

## Adoption of E-Commerce in the Agricultural business sector in Vietnam



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**ABSTRACT:** This paper examines the rapid utilization and impacts of e-commerce and specifically online marketing and selling channels on agricultural products, with a focus on the southern region of Vietnam. It highlights key emerging rationales and challenges for Vietnamese agribusinesses to approach e-commerce business models. By analyzing existing literature and sector-focused reports, we can conclude that agriculture sector in Vietnam has been modernized, as e-commerce and digital marketing have enabled firms to reach more customers, both regionally and globally, at a lower, more efficient marketing and selling efforts. Furthermore, this paper provides a brief discussion using the case of VinEco – one of the largest agricultural firms in Vietnam which has successfully integrated e-commerce into its operations. This case study presents a direction for those similar projects which want to enhance their competitiveness within Vietnam's agricultural product chains.

**KEYWORDS:** e-commerce, online selling platforms, digital marketing, agricultural businesses

### 1. INTRODUCTION

#### 1.1. The development of agribusiness in Vietnam

Agriculture has long been a cornerstone of Vietnam's economy, contributing significantly to the country's GDP and serving as a primary livelihood for a substantial portion of the population. According to a statement made by the Prime Minister of Vietnam at the 2023 Agricultural Sector Review and 2024 Orientation Conference, over the past few decades, Vietnam has transformed from a nation struggling with food security to a major global exporter, ranking among the top exporters of rice, coffee, cashew nuts, and seafood. In 2023, Vietnam's agricultural sector generated approximately \$48.5 billion in export revenue, marking a steady growth from \$25.8 billion a decade earlier (Vietnam General Statistics Office, 2023).

The World Bank also acknowledges that this remarkable growth is driven by advancements in agricultural practices, adoption of technology, and improved infrastructure, particularly in the southern region, which plays a crucial role in Vietnam's agricultural landscape. The southern region, particularly the Mekong Delta, stands as a pivotal player in this progress. Responsible for over 50% of Vietnam's rice production, the region has helped secure Vietnam's status as the world's third-largest rice exporter (Ministry of Agriculture and Rural Development, 2023). In 2023, the country exported about seven million tons of rice, with the southern provinces contributing a sizable portion (Vietnam Customs, 2023). Additionally, a statistic of the Ministry of Agriculture and Rural Development shows that the southern region excels in the production of fruits, vegetables, and aquaculture, with seafood exports alone generating over \$9 billion in 2023. Vietnam's agricultural exports now reach over 180 countries, with key markets including China, the United States, Japan, and the European Union (Vietnam Ministry of Industry and Trade, 2023). The export volume of agricultural products has grown consistently, with an average annual increase of 5-6% over the past decade. When compared to other agricultural nations like Thailand and India, Vietnam has rapidly climbed the ranks, becoming a formidable competitor in the global market. For instance, while Thailand exported \$41 billion worth of agricultural products in 2023, Vietnam's export value is closing the gap, demonstrating the country's rapid development in the sector (FAO, 2023).

Despite this progress, challenges such as climate change, market fluctuations, and infrastructure limitations threaten to hinder sustainable growth. The southern region faces significant risks from rising sea levels and salinity intrusion, which could impact crop yields and aquaculture production. On the other hand, despite being a major player in the global coffee export market, Vietnam's coffee industry still faces challenges in terms of export efficiency. The country primarily focuses on coffee cultivation

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and production, which account for only about 10% of the overall value chain. This limited involvement results in low profit margins for Vietnam's economy.

However, Vietnam's agricultural sector still holds substantial potential. With its diverse ecosystems, favorable climate, and large labor force, Vietnam is well-positioned to expand its agricultural output and improve its global competitiveness.

To capitalize on this potential, the Vietnamese government has laid out ambitious plans for the agricultural sector. According to the Ministry of Planning and Investment, the national development strategy for the next 5 to 10 years focuses on increasing agricultural productivity by 3-4% annually, increasing the value of Vietnam's agricultural, forestry, and fishery exports to about 60-62 billion USD by 2030 while ensuring the sustainability of farming practices. Key initiatives include modernizing the agricultural supply chain, promoting the use of technology in farming, and expanding access to international markets. In the southern regions, these development plans prioritize leveraging strengths in rice production, aquaculture, and fruit cultivation while addressing the challenges posed by climate change. For example, the government aims to increase the export value of Mekong Delta's fruits to US\$650 million by 2030, through investments in quality improvement and marketing (Vietnam Ministry of Agriculture and Rural Development, 2023). Additionally, the rise of the digital economy presents new opportunities for small and medium-sized enterprises (SMEs) in agriculture. In 2023, online agricultural sales in the southern region grew by 15%, reflecting the growing importance of digital platforms in the agricultural value chain (Vietnam E-commerce Association, 2023). As Vietnam continues to navigate the complexities of global agriculture, the southern region remains a vital engine of growth and innovation. The ongoing efforts to modernize agricultural practices, improve infrastructure, and embrace sustainable methods are not only essential for maintaining the sector's competitiveness but also for ensuring its long-term resilience. The next decade will be a defining period for Vietnam's agricultural industry, as the nation seeks to enhance its role in the global market, address environmental challenges, and unlock new opportunities for growth.

