Jurnal Multidisiplin Sahombu
Volume 4 , Number 01, 2024, DOI 10.58471/ jms.v4i01
ESSN 2809-8587 (Online)
https://ejournal.seaninstitute.or.id/index.php/JMS/index

Utilization of digital technology in marketing agribusiness products

Tri Waluyo
National University, Jakarta, Indonesia

Article Info

Keywords:
Agricultural Technology,
Utilization of Technology,
Agricultural Digitalization

ABSTRACT

With the rapid growth of digital technology, agribusiness as a major sector in the global economy needs to take advantage of this innovation to increase competitiveness and face the challenges of an ever-changing market. This research aims to investigate the impact of using digital technology in increasing the efficiency and effectiveness of marketing agribusiness products. This research uses a qualitative approach with descriptive methods. The research results show that the use of technology in the agricultural sector has a significant positive impact. Mobile applications, agriculture-specific e-commerce platforms, and social media expand farmers' access to markets and increase the visibility of agricultural products. Geographic Information Systems (GIS) help map and monitor agricultural land, while the Internet of Things (IoT) provides real-time information about environmental conditions and plant or animal health. Digital marketing and blockchain techniques increase transparency and consumer trust in agricultural products. Overall, technology integration brings positive change, increases operational efficiency and supports sustainable growth in the agricultural sector.

Corresponding Author:
Tri Waluyo
National University, Jakarta, Indonesia
tw@civitas.unas.ac.id

INTRODUCTION

The agricultural sector in Indonesia plays a very strategic role in the context of economic development and community welfare (Suradisastra, 2006). According to data from the Central Statistics Agency (BPS), this sector makes a significant contribution to employment, with almost a quarter of the national workforce, around 35 million people, working in the agricultural sector in 2020 (BPS, 2020). This figure reflects how important the agricultural sector is in providing livelihoods for the Indonesian people. Development of the agricultural sector is not only about optimizing crop yields, but also building a strong foundation for national economic and food security (Latibu et al, 2023).

Apart from providing employment opportunities, the agricultural sector also has a strategic role in supporting national economic growth. Food security, increasing competitiveness, absorbing labor, and overcoming poverty are crucial aspects that this sector strives for (Widyawati, 2017). Food security is the main focus, considering the importance of ensuring adequate food availability and accessibility for the entire population. Increasing Indonesia's agricultural competitiveness also plays an important role in the global economy, strengthening the country's position in the international market (Nuryanti & Swastika, 2011). Increasing productivity, empowering farmers, and innovation

Jurnal Multidisiplin Sahombu
Volume 4 , Number 01, 2024, DOI 10.58471/ jms.v4i01
ESSN 2809-8587 (Online)
https://ejournal.seaninstitute.or.id/index.php/JMS/index

in agribusiness management are the keys to responding to challenges and achieving sustainable development goals in the Indonesian agricultural sector (Nurjati, 2021).

Agribusiness products, including food crops, horticulture and livestock, are in a very complex dynamic context and continue to change in line with developments in production and global demand (Faqih, 2010). The challenges and opportunities faced by this sector are increasingly influenced by the era of globalization and technological advances. Economic globalization has had a significant impact on the agribusiness sector, changing the paradigm in the production, distribution and marketing of agricultural products (Hermawan, 2012).

In the era of globalization, market integration is becoming increasingly important, and technology plays a key role in facilitating such integration. The development of information and communication technology has opened the door to the creation of a more efficient and transparent global supply chain (Rozci & Inti, 2023). On the other hand, challenges arise along with increasing global competition and market uncertainty. Therefore, agribusiness industry players need to proactively adopt technological innovation to improve production efficiency, supply chain management and marketing of their products in order to compete in an increasingly integrated global market (Tarigan, 2020).

The presence of digital technology in the agricultural sector has opened the door to vast opportunities for progress in agribusiness. One of the main benefits is the ability of technology to simplify the supply chain, connecting farmers directly with consumers (Rachmawati & Gunawan, 2020). With digital marketing platforms, farmers can market their products directly to consumers without involving many intermediaries, thereby shortening the distribution chain and increasing profits for farmers (Prayoga, 2018).

Apart from that, digital technology also helps reduce farmers' dependence on middlemen (Arvianti et al, 2022). With direct access to markets via online platforms, farmers can sell their crops at fairer prices, without having to rely on middlemen who often take advantage of their bargaining position. This gives farmers greater control over their production and sales, having a positive impact on their economic well-being (Elizabeth, 2007).

