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## Potential of E-Commerce as a Method of Agricultural Business Marketing on MSME Scale

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**Abstract:** The study aims to review the performance of e-commerce in the operation of agricultural SMEs so that the view for developing and implementing e-commerce can be improved. The method used in this research is an approach is carried out through the literature study, namely research that critically examines knowledge, ideas or findings and provides theoretical and methodological contributions to the object of study. **Originality/value** This study identifies, explores, analyzes and summarizes the main themes that contribute to deepening the literature by identifying the potential of e-commerce as a marketing method for agricultural businesses MSME scale.

**Keywords:** E-commerce, Marketing, Agriculture, MSME, Literature Review

### INTRODUCTION

The rapid development of Information and Communication Technology or known as Information and Communication Technology (ICT) has penetrated various fields of life, including business and trade. Information Technology is technology used in the acquisition, storage, processing and distribution of information by electronic means (Hasbullah & Haritman, 2006). With the use of Information Technology, producers and consumers can connect quickly. Information technology media for various business activities is called e-commerce. The business activities carried out can include marketing, promotion, public relations, transactions, payments, and scheduling of delivery of goods, as well as being quite open to innovations in online business activities in line with the development of e-commerce technology (Eva MS, 2007).

E-commerce is defined as a business process that uses electronics as a liaison between companies and consumers in the form of electronic transactions, where the exchange or sale of goods/services and information electronically (Eva MS, 2007). E-commerce is part of e-business where in addition to using network technology, it also uses database technology (database), electronic mail (email) and other forms of non-computer technology, such as goods delivery systems and payment instruments. The use of e-commerce is a must in the

business world, given the increasingly complex problems, the increasingly mushrooming competitors and the demands to always keep abreast of the developments of the global world which requires always to act creatively. Based on research and case studies in Australia (Wirapraja & Aribowo, 2018). There are several factors that encourage business actors to take advantage of the use of e-commerce, (1) the use of computers and information technology by business actors, (2) the implementation of e-commerce today and plans in the future, (3) obstacles in the use of e-commerce. -commerce (4) expertise of information technology staff. Quoted from the detik.com page, Google's report states that consumer interest in e-commerce has experienced rapid growth in Southeast Asia more than doubled in the last two years. This shows that not only large companies use e-commerce, but micro, small and medium-sized companies also use e-commerce in marketing their products which are expected to save costs, time and effort, so as to create selling prices that are able to compete in the market. Marketing activities by utilizing IT is an alternative in selling, promoting the products of a business, either in the form of services/goods that will be distributed to consumers effectively and efficiently. Effective marketing can increase sales volume and increase the income of a business, especially in Micro, Small and Medium Enterprises (MSMEs).

Currently, Micro, Small and Medium Enterprises (MSMEs) have become an important part of the national and regional economic systems that are able to accelerate economic growth through the mission of providing business and employment opportunities, increasing community income, playing a role in increasing foreign exchange earnings and strengthening the national economic structure (Hafni and Rozali, 2017). Micro, Small and Medium Enterprises (MSMEs) are the pillars of the economy in Indonesia. In 2018, the number of MSMEs in Indonesia reached 99.99% of the total business in Indonesia and contributed 57.3% of the total gross domestic income (Ministry of Cooperatives and MSMEs, 2018). This shows that MSMEs are the drivers of the economy and make a significant contribution to the Indonesian economy. MSMEs (Micro Enterprises, Small and Medium Enterprises) are trading businesses managed by individuals referring to productive economic businesses with the criteria set out in the Act. In addition, Micro, Small and Medium Enterprises (MSMEs) are one of the businesses where the development of their products is very important in order to get optimal profits. One of the Information Technology that is growing rapidly and has the potential to encourage the performance of MSMEs is social media.