### 1.2. Sale and marketing approaches in the digital era

A sales channel consists of consumers, sellers and activities necessary to transfer the ownership of goods from the point of production to the point of consumption. It is the way products get to the end-user, the consumer, and is also known as a distribution channel (Helmold, 2021). Sales channels can encompass both physical and digital channels and they play a critical role in your company's overall sales and distribution strategy.

According to a survey in 2022 conducted by the Vietnam E-Commerce Association (VECOM), the most common sales platform is e-commerce. Particularly, the total revenue of the four most common e-commerce platforms and TikTok Shop is 141.000 million VND (~6 million USD). In 2023, e-commerce accounts for approximately 10% of total retail sales and consumer service revenue, an increase from the 8.5% recorded in 2022. The proportion of online retail sales within total retail sales of goods has reached about 8.8%, surpassing the previous rate of 7.2% from the prior year.

In recent years, there have been considerable advancements in payment and order fulfillment services, utilizing contemporary technologies that have driven the overall growth of e-commerce. According to Yu & Wu (2007), online shopping offers greater satisfaction to contemporary consumers who prioritize convenience and efficiency. The Internet has transformed online shopping into not only a feasible option but also a significant success, positively impacting economies worldwide. One significant advantage of online shopping is that it offers consumers comprehensive information and a wide array of choices, enabling them to compare products and prices effectively. As noted by Butler and Peppard (2018), increased options and convenience facilitate the search for desired items online.

Another major aspect of e-commerce is the rise of digital marketing, which is the process of advertising products or services of companies using digital technologies available on the Internet including mobile phones, display advertising, and any other digital medium like Google and Facebook ads et cetera. The adoption of these technologies varies among enterprises, but their impact on the business landscape is clear. In 2018, the CSB reported that 58.9% of enterprises primarily used their websites to provide product and pricing information. Additionally, 25.8% included links to their social media profiles, with larger enterprises (65.0%) leading this trend (CSP, 2018). Marketing online enables firms to remain competitive and attract new customers by adapting to consumer preferences and engage through preferred channels. A research by Smart Insights in 2019 highlighted that if executed effectively, digital marketing enhances communication across customer touchpoints and supports strong content delivery.

In Vietnam, the internet penetration rate, which reached over 70% as of 2023, has provided a solid foundation for the expansion of e-commerce, particularly in rural areas where agriculture is a primary source of income (Vietnam Ministry of Information and Communications, 2023). The Mekong Delta, known as the country's agricultural hub, has been pivotal in leading this digital shift, given its role in producing rice, fruits, and aquaculture. Improved internet connectivity allows farmers to access new markets and broaden their customer base through digital means (Pham & Nguyen, 2022).

Additionally, the proliferation of smartphones and mobile devices has enabled farmers and agribusinesses to manage their digital platforms, including the sale of agricultural products online, without requiring significant investment in technological

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infrastructure (Le et al., 2022). Digital payment systems have also improved, with e-wallets and mobile banking services becoming more accessible, further easing the transition to e-commerce for farmers (Nguyen et al., 2022).

### 2. LITERATURE REVIEW

The integration of digital technologies into the global agricultural sector is transforming how agricultural products are distributed and marketed. E-commerce has emerged as a crucial tool for farmers and agribusinesses, offering them the opportunity to reach a broader market both locally and internationally. This literature review explores the adoption of online selling platforms and methods for agricultural products, with a focus on global trends and specific developments in Vietnam.

