, and even exported to the US and EU. The use of traceability technology and e-commerce has helped boost reputation, expand the market, and enable rural areas to confidently produce according to VietGAP/GlobalGAP standards.

Bac Ninh province is known for Dong Ky woodworking village and Phu Lang pottery. Many businesses and households have set up booths on Facebook, Zalo, Shopee, and Lazada to sell directly to customers. Some establishments have secured export orders by reaching out to international buyers through Alibaba.

Nam Dinh province features the Van Lam lace embroidery village and Nga Son sedge knitting, with many OCOP products listed on Postmart and Voso, thereby creating more jobs for rural female workers and expanding the export market.

Thai Binh province has listed Diem Dien fish sauce products, Bo guava, and Nguyen village cakes on the e-commerce platform, helping many production households access more markets, overcome challenges during and after the epidemic.

4.2. Motivators and Barriers to the Application of E-commerce in Rural Areas

4.2.1. Motivating factors

Technological and telecommunications infrastructure is becoming increasingly complete: The widespread adoption of smartphones, 4G/5G networks, and broadband Internet in communes and villages is a prerequisite for accessing e-commerce platforms. According to the General Statistics Office (2023), more than 95 percent of communes in Vietnam have 4G coverage, and about 78 percent of rural households own at least one mobile device with a network connection.

Support policies from the state and enterprises: The government has launched numerous programs to promote agricultural digital transformation and rural e-commerce, such as:

- OCOP program linked to e-commerce platforms.
- The Ministry of Information and Communications' project "Putting agricultural products on the e-commerce floor."
- Cooperation between exchanges like Postmart, Voso, Shopee, and localities and cooperatives.

The need to expand the market and increase income: Pressure to consume agricultural products, price competition, and the desire to boost income are strong motivators for farmers to switch to online business. E-commerce helps them reduce reliance on middlemen, gain more control over market access, and improve product valuation.

The role of young people and women: The young generation (18-35 years old) and women lead in learning technology, creating content, and selling online. They not only transform family business practices but also help spread a new community model.

4.2.2. Barring factors

Limited digital skills and store operation capacity: Most rural residents, especially the elderly, still struggle with using smartphones, managing e-commerce apps, taking product photos, writing appealing descriptions, or handling orders. According to in-depth interview results, about 20 percent of households have tried e-commerce but did not continue for more than three months due to skill shortages.

Poor transportation and logistics: High transportation costs, slow delivery times, and the lack of storage points are major challenges. A household in a remote commune that wants to send orders to the city may face 20 to 30 percent higher logistics costs compared to urban areas. This impacts the competitiveness of rural goods in the market.

Lack of trust and digital consumption habits: Many domestic consumers still worry about the quality of online goods, especially when purchasing from

individual households without a clear brand. Conversely, sellers in rural areas also fear being scammed, losing goods, and not getting paid. This sentiment hampers the growth of e-commerce.

Limited financial resources and comprehensive support: Branding, packaging, and quality standards demand time and costs, yet many households lack the resources for long-term investment. Current support programs mainly operate at a basic level, lacking in-depth branding consulting, intellectual property registration, or market strategy.

The legal and management system is still being developed: Issues related to taxation, consumer protection, delivery, and refund responsibilities still have many legal gaps or lack practicality in rural areas. Sellers are often not clearly informed about their legal obligations when participating in an e-commerce platform.

Table 2: Motivators and barriers to the application of e-commerce in rural areas

Factors	Motivate	Barrier
Technical infrastructure	Universal Internet, cheap smartphones	Weak logistics and high transportation costs
Policies and support	State schemes, support from e-commerce platforms	Lack of in-depth support
People and capacity	Women in the younger generation are actively learning.	Lack of digital skills, fear of risk
Markets and customers	Market demand rises	Consumer confidence is not high
Finance and investment	Low investment	Insufficient capital to enhance quality and packaging

Source: Summary of the author

4.3. The Role of Younger Generations and Women in Rural E-Commerce

The young generation in rural areas, especially the 18-35 year old group, is recognized as a pioneer in the process of approaching e-commerce. Thanks to the ability to use good technology, this group is often the one who directly manages the online store, records videos, processes orders and responds to customers.

According to Viettel Post statistics (2023), 68 percent of accounts registered to sell on Postmart in rural areas belong to people under 35 years old. Among them, women make up more than 60 percent, especially women who are part of small startups or who create home handcrafted products.