Given the importance of the role of MSMEs, it should be in the technology era where information moves very quickly and being a business actor to win IT competition can be an opportunity for MSMEs to market their products and grow business networks in all parts of the business world, not only used by large companies. Information technology for MSME products can be widely marketed and promoted to consumers, be it local, national, or international, making it easier for MSMEs to apply for capital loans because it is considered that the business is feasible because its products are widely known and make it a bankable business. SMEs are considered an unsustainable business (sustainable). Effective use of e-commerce-based information technology in Micro, Small, and Medium Enterprises and Medium Enterprises (MSMEs) should be reviewed to determine the effectiveness of the information technology. If MSME actors have used e-commerce to achieve their goals, then the MSME is said to be effective. The phenomenon of the rapid flow of information and increasingly free competition has increased consumer and customer awareness of the many choices of goods and services to choose from. By utilizing Information Technology, it will encourage MSMEs to build long-term relationships with consumers and customers as well as get export opportunities, increasing product sales volume. , extensive product marketing and promotion and other business opportunities. If MSME actors have used e-commerce to achieve their goals, then the MSME is said to be effective. The phenomenon of the rapid flow

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Strengthening the MSME sector with technology-based marketing strategies through the implementation of e-commerce, where the application of e-commerce has been carried out in many developing countries and is evidenced by increased product yields, reaching a wider market, and better sales, so that it will increase product competitiveness globally.

## **LITERATURE REVIEW**

### **E-commerce**

There are several opinions regarding the definition of Electronic Commerce or E-Commerce. E-commerce has a definition of the process of buying and selling products, or electronic data network services via the internet and the world wide web(Grandon & Pearson, 2004). E-commerce is the use of computer networks (including the internet) to conduct business such as buying, selling, exchanging products, services and information. Meanwhile, according to(Anjani & Santoso, 2018)defines e-commerce from the following perspectives: (1) communication perspective: e-commerce is the delivery of information, products/services, or payments via telephone lines, computer networks or other electronic means, (2) business process perspective: e-commerce is application of technology towards automation of transactions and company workflows, (3) service perspective: e-commerce is a tool that fulfills the wishes of companies, consumers and management in cutting service costs when improving the quality of goods and speed of service, (4) online perspective: e-commerce is related to the capacity to buy and sell products and information on the internet and other online services.

According to (Rony, 2020) in the book *Excellent Employees of Great Companies*, e-commerce is the activity of buying and selling goods/services or transmitting funds/data through electronic networks, especially the internet. The increasingly fierce level of business competition has resulted in companies facing challenges to be able to maintain their survival. Each company assigns responsibility to the Human Resources Division (HR Division) to find and obtain superior employees who can utilize information technology to market their products (Rony, 2020) In addition, e-commerce also has an understanding as an online channel that can be accessed by someone through a computer, used by business people to carry out their business activities and used by consumers to obtain information with the help of computers,

### **Agriculture**

Agriculture is a culture that was first developed by humans to overcome the challenges of survival which are increasingly difficult due to the depletion of natural food sources due to human growth. Agriculture is the use of biological resources by humans for food production, industrial raw materials, energy sources, and environmental management. The activity of utilizing biological resources in agriculture is generally understood as the activities of

planting trees, farming and raising livestock. It can also be the use of microorganisms and bioenzymes in advanced product processing, such as the production of cheese and tempeh, or simple mining, such as fishing or logging. Agriculture is an important part of agriculture as it involves various activities carried out in agriculture. Most of the world's population lives from agriculture, but agriculture accounts for only half of the world's GDP. The history of Indonesia from the colonial period to the present cannot be separated from the fields of agriculture and plantations, because these fields are very important in determining the formation of the socio-economic reality of the people in various parts of Indonesia. Based on data from the BPS in 2002, the agricultural sector in Indonesia provides employment for about 3% of the population, although it only accounts for about 17.3% of gross domestic product.