Furthermore, technology gives farmers real-time access to information on commodity prices in the market. With accurate and transparent price updates, farmers can make smarter decisions regarding their sales and marketing strategies (Rachmawati, 2020). This better information allows farmers to plan production more efficiently, reduce the risk of losses, and increase their effectiveness in dealing with market fluctuations (Anwarudin et al, 2020).

Therefore, it is important to encourage and empower farmers to be aware of digital technology in the agribusiness sector. Increasing digital literacy among farmers will not only increase their operational efficiency but also expand their access to global market opportunities (Indraningsih, 2017). Technological educational and training measures in the agricultural sector are essential to alleviate information limitations and provide a better understanding of how to use digital tools (Kuntariningsih & Mariyono, 2014).

Training programs can include using mobile applications to monitor and manage plants, understanding digital supply chain management systems, and utilizing online

Jurnal Multidisiplin Sahombu
Volume 4 , Number 01, 2024, DOI 10.58471/ jms.v4i01
ESSN 2809-8587 (Online)
https://ejournal.seaninstitute.or.id/index.php/JMS/index

marketing platforms. These efforts must be supported by the government, agricultural research institutions and other stakeholders to ensure that farmers not only receive access to technology, but also have sufficient understanding to integrate it into daily agricultural practices (Thoriq, 2017).

Additionally, collaborative initiatives between governments, educational institutions and the private sector can accelerate technology adoption among farmers. Subsidies or financial assistance to purchase digital equipment, establishing technology training centers in rural areas, and establishing digital farming communities are concrete steps that can be taken to encourage technological literacy among farmers (Soedarto & Ainiyah, 2022). With increasing technological literacy in the agribusiness sector, farmers can optimize their production, increase efficiency and face challenges better. This will not only have a positive impact on farmers' welfare, but also support food security and economic growth at the national level (Artono, 2019).

METHOD

In this research, the researcher chose a qualitative descriptive method to describe, analyze and provide meaning to the phenomenon being investigated. A qualitative approach is used because the aim is to investigate and understand the phenomenon, as well as to create systematic, accurate descriptions and facts related to the characteristics and relationships between phenomena that are the focus of the research (Moleong, 2014). This qualitative research is carried out in a real life context, creating a situation where the researcher can absorb and dig deeper into the phenomenon being observed. The aim of this research is to create a systematic and accurate description of the facts found, as well as describe the characteristics and relationships between phenomena that are the subject of the research. The data collection method used is library research, where researchers utilize various literary sources such as books, magazines, journals and previous research reports. By using this literature, researchers attempt to obtain information that is relevant to their research, while avoiding duplication of results. Nazir (2013) stated that library studies can provide great benefits to researchers by enabling them to utilize all the information and thoughts that are relevant to their research.

RESULTS AND DISCUSSION

Indonesia, with its wealth of natural resources, has great potential to become a leader in the agricultural sector. Abundant biodiversity, both on land and in waters, provides a strong foundation for the development of agriculture, fisheries and livestock. As an agricultural and maritime country, Indonesia has challenges and opportunities to utilize its natural potential in a sustainable manner. Indonesia's strategic geographical conditions, together with its tropical climate, provide comparative advantages in the production of various types of crops and other agricultural products. With a proper understanding of sustainability and utilization of natural resources, Indonesia can develop agriculture that is not only productive but also environmentally friendly.

It is important to recognize that agriculture is not just a provider of food, but also acts as a major driver of the national economy. By focusing on increasing productivity,

Jurnal Multidisiplin Sahombu
Volume 4 , Number 01, 2024, DOI 10.58471/ jms.v4i01
ESSN 2809-8587 (Online)
https://ejournal.seaninstitute.or.id/index.php/JMS/index

technological innovation and sustainability, the agricultural sector can make a greater contribution to national economic growth. Investment in agricultural infrastructure, farmer training and the adoption of modern agricultural practices are key to maximizing Indonesia's agricultural potential. Increasing agricultural productivity can also help reduce economic inequality in rural areas, create new jobs and improve farmers' welfare. Therefore, the development of the agricultural sector must be a priority in the national development agenda to optimize the potential of natural resources and direct Indonesia towards a sustainable and inclusive economy.