Table 3: E-commerce participation rate by gender and age

Characteristics	Ratio (%)
Male, above 40 years old	16.7
Male, under 40 years old	20.2
Female, above 40 years old	17.9
Female, under 40 years old	45.2

Source: In-depth interview results (2025)

The role of women is important in areas such as:

- Sell through livestreams (especially popular on Facebook and TikTok).
- Packaging and branding OCOP products, crafts, and local specialties.
- Build a community of consumers and engage with customers through Zalo and Fanpage.

The younger generation is not just an e-commerce operator but also a bridge between tradition and modernity, helping households adopt technology while still preserving the identity of local products.

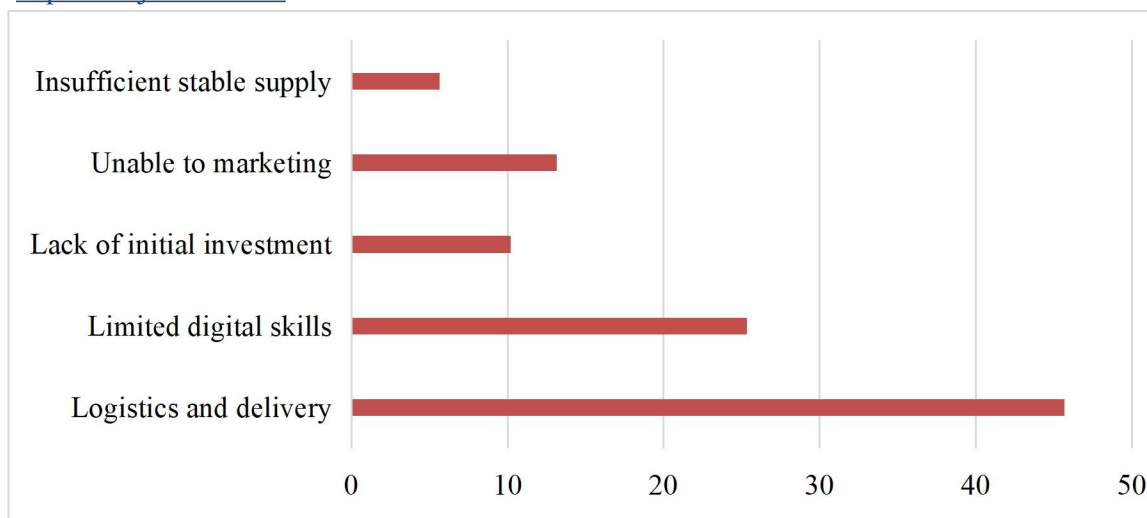


Chart 1: Challenges faced by rural residents in the Red River Delta when engaging in e-commerce

Source: In-depth interview results (2025)

E-commerce has marked an important turning point in restructuring business models and boosting the income of rural residents in the Red River Delta. In particular, the young generation and women are two key social groups driving the adoption of digital technology. However, for e-commerce to truly serve as a tool for sustainable development in rural areas, there must be coordinated investments in technical infrastructure, digital skills, logistics, and support policies from both the government and businesses.

E-commerce has been fundamentally transforming the business activities of rural people in the Red River Delta, shifting from passive to proactive, from traditional to modern, and from small-scale production to market-oriented approaches. This transformation not only boosts income but also enhances the capacity, mindset, and position of rural residents within the digital economy.

4.4. Lessons from successful e-commerce models in rural areas of the Red River Delta

While developing e-commerce in rural areas, many localities and communities have successfully implemented e-commerce models linked to economic growth, agricultural product sales, and local branding. Some lessons learned from practice include:

First, establish groups or cooperatives as the core of e-commerce

The cooperative model or groups of farmer households serve as an effective platform for gathering sources of goods, standardizing product quality, and organizing e-commerce operations. Having a representative organization simplifies the processes of registration, transactions, and coordination with e-commerce platforms. The experience of Thanh Ha Agricultural Production and Service Cooperative (Hai Duong) demonstrates that, thanks to branding and collaboration with the provincial government, online sales are expected to reach more than 100 tons in the 2024 crop season. Therefore, establishing an intermediary organization (cooperatives or groups) is necessary to coordinate, provide training, and ensure stable input/output for e-commerce.