### **Micro, Small and Medium Enterprises (MSMEs)**

In the Indonesian economy, MSMEs are the business group that has the largest number and is proven to be resistant to various kinds of shocks from the economic crisis. The criteria for businesses that are included in the Micro, Small and Medium Enterprises have been regulated in the legal umbrella. Based on Law Number 20 of 2008 concerning Micro, Small and Medium Enterprises (MSMEs) there are several criteria used to define the definition and criteria of Micro, Small and Medium Enterprises. Some institutions or agencies even provide their own definition of Small and Medium Enterprises (SMEs), including the State Ministry of Cooperatives and Small and Medium Enterprises (Menekop and SMEs), the Central Statistics Agency (BPS), Decree of the Minister of Finance No. 316/KMK.016/1999 dated 27 June 1999. The definition of SMEs presented is different from one another. According to the Ministry of State for Cooperatives and Small and Medium Enterprises (Menekop and UKM), that which is meant by Small Business (UK), including Micro Enterprises (UMI), is a business entity that has a net worth of at most Rp. 200,000,000, excluding land and buildings for business premises, and have annual sales of a maximum of Rp. 1,000,000,000. Meanwhile, Medium Enterprises (ME) are business entities owned by Indonesian citizens who have a net worth greater than Rp 200,000,000 to Rp 10,000,000,000, excluding land and buildings. and have annual sales of at most IDR 1,000,000,000. Meanwhile, Medium Enterprises (ME) are business entities owned by Indonesian citizens who have a net worth greater than Rp 200,000,000 to Rp 10,000,000,000, excluding land and buildings. and have annual sales of at most IDR 1,000,000,000. Meanwhile, Medium Enterprises (ME) are business entities owned by Indonesian citizens who have a net worth greater than Rp 200,000,000 to Rp 10,000,000,000, excluding land and buildings.

According to the Central Statistics Agency (BPS) provides a definition of SMEs based on the quantity of labor. Small businesses are business entities that have a workforce of 5 to 19 people, while medium businesses are business entities that have a workforce of 20 to 99 people. In <http://www.kemenkeu.go.id>, downloaded 22 April 2017 nature realizes national development goals. Given its role in development, small businesses must continue to be developed in the spirit of kinship, complement each other, strengthen each other between small and large businesses in the context of equity and realize the greatest prosperity for all Indonesian people.

To realize this goal, the Office of Cooperatives, MSMEs, Industry, and Trade and the community must cooperate with each other. The community is the main actor in development, while the Department of Cooperatives, MSMEs, Industry and Trade is obliged to direct, guide, protect and grow the business climate. The role of small and medium enterprises (SMEs) in the Indonesian economy can be seen from four aspects, namely:

- 1) Small and medium enterprises (SMEs) make up the largest share of all businesses in Indonesia.

- 2) Small and medium enterprises (SMEs) play an important role in employment.
- 3) Small and medium enterprises (SMEs) make an important contribution to gross domestic product (GDP).
- 4) Small and medium enterprises (SMEs) contribute to export development. The role of small and medium enterprises (SMEs) in the Indonesian economy has failed to improve economic competitiveness in the international arena, especially in the ASEAN region.

Companies that successfully align business strategy and superior employees are more likely to get a positive return on the investment made in employees. So companies need to consider the following: Adjusting the availability of superior employees with dynamic business needs; Build new skills tailored to business needs; Invest to build internal training institutes; Design and implement HR management practices to support the common goals of Great Company's Outstanding Employees.