#### 2.1. The worldwide adoption of agricultural e-commerce opportunities

During recent decades, the global agricultural sector has undergone significant advances in terms of production and distribution chain thanks to the enhancements in digital technologies and integration of e-commerce (Liu et al, 2024). The rise of information and communications infrastructure, namely broader internet coverage, increasing number of online networks have enabled agri-businesses and farmers to reach a broader market, both locally and internationally (Lanz et al, 2018). This remark is especially relevant to emerging markets and developing countries, since it provides a cost-effective trading solution (Bar and Zheng, 2018). Furthermore, the widespread integration of online selling platforms enables agri-businesses to expand market reach in which products can be directly marketed to customers with highlighted features and qualities (Liet al, 2021). Noteworthy data worldwide on these benefits are:

- **United States:** In the United States, e-commerce platforms such as **Amazon Fresh**, **Farmigo**, and **FarmersWeb** have revolutionized agricultural supply chains by enabling small and medium-sized farms to connect directly with consumers, retailers, and wholesalers. These platforms facilitate the bypassing of traditional intermediaries, allowing for better profit margins and more direct consumer engagement (Smith et al., 2020). According to a study by Gruchy and Ross (2021), small farms using e-commerce platforms experienced an average revenue increase of 15-20% compared to those relying on conventional distribution channels. This transformation is supported by government initiatives, such as provisions in the **Farm Bill** (2018), aimed at promoting technology adoption and improving digital infrastructure for farmers (U.S. Department of Agriculture, 2021).
- **China:** China's digital transformation in agriculture, particularly through platforms such as **Alibaba's Rural Taobao** and **JD.com**, has had a profound impact on rural farmers. These platforms enable farmers to bypass middlemen and reach urban consumers directly, improving their profit margins and market access (Wang & Xu, 2021). According to research by Zhang and Huang (2022), the integration of e-commerce into rural China has increased market participation by farmers by over 30%. JD.com's innovative logistics systems, which utilize data analytics and artificial intelligence to optimize delivery routes, ensure that fresh produce reaches consumers efficiently, reducing spoilage and enhancing market efficiency (Chen et al., 2020). These developments have been instrumental in bridging the rural-urban divide in agricultural distribution, with policies such as the **Digital Village Strategy** further driving growth in rural e-commerce (Ministry of Agriculture and Rural Affairs, China, 2022).
- **European Union:** In the European Union, digital platforms like **E.Leclerc** and **Carrefour** have enabled farmers to sell both locally and internationally, with an emphasis on sustainability and local sourcing (Pavic et al., 2022). According to Pires et al. (2021), the EU's focus on shortening the supply chain by connecting consumers directly to local farmers has resulted in reduced environmental impact and increased traceability of food products. The **European Green Deal**, launched by the European Commission, has further supported the adoption of digital technologies in agriculture, emphasizing sustainable practices and promoting e-commerce as a tool for reducing food waste (European Commission, 2021). The DIH (Digital Innovation Hubs) initiative also aids SMEs in integrating digital platforms to enhance the local agricultural supply chain (Duarte et al., 2022).

The global market for online agricultural product sales is expected to grow as rural internet connectivity improves and governments invest in digital infrastructure. According to a research report by Global Market Insights, the global market for online food and grocery retail is expected to reach over \$1 trillion by 2025, with a significant portion coming from fresh produce and agricultural products.

#### 2.2. Development of Online Agricultural business models in Vietnam

##### Direct-to-Consumer (D2C) Platforms

Platforms like Lazada and Tiki are at the forefront of transforming the agricultural landscape in Vietnam by providing direct-to-consumer (D2C) services. These platforms allow farmers to bypass the traditional intermediaries that often add costs and reduce profit margins. Through Lazada's dedicated agricultural section, farmers can sell produce directly to consumers, providing transparency in pricing and reducing the barriers associated with conventional markets (Tran & Hoang, 2021). Tiki, another major

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player, offers farmers the tools and training needed to establish online stores, making it easier for small-scale producers to engage with digital platforms (Vietnam E-Commerce Association, 2023).

Studies have shown that farmers using these platforms benefit from reduced transaction costs and increased profit margins by cutting out middlemen (Pham et al., 2023). For example, Lazada's agricultural section includes a wide variety of farm produce, such as rice, fruits, and fish, which is sold directly to urban consumers, significantly enhancing the reach of rural producers (Do et al., 2022).

### Business-to-Business (B2B) Platforms

Beyond D2C models, business-to-business (B2B) platforms such as Agribank E-Commerce and Voso.vn have facilitated bulk transactions between farmers and wholesalers or retailers. These platforms provide a streamlined, digital marketplace where bulk orders can be processed efficiently, improving supply chain management for large-scale agricultural operations (Nguyen & Tran, 2022). Voso.vn, operated by Viettel Post, connects farmers with potential buyers from both within Vietnam and international markets, offering logistic support to ensure smooth delivery and transaction processes (Hoang et al., 2022).