The development of the agricultural or agribusiness sector through the use of digital technology in the marketing sector is an innovative step that can open up new opportunities and increase efficiency in the agribusiness supply chain. By adopting digital technology, farmers and business actors in the agricultural sector can optimize product promotion, distribution and sales more effectively. Several forms of utilizing digital technology in marketing agribusiness products include:

Agricultural E-Commerce Platform

The establishment of agriculture-specific e-commerce platforms has been a key driver of transformation in the agricultural sector, providing opportunities for farmers to sell their products directly to consumers via online platforms. With an application or website specifically for agriculture, farmers can promote and sell their crops without the need to involve intermediaries who can reduce profits. This not only gives consumers wider access to local agricultural products, but also creates opportunities for farmers to get fairer prices and increase their income.

The existence of a special agricultural e-commerce platform also facilitates the transaction process with online payment features, making it easier for consumers to get products without having to meet them directly. In addition, the platform's frequent review and testimonial features provide transparency and confidence to consumers regarding the quality of the products they purchase. Thus, the establishment of a specialized agricultural e-commerce platform not only accelerates the distribution of agricultural products but also creates a more direct and transparent relationship between farmers and consumers, supporting local economic growth and improving farmer welfare.

Agricultural Marketing Application

Mobile applications specifically for farmers play a crucial role in improving operational efficiency and intelligent decision making in the agricultural sector. With real-time information about market prices, consumer trends and best marketing strategies, farmers can quickly respond to changes in the market environment. This application helps farmers to identify market opportunities, optimize harvest times, and dynamically adjust their marketing strategies. With a deep understanding of current market conditions, farmers can avoid potential losses and increase the profitability of their businesses.

Additionally, the mobile app provides farmers with access to the knowledge and resources they need, including the latest information on the best farming techniques, crop maintenance and resource management. The use of this technology also strengthens connectivity between farmers, enabling the exchange of information and experience between them. Thus, mobile applications open the door to collaboration and mutual

Jurnal Multidisiplin Sahombu
Volume 4 , Number 01, 2024, DOI 10.58471/ jms.v4i01
ESSN 2809-8587 (Online)
https://ejournal.seaninstitute.or.id/index.php/JMS/index

learning among farming communities, strengthening the role of technology as a tool that supports the sustainability and growth of the agricultural sector. With the right use of mobile applications, farmers can gain optimal benefits from digital technology, combining traditional knowledge with the latest information to face market dynamics more adaptively and intelligently.

Geographic Information Systems (GIS)

The use of Geographic Information Systems (GIS) in the agricultural sector opens the door to new possibilities in mapping and monitoring agricultural land conditions. By using GIS technology, farmers can collect and analyze spatial data to gain a deep understanding of topography, soil type, and other environmental factors that influence land productivity. This information helps farmers plan planting more strategically, select crops suited to specific land conditions, and optimize resource use. Furthermore, GIS also plays an important role in agricultural marketing strategies. By mapping the location of agricultural land and analyzing spatial data related to markets, farmers can design more targeted marketing strategies. Information on market location, consumer preferences, and demand trends can be integrated into GIS mapping, allowing farmers to adjust their production and marketing according to specific market needs.

By combining agricultural land mapping and monitoring through GIS, farmers can increase land management efficiency, reduce risks, and increase the competitiveness of their products in the market. In addition, this approach can be an important instrument in building sustainable agriculture that takes environmental and social aspects into account in decision making. Thus, the use of GIS is not only a tool for increasing productivity, but also for creating agricultural strategies that are more sustainable and adaptive to changing environmental conditions.

Social Media and Digital Marketing

The use of social media platforms such as Facebook, Instagram and Twitter has become an effective means for agricultural players to market their products more widely. With the popular use of social media, farmers can easily share information about their agricultural products, upload photos or videos, and interact directly with consumers. This helps build a strong brand image and increases the visibility of agricultural products in the digital market. Through social media, farmers can provide direct information to consumers about agricultural methods, product quality, and the added value or uniqueness of their products.

Apart from social media platforms, digital marketing also involves online advertising campaigns that can increase the reach of agricultural product promotions. These campaigns can involve strategic choices in defining target audiences, using analytical tools to measure campaign performance, and maximizing the effectiveness of advertising spend. Digital marketing content, such as blogs, articles, and infographics, can also be used to provide in-depth information about agricultural products, create engagement with consumers, and build long-term relationships.