**Table 1. Previous Research**

No	Author	Title
1.	(Nadarajan & Ismail, 2011)	E-Commerce framework to improve rural agriculture sector in Cambodia International Conference on E-business, management and Economics
2.	(Alwendi, 2020)	Application of E-Commerce in Improving Business Competitiveness
3.	(Ketut Eddy Purnama et al., 2018)	Application of E-Commerce for Strengthening MSMEs Based on the One Village One Product Concept in Karangasem Regency
4.	(Darsono et al., 2019)	Strategic policies for small and medium businesses in marketing through e-commerce
5.	(Rakanita, 2019)	Utilization of E-Commerce in Improving the Competitiveness of MSMEs in Karangasari Village, Karangtengah District, Demak Regency
6.	(Bahtiar, 2020)	Potential, Role of Government, and Challenges in E-commerce Development in Indonesia
7.	(Kusuma et al., 2020)	Effectiveness of E-Commerce-Based Information Technology for Food Products Micro, Small and Medium Enterprises (MSMEs) in Banda Aceh City
8.	(Yang et al., 2020)	Adoption of e-commerce by the agri-food sector in China: The case of Minyu e-commerce company
9.	(Lilavanichakul, 2020)	Plans and Experiences to Improve Agricultural Trade in the Asia Pacific Region Development of Agricultural E-commerce in Thailand
10.	(Soegoto & Nugraha, 2020)	E-commerce for Agriculture. IOP Conference Series: Materials Science and Engineering

## RESEARCH METHOD

This Literature Review is a method of solving problem answers by grouping similar extraction data according to the research objectives in accordance with the inclusion criteria then collected and made a journal summary including the name of the researcher, year of publication of the journal, research title, method and summary of the results or findings. The summary of the research journals is entered into a table sorted alphabetically and the year the journal was published and in accordance with the format mentioned above. To further clarify the analysis of the abstract and full text of the journal, read and observe. The journal summary then analyzed the contents contained in the research objectives and research results/findings. The analysis used used 10 journal content analyzes, then coding was carried out on the reviewed journal contents using psychospiritual categories. The data that had been collected was then searched for similarities and differences and then discussed to draw conclusions (Randolph, 2009).

The data used in this research is secondary data. Secondary data is data obtained not from direct observation. However, the data is obtained from the results of research that has been carried out by previous researchers. The secondary data sources in question are books

and primary or original scientific reports contained in articles or journals. The data sources for this research are articles or journals written by several previous researchers (Alwendi, 2020; Bahtiar, 2020; Darsono et al., 2019; Ketut Eddy Purnama et al., 2018; Kusuma et al., 2020; Lilavanichakul, 2020; Nadarajan & Ismail, 2011; Rakanita, 2019; Soegoto & Nugraha, 2020; Yang et al., 2020)

## FINDINGS AND DISCUSSION

### The Role of E-commerce in Retail Value of Agricultural Products

The increase in the use of agricultural product trading technology is motivated by the progress of the spread of the internet. Technology is able to change people's patterns or habits in buying and selling activities that were previously carried out directly in traditional markets or supermarkets into online transactions. In online buying and selling transactions, there are several platforms such as marketplaces, e-commerce, and online stores. Haekal (2020) explains the differences between the three business platforms. Marketplace is a third party website that acts as an intermediary that connects sellers and buyers online, while e-commerce is a website that is used to sell products from website owners. E-commerce is often referred to as an online store. However, online stores that are known to have differences with e-commerce in terms of business scale. E-commerce has a larger scale of business so that it is better known by the wider community, while online shops have a smaller scale of business. Some examples of agricultural e-commerce are tanihub, tanifund, iGrow, vegetablebox, winged bean, regopantes, and so on, while marketplaces that are often used for buying and selling agricultural products are shopee, tokopedia, Bukalapak, agromaret, and so on. Online stores that are well known to the public, for example, are cihilibeli, brambang.com and happyfresh. and so on, while the marketplaces that are often used for buying and selling agricultural products are Shopee, Tokopedia, Bukalapak, Agromart, and so on. Online stores that are well known to the public, for example, are cihilibeli, brambang.com and happyfresh. and so on, while the marketplaces that are often used for buying and selling agricultural products are Shopee, Tokopedia, Bukalapak, Agromart, and so on. Online stores that are well known to the public, for example, are cihilibeli, brambang.com and happyfresh. (Nurjati, 2021)map the differences between the three business platforms as shown in table 2.