B2B e-commerce has played a crucial role in reducing post-harvest losses by enabling farmers to quickly offload produce to wholesalers. This system has proven particularly beneficial for products with short shelf lives, such as fresh fruits and vegetables, as it facilitates faster sales and timely transportation (MARD, 2024).

### Government Initiatives and Digital Skills Training

Government efforts have been pivotal in supporting the adoption of e-commerce among Vietnam's agricultural sector. As of 2024, the Ministry of Agriculture and Rural Development (MARD) has reported that over 2 million farmer households across Vietnam have undergone digital skills training, enabling them to participate in online marketplaces (Vietnam Ministry of Agriculture and Rural Development, 2024). Such programs have been instrumental in empowering farmers, particularly in the Mekong Delta, to transition to digital sales (Nguyen et al., 2024).

Additionally, as of April 2024, nearly 50,000 farm products have been listed on various e-commerce platforms, generating thousands of transactions (Nguyen et al., 2023). This highlights the growing integration of digital sales in Vietnam's agricultural industry. These efforts align with the government's larger digital transformation strategy, which includes plans to develop rural e-commerce further by 2030 (MARD, 2024).

### E-commerce and Sustainability

Sustainability is another important aspect of the rise in e-commerce for agricultural products in Vietnam. E-commerce platforms help reduce food waste by providing efficient logistics and minimizing time between harvest and sale. Through more direct connections between producers and consumers, platforms like Tiki and Lazada have reduced the need for intermediaries, who often prolong the supply chain, leading to spoilage and losses (Do et al., 2022).

E-commerce platforms are also supporting sustainable agriculture by promoting organic and locally sourced produce. Increasing consumer awareness regarding food quality and safety has led to a surge in demand for organic products, which are increasingly sold through these digital platforms (Le et al., 2022). As a result, small organic farmers in regions like the Central Highlands and Mekong Delta are benefiting from new, lucrative markets (Pham et al., 2023).

### Logistics and Supply Chain Management

Logistics remains a critical challenge for the growth of e-commerce in agriculture, particularly given Vietnam's geographic diversity. However, platforms like Voso.vn have integrated logistic services, offering end-to-end support to farmers. This includes cold chain management, which is crucial for perishable goods, as well as rural delivery networks that extend to remote areas (Hoang & Nguyen, 2022). Viettel Post, the operator behind Voso.vn, plays a central role in ensuring timely deliveries and enhancing market access for rural farmers (Le et al., 2022).

JD.com's approach in China, which has leveraged AI and data analytics to optimize supply chains, offers a potential model for Vietnam as it seeks to improve logistics for e-commerce in agriculture (Chen et al., 2022). As Vietnam's logistics infrastructure continues to develop, especially through private-sector investment, the efficiency of agricultural e-commerce is expected to rise.

## 3. CHALLENGES AND CONSIDERATIONS

While the digitalization of agricultural sales in Vietnam is a significant step toward modernizing the agricultural sector, several challenges still limit its effectiveness:

### 3.1. Logistics and Cold Storage Infrastructure

A significant issue hindering online agricultural sales in Vietnam is the lack of proper logistics, particularly cold storage and efficient transportation networks. In rural regions, the absence of cold chain systems for preserving perishable goods, such as fruits, vegetables, and seafood, leads to a high risk of spoilage during transit. Studies by Nguyen et al. (2021) and Le and Pham (2022) found that nearly 25-30% of harvested products can be lost during transportation due to inadequate storage and

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transportation conditions. The Asian Development Bank (2022) also highlighted that this logistical gap increases costs for farmers, further reducing their competitiveness in e-commerce. Moreover, the World Bank's Vietnam Logistics Review (2021) emphasized the need for comprehensive reforms in logistics infrastructure, particularly in the Mekong Delta region, to enhance agricultural export competitiveness. Improving this infrastructure will be crucial to ensuring the success of digital agricultural markets.

### 3.2. Digital Literacy Among Farmers

Despite increased internet penetration and smartphone usage, many Vietnamese farmers struggle with limited digital literacy, making it difficult to fully capitalize on e-commerce opportunities. A report by the Vietnam E-Commerce Association (2023) revealed that only 35% of farmers had adequate knowledge of using online platforms for selling their products. This lack of digital literacy creates barriers in understanding key online sales functions such as tracking orders, conducting transactions, and online marketing.

Government programs, such as those by the Vietnam Ministry of Agriculture and Rural Development (2023), have focused on providing digital literacy training to farmers. However, research by Dao et al. (2023) notes that these initiatives have not yet reached sufficient scale, and more farmers, especially in remote areas, need access to comprehensive training in digital tools and e-commerce.