Second, select the right product and establish a differentiated advantage

Rural products that aim to succeed in e-commerce need to meet several key factors: stable quality, easy storage, simple transportation, regional significance, and storytelling ability to create appeal during marketing. Hung Yen's longan case demonstrates that a product with a well-known specialty, a unique and tasty flavor, and strong geographical indications, along with a recognized brand, is well-suited for e-commerce platforms. Its established brand value and consumer trust make it highly suitable, resulting in hundreds of tons of longan being sold through these channels in recent harvests. Farmers benefit from more stable sales channels, reducing reliance on traders, and simultaneously help build the Hung Yen brand in both domestic and international markets. Therefore, not all products are suitable for e-commerce; selecting items with competitive advantages and ease of creating personal or cooperative brands is essential.

Third, leverage the strengths of young people and technology

Successful models often involve the active participation of the younger generation during the operation stage: from video recording, livestreaming, running Facebook ads to responding to customers and closing orders. Thanh Ha lychee products have combined young people's livestream sales with garden experience. With their tech skills, they built a TikTok channel, created viral videos, and generated thousands of orders from big cities. Therefore, it can be affirmed that it is important to encourage and support young people and students to return to their hometowns to work as e-commerce leaders, and to organize "technology tutoring" classes for the community.

Fourth, collaborating with local authorities and businesses

Successful models always feature close collaboration among community or district authorities, logistics companies or e-commerce platforms, and the community. The government supports communication, physical spaces, and business connections. Businesses provide tools, operations, and skills training. The

success of Bat Trang pottery products (Hanoi) has been demonstrated through the vital partnership of the People's Committee of Hanoi and Gia Lam District in implementing the project "Digital transformation of craft villages," supporting the creation of a shared e-commerce website for craft villages and organizing online sales skills training for artisans and production households. As a result, many ceramic businesses now receive retail export orders directly through e-commerce platforms, bypassing traditional distributors. The "Bat Trang Pottery" brand is strengthened and more widely promoted, helping artisans achieve more sustainable incomes. Therefore, e-commerce cannot grow spontaneously; it requires a "cooperation triangle" between the government, businesses, and the community.

Finally, not only sales but also local branding

Some models go beyond online sales by linking e-commerce to building a local image, such as community tourism, OCOP products, or local startups. The example of Diem Dien fish sauce (Thai Binh province) shows that it's not just about selling fish sauce, but also about promoting the story of the Diem Dien traditional craft village, tied to the image of "Thai Binh's rice countryside." Additionally, several experiential tourism programs focused on making fish sauce are combined with online promotion, which enhances cultural values and regional brands. This helps portray Thai Binh not only as a land of rice but also as a hometown known for its famous fish sauce specialties.

4.5. Discussion

The research results in the article show that e-commerce positively impacts the economic development of rural areas by expanding consumption markets, reducing intermediary costs, improving competitiveness, and creating more immediate job opportunities. These findings agree with previous studies such as Nguyen and Trinh (2021), Le (2024), which highlight the role of e-commerce platforms in selling agricultural products and boosting farmers' income. However, this study goes further by providing a quantitative analysis of how each factor, such as technical infrastructure, digital skills, and support from local authorities, influences the effectiveness of e-commerce applications, unlike earlier studies that mostly relied on qualitative descriptions.

Additionally, the study focuses on a specific group of small business households and cooperatives in rural areas of the Red River Delta, which has not been explored in detail in previous studies. This clarifies the unique characteristics of the rural environment in the Red River Delta within the context of digital transformation, thus highlighting the added value and novelty of the research for the current theoretical and practical systems of e-commerce development.

5. Implications

Although e-commerce has made significant progress in urban and some rural areas, expanding the model to remote and isolated regions still faces many challenges. To ensure sustainable development of e-commerce and

its role as an economic booster in these regions, targeted policies and support systems from the government, businesses, and communities are necessary.

5.1. For the Government

Firstly, increase investment in technology and telecommunications infrastructure

Expand 5G, 4G, and fiber optic Internet networks: The government needs to boost investment in telecommunications infrastructure, especially in mobile networks and broadband internet, to achieve 100% coverage in remote areas where stable internet connections are still hard to get.

Provide affordable technology devices to the public: The government can partner with tech companies to supply devices, such as smartphones and tablets, at a low cost to rural communities, ensuring they have the necessary tools to participate in e-commerce.