**Table 2. Differences in Marketplace, e-Commerce, and Online Stores**

Faktor pembeda	<i>Marketplace</i>	<i>E-commerce</i>	<i>Toko online</i>
Istilah umum	Pasar <i>online</i> , sehingga penjual bisa membuka toko	Toko <i>online</i> besar	Toko <i>online</i> (kecil-sedang)
Asal produk	Berasal dari para pemilik toko (bisa <i>brand</i> resmi atau UMKM)	Berasal dari <i>brand e-commerce</i> itu sendiri atau kerjasama <i>brand</i>	Hasil produksi sendiri, <i>dropship</i> , atau <i>reseller</i>
Metode pembayaran	pembeli → <i>marketplace</i> → penjual	pembeli → <i>e-commerce</i>	pembeli → toko <i>online</i>
Media penjualan	<i>website</i> atau aplikasi	<i>website</i> atau aplikasi	<i>marketplace</i> , sosial media

(Nanda, 2021)explain the advantages gained through the use of e-commerce compared to marketplaces and online stores in terms of competition, consumer trust, and consumer loyalty. E-commerce has less competition because it is widely known by the public, while selling in marketplaces and online stores is very competitive. Consumer trust can be built quickly by e-commerce if you apply the right strategy, whereas if you use a marketplace, consumers will trust the marketplace more as a business platform, so there are difficulties in developing the company's brand image. If you sell using an online store, it will take a long time to build consumer trust, unless the owner's reputation is known. Through e-commerce, consumers will tend to be more loyal because of the provision of sales services that satisfy consumers such as member facilities, point collection, rewards, and so on. Consumer loyalty

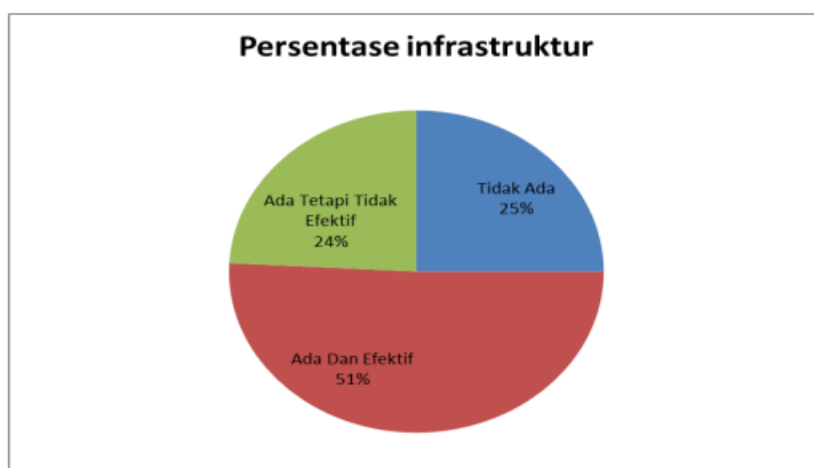
to marketplaces and online stores tends to be low because consumers will easily switch if there are similar products at lower prices. In general, e-commerce has a comparative advantage so that it can compete with marketplaces or online stores.

Currently the development of the internet and technology is running very massively. This condition affects the development of e-commerce which helps businesses in agriculture a lot.(Alwendi, 2020)in his research shows that the motives of business actors in implementing e-commerce include: accessing global markets, promoting products, building brands, getting closer to customers, helping faster communication with customers, and satisfying customers. Business actors also get benefits when implementing e-commerce, including: increasing sales turnover, increasing the number of customers, promotion tools, and expanding business. However, the implementation of e-commerce also has obstacles, namely weak human resources, high costs, difficulty in obtaining permits, and network barriers.