Internet of Things (IoT) Technology

The integration of Internet of Things (IoT) sensors and devices on livestock or agricultural land has a revolutionary impact by providing real-time monitoring capabilities

Jurnal Multidisiplin Sahombu
Volume 4 , Number 01, 2024, DOI 10.58471/ jms.v4i01
ESSN 2809-8587 (Online)
https://ejournal.seaninstitute.or.id/index.php/JMS/index

on various important aspects, including environmental conditions, animal health and plant growth. Sensors connected to an IoT network collect data continuously, giving farmers direct access to current and accurate information without having to be physically on site. In the context of animal husbandry, animal health sensors can provide continuous monitoring of parameters such as heart rate, body temperature and activity, enabling early identification of health problems and prevention of disease. On the agricultural side, soil sensors can provide information about moisture, soil nutrients, and pH levels, helping farmers plan more efficient irrigation and fertilization.

The information collected by these IoT sensors and devices is not only useful for monitoring, but can also be used to improve the quality of agricultural products. With proper data analysis, farmers can optimize resource use, reduce waste, and increase production efficiency. For example, the use of weather sensors can help farmers plan optimal harvest times based on weather conditions, resulting in better quality products. With the integration of this technology, the agricultural and livestock sectors will become more adaptive, efficient and sustainable. In addition, farmers can make decisions based on more accurate data, increase productivity, and at the same time strengthen the resilience of the agricultural sector in facing environmental and economic challenges.

Blockchain for Transparency

The use of blockchain technology in the agricultural sector brings significant innovation by providing a high level of transparency in the supply chain. Blockchain, as a decentralized ledger that records every transaction or data change in an encrypted manner, allows consumers to directly trace the origins of the agricultural products they consume. Every step in the supply chain, from planting, harvesting, distribution, to reaching consumers, can be accessed and verified via blockchain.

This transparency gives consumers confidence regarding the authenticity of the product and its production methods. By providing detailed information about farming practices, pesticide use, or processing techniques, consumers can make purchasing decisions that are more informed by the knowledge and values they prioritize. In addition, blockchain can also help overcome the problem of product fraud and counterfeiting, securing the integrity of agricultural products. Blockchain technology also provides benefits for farmers and business actors in the supply chain. Transaction processes recorded securely on the blockchain can simplify administration, reduce transaction costs, and increase operational efficiency. By providing transparent evidence at every step of production and distribution, blockchain can also help ensure that the added value produced by farmers is priced appropriately.

CONCLUSION

The use of technology in the agricultural sector, including digital technology, Geographic Information Systems (GIS), Internet of Things (IoT), social media, and blockchain, has had a significant positive impact. This technology integration not only improves operational efficiency and productivity in agricultural supply chains, but also provides major benefits to farmers and consumers. The application of mobile applications, agricultural-specific e-commerce platforms, and digital technology in marketing expands market reach and

increases the visibility of agricultural products. Additionally, the use of GIS enables more effective monitoring and management of agricultural land, while IoT technology provides real-time information for monitoring environmental conditions, animal health and plant growth. The use of social media and digital marketing techniques creates a platform to promote agricultural products more directly to consumers, while blockchain provides a high level of transparency in the supply chain, ensuring product authenticity and empowering consumers to make informed choices. Overall, technology is bringing positive changes in the agricultural sector, making it more adaptive, efficient and sustainable. The application of this technology not only supports economic growth, but also creates agricultural supply chains that are more transparent, ethical, and provide benefits for all stakeholders, including farmers and consumers. By continuing to apply and develop this technology, it is hoped that the agricultural sector can continue to contribute to food security, economic growth and environmental sustainability.