### 3.3. Market Competition and Farmer Empowerment

Increased competition from large agribusinesses and established brands on e-commerce platforms poses a challenge to smallholder farmers. Larger businesses have more resources to invest in online marketing and logistics, creating an uneven playing field. According to Gruchy et al. (2020), small-scale farmers face difficulties in distinguishing their products and accessing customers amidst a competitive marketplace.

To combat this, digital platforms like Lazada and Tiki have begun to introduce services that offer marketing support to smaller farmers (Nguyen & Vu, 2023). However, to truly empower farmers, more comprehensive support is needed, including better market data, digital marketing tools, and partnerships with logistics providers.

### 3.4. E-commerce Platform Reliability and Trust Issues

Trust issues between farmers and e-commerce platforms represent another challenge. Many farmers are wary of digital payment methods or have concerns about fraud. A study by Hoang et al. (2022) found that farmers' lack of trust in online platforms and digital payments remains a key factor in low e-commerce adoption rates. The Ministry of Industry and Trade's E-Commerce Development Report (2022) highlighted the need for robust policies to ensure consumer protection and fair trade practices on online agricultural platforms.

## 4. DISCUSSION: SUCCESS STORY IN ONLINE AGRIBUSINESS IN VIETNAM

To draw a comprehensive guideline for Vietnamese agricultural businesses on how to utilize e-commerce, this paper discusses the case of VinEco - a subsidiary of Vingroup focusing on organic farming products and has successfully integrated e-commerce platforms to scale its agricultural operations. A key component of VinEco's strategy has been leveraging Vingroup's well-established retail channels, including VinMart and formerly Adayroi, enabling the company to reach a vast consumer base through both physical and digital platforms.

### Strategic Approach

VinEco's strategy capitalized on growing consumer demand for organic, locally sourced products. By aligning its products with VinMart, VinEco ensured consistent distribution through over 100 supermarkets and convenience stores, while Adayroi facilitated direct-to-consumer online sales. This approach not only increased product accessibility but also enhanced VinEco's brand visibility in urban areas (Nguyen et al., 2021).

### Success Metrics

VinEco has recorded substantial increases in sales volumes as a result of its integration into Vingroup's retail ecosystem. According to Vingroup's annual report, VinEco's organic vegetable sales grew by over 20% annually from 2018 to 2022, with over 100,000 tons of produce sold across its physical and online platforms (Vingroup, 2022). This growth has been attributed to its multi-channel distribution strategy, and the company's success has prompted a broader shift towards e-commerce in Vietnam's agricultural sector.

### Expert Opinions

Experts such as Dr. Tran Quang Thanh, from the Vietnam Agriculture Academy, highlight VinEco's success as a testament to the importance of strong logistics and retail partnerships in agricultural e-commerce. Thanh states, "VinEco has shown that leveraging existing retail infrastructure is a critical factor for success in the agricultural sector, especially for perishable products where timely delivery is essential" (Thanh et al., 2022). Furthermore, Nguyen Van Hoang, an agricultural economist, emphasizes that VinEco's growth illustrates the benefits of vertical integration in modern agriculture (Hoang, 2021).



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### 5. CONCLUSION

The adoption of online platforms for agricultural products is gaining momentum both globally and in Vietnam. Of all the benefits e-commerce present, the integration of digital technologies has opened new avenues for farmers to reach out to customers beyond geographical boundary market expansion and achieve higher operational efficiency. However, realizing the full potential of these platforms requires addressing challenges related to logistics, digital literacy, and quality control. Farmers and agri-business owners may face unwanted costs and find it hard to implement digital and marketing practices into their operations if they do not pay attention to the level of digital literacy and lack of trust on the legitimate of digital payment methods.

Despite the challenging outlook, the experiences of successful SMEs like VinEco provide valuable insights into the benefits and limitations of online agricultural sales. Furthermore, Vietnamese's business which wish to adopt e-commerce can be assured with the unconditioned and long-term support provided by the Vietnamese government. The Vietnamese government has recognized the potential of e-commerce in the agricultural sector and has implemented several policies to support its growth. The National Digital Transformation Program aims to expand internet access in rural areas and enhance the digital literacy of farmers. Additionally, partnerships between the government and e-commerce platforms have been established to promote the online sale of agricultural products domestically and internationally. Continued government support and targeted interventions will be crucial for enhancing the role of digital transformation in the agricultural sector, particularly in the southern regions of Vietnam.

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