Second, strengthen policies to promote investment in logistics and supply chains

Tax incentives and support for shipping fees: The government can offer shipping fee assistance or tax incentives for companies providing logistics services to rural and remote areas. It will help lower shipping costs and encourage businesses to build distribution networks in these regions.

Develop cargo collection points in remote areas: The government can partner with logistics companies to establish transshipment points and cargo collection hubs in rural areas, thereby reducing costs and delivery times.

Third, promote digital skills training for people

Training and spreading awareness of e-commerce skills: The government should organize training courses and seminars on e-commerce for everyone, especially households, women, and the elderly. These programs can be conducted online or at local community centers. Support connecting rural residents with experts and large businesses: The government can facilitate links between rural communities and experts or major e-commerce companies to provide guidance on managing online stores, handling orders, and building personal brands.

Fourth, develop consumer protection policies and legal support

Ensuring consumer rights: The government must finalize the legal framework to protect consumers when engaging in transactions on e-commerce platforms, including policies to resolve disputes and guidelines on personal information security.

Provide legal support for sellers: The government needs to implement programs to assist with business registration, tax support, and protection of intellectual property rights for households involved in e-commerce.

5.2. For businesses

Firstly, developing accessible e-commerce platforms for farmers

Create a simple, easy-to-use interface: Businesses developing e-commerce platforms should minimize the interface complexity, use easy-to-understand language, and make it suitable for rural users. This ensures that

users do not need advanced technical skills to participate.

Provide tools to support online marketing: Businesses offering e-commerce platforms can develop simple yet effective marketing tools such as livestreams, Facebook ads, or video creation support, enabling sellers to easily reach and interact with customers.

Second, providing logistics services in rural areas

Building a distribution system in remote locations: Logistics companies need to invest in expanding their distribution networks to rural and isolated areas. At the same time, these companies should offer flexible delivery options that are cost-effective and provide quick delivery times.

Cooperation with local authorities: Logistics firms can work together with local governments to establish collection points and forwarding support centers in communes and districts.

Third, training and developing local collaborator networks

Create local collaborator programs: Businesses can establish an e-commerce collaborator model in rural areas, helping residents connect with e-commerce platforms and teaching them how to sell online, process orders, and manage deliveries.

5.3. For local communities

First, establish local support groups

Organize technology support teams: Volunteer groups, youth unions, and women's associations can create groups to help people learn how to use technology, from operating a sales page on e-commerce platforms to promoting products.

Build a support network of local experts: Experts in marketing and information technology can collaborate with local communities to provide advice, training, and help rural residents develop product brands and boost competitiveness in e-commerce.

Secondly, developing models of cooperation in production and consumption

Cooperation between farmer households and e-commerce enterprises, such as partnerships between individual farmers or cooperatives and online businesses, will help them sell products more effectively, reduce costs, and easily reach customers outside the province and city.

Organize local trade events: Each year, specialty trade events in rural areas can be hosted on an online platform to attract consumers nationwide.

6. Conclusion

E-commerce has become a key factor in supporting rural economic growth in Vietnam overall, especially in the Red River Delta. It has helped shift business models and boost incomes in the area. Based on research and successful examples, it's clear that e-commerce has created a new environment, helping farmers access markets more proactively, increase their income, and depend less on traders and traditional methods of selling.

However, e-commerce in rural areas of the Red River Delta still faces several challenges, including a lack of

digital skills, logistical difficulties, and low consumer confidence in online products. This calls for strong involvement from the government, technology companies, and the community in creating policies, support programs, and digital skills training for rural residents.

It is also important to recognize that local governments, businesses, and communities play a key role in promoting e-commerce. They can support this effort through training programs, infrastructure development, the creation of appropriate policy mechanisms, and financial support, helping rural residents maximize the potential of e-commerce. In particular, young people and women are pioneers in applying e-commerce to everyday life, contributing significantly to positive changes in the community.

Solutions such as digital skills training, technological infrastructure development, logistics system improvement, building public-private partnership models, and perfecting the legal framework for e-commerce will be important factors to expand e-commerce applications in remote areas, promoting the sustainable development of rural Vietnam.

Based on the analysis and research findings, the article lays a solid foundation for planning digital agricultural development strategies in Vietnam generally, and in the Red River Delta specifically. Its goals are to enhance productivity and quality of agricultural products, while also fostering a modern rural economy, encouraging creativity, and promoting sustainable development in the digital age.

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