REFERENCES

1. Anwarudin, O., Sumardjo, S., Satria, A., & Fatchiya, A. (2020). Proses dan pendekatan regenerasi petani melalui multistrategi di Indonesia. *Jurnal Penelitian dan Pengembangan Pertanian*, *39*(2), 73-85.
2. Artono, B. (2019). Teknologi Terapan Bidang Pengelasan (2F) Pada Lingkup Masyarakat Pedesaan di Sektor Pertanian. *DIKEMAS (Jurnal Pengabdian Kepada Masyarakat)*, *3*(2).
3. Arvianti, E. Y., Anggrasari, H., & Masyhuri, M. (2022). Pemanfaatan Teknologi Komunikasi melalui Digital Marketing pada Petani Milenial di Kota Batu, Jawa Timur. *AGRIEKONOMIKA*, *11*(1), 11-18.
4. Elizabeth, R. (2007). Fenomena sosiologis metamorphosis petani: ke arah keberpihakan pada masyarakat petani di pedesaan yang terpinggirkan terkait konsep ekonomi kerakyatan. In *Forum Penelitian Agro Ekonomi* (Vol. 25, No. 1, pp. 29-42).
5. Faqih, A. (2010). *Manajemen agribisnis*. Deepublish.
6. Hermawan, I. (2012). Analisis eksistensi sektor pertanian terhadap pengurangan kemiskinan di pedesaan dan perkotaan. *Mimbar: Jurnal Sosial dan Pembangunan*, *28*(2), 135-144.
7. Indraningsih, K. S. (2017). Strategi diseminasi inovasi pertanian dalam mendukung pembangunan pertanian. In *Forum Penelitian Agro Ekonomi* (Vol. 35, No. 2, pp. 107-123).
8. Kuntariningsih, A., & Mariyono, J. (2014). Adopsi teknologi pertanian untuk pembangunan pedesaan: Sebuah kajian sosiologis. *Agriekonomika*, *3*(2), 180-191.
9. Latibu, R., Rachman, E., & Arsana, I. K. S. (2023). Faktor-Faktor Penghambat Pembangunan Bidang Pertanian Dalam Meningkatkan Pendapatan Petani Jagung di Desa Kayubulan Kecamatan Batudaa Pantai Kabupaten Gorontalo. *Innovative: Journal Of Social Science Research*, *3*(5), 8039-8047.
10. Moleong, L. J. (2014). Metode penelitian kualitatif edisi revisi. *Bandung: PT Remaja Rosdakarya*.
11. Nazir, M. (1988). MetodePenelitian. *Jakarta: Ghalia Indonesia*.

12. Nurjati, E. (2021). Peran Dan Tantangan E-Commerce Sebagai Media Akselerasi Manajemen Rantai Nilai Produk Pertanian. In *Forum Penelitian Agro Ekonomi* (Vol. 39, No. 2, pp. 105-115).
13. Nuryanti, S., & Swastika, D. K. S. (2011). Peran kelompok tani dalam penerapan teknologi pertanian. In *Forum penelitian agro ekonomi* (Vol. 29, No. 2, pp. 115-128).
14. Prayoga, K. (2018). Dampak Penetrasi Teknologi Informasi Dalam Transformasi Sistem Penyuluhan Pertanian Di Indonesia. *JSEP (Journal of Social and Agricultural Economics)*, *11*(1), 46-59.
15. Rachmawati, R. R. (2020). Smart Farming 4.0 Untuk Mewujudkan Pertanian Indonesia Maju, Mandiri, Dan Modern. In *Forum Penelitian Agro Ekonomi* (Vol. 38, No. 2, pp. 137-154).
16. Rachmawati, R. R., & Gunawan, E. (2020). Peranan petani milenial mendukung ekspor hasil pertanian di Indonesia. In *Forum penelitian agro ekonomi* (Vol. 38, No. 1, pp. 67-87). Indonesian Center for Agricultural Socioeconomic and Policy Studies.
17. Rozci, F., & Inti, R. W. (2023). Kondisi dan Strategi Pertanian Indonesia dalam Memenangkan ACFTA (Asean-China Free Trade Area): Conditions and Strategies for Indonesian Agriculture in Winning the ACFTA (Asean-China Free Trade Area). *Jurnal Ilmiah Manajemen Agribisnis*, *11*(2).
18. Soedarto, T., & Ainiyah, R. K. (2022). *Teknologi Pertanian Menjadi Petani Inovatif 5.0: Transisi Menuju Pertanian Modern*. Uwais Inspirasi Indonesia.
19. Suradisastra, K. (2006). Revitalisasi kelembagaan untuk percepatan pembangunan sektor pertanian dalam otonomi daerah. *Analisis Kebijakan Pertanian*, *4*(4), 281-315.
20. Tarigan, H. (2020). Pengembangan sumber daya manusia pertanian pada era disrupsi: upaya mendukung agribisnis inklusif. In *Forum Penelitian Agro Ekonomi* (Vol. 38, No. 2, pp. 89-101).
21. Thoriq, A. (2017). Edukasi Teknologi Pertanian Untuk Anak Usia Dini di Desa Cilayung, Kecamatan Jatinangor. *Dharmakarya: Jurnal Aplikasi Ipteks Untuk Masyarakat*, *6*(1).
22. Widyawati, R. F. (2017). Analisis keterkaitan sektor pertanian dan pengaruhnya terhadap perekonomian Indonesia (analisis input ouput). *Jurnal Economia*, *13*(1), 14-27.