Agriculture is a sector that still dominates the economy in Indonesia. Its crucial role as a provider of basic needs is one of the reasons for the need for continuous development and innovation by researchers and practitioners in the field. The chain of development is carried out starting from on-farm to off-farm. The agricultural production chain starts in the land, then goes through a processing process, so that it becomes a product that is ready for consumption. Before reaching consumers, there are several characteristics of agricultural products that need to be considered in planning their distribution. Improper distribution will lead to a decrease in the selling value of agriculture. In addition to the distribution of agricultural products, marketing is also important to increase the number of requests for agricultural products among the community.

Marketing strategies are increasingly broad in type along with the times and technology. Internet technology that develops, directs the existence of e-commerce and marketplaces as marketing media. By using e-commerce, business owners are expected to increase interest in their company's products. MSMEs in Indonesia still use marketing methods with cooperatives, but the use of e-commerce is still under development.

The use of e-commerce as a marketing method for agricultural MSME products is still lacking due to several factors. The common inhibiting factor in society is the lack of education and inadequate infrastructure to support the use of e-commerce. This can be seen in one case of MSMEs in the Aceh area which was carried out by(Kusuma et al., 2020).



**Figure 1. Percentage of infrastructure in the use of e-commerce-based Information Technology on food product MSMEs in Banda Aceh City**

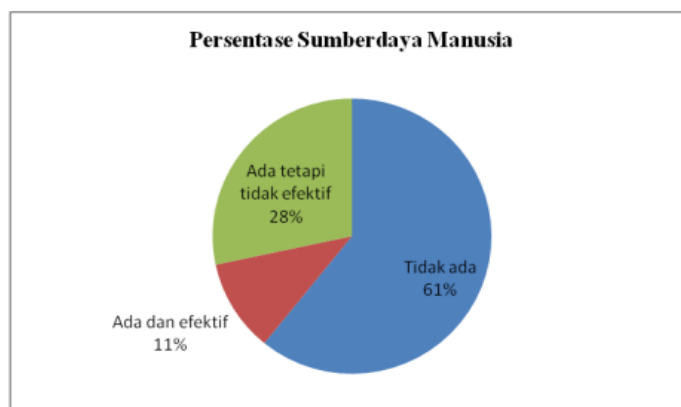
The research was conducted with a field study in Banda Aceh City in 2019. Figure 1 shows that the infrastructure for the implementation of e-commerce has only reached 51%

that is existing and effective. This means that almost half of MSMEs are still unable to access e-commerce methods as a marketing method.

Electronic Commerce (electronic commerce) is all forms of trade transactions for goods or services that are carried out electronically. A formal definition of e-commerce is provided by Baum, Locke and Smith (2001), namely: a set of technologies, applications, and dynamic business processes that connect companies, consumers, and society through electronic transactions and trade in goods, services, and information carried out electronically. The quality of internet marketing and the distinguishing qualitative criteria for internet marketing development will assist in the process of implementing quality internet marketing. There are two supporting factors for the Internet to grow faster in e-commerce intermediaries, namely (1) the Internet has a very wide reach, cheap, fast and easily accessible to the public;

Based on the survey conducted, the main problem faced by MSMEs is marketing. Marketing in the conventional way requires high costs (opening new branches, participating in trade shows, producing and distributing brochures, etc.) The growth of the Internet has become an effective means of communication, opening up new product marketing channels. Small and medium enterprises, the use of the Internet to disseminate information more quickly and widely, the development of e-commerce sales and marketing models to solve these problems.

E-commerce marketing methods are very dependent on infrastructure, but also need support from adequate human resources. In research conducted by(Kusuma et al., 2020)also shows that human resources or business actors still cannot be considered to have mastered e-commerce.



**Figure 2. Percentage of human resources on the use of e-commerce-based information technology on food product MSMEs in Banda Aceh City**

It can be seen in Figure 2 that human resources who can utilize e-commerce technology are still minimal, namely 11%. More than 61% of human resources have not been able to utilize information technology. If you consider the available infrastructure and human resources, less than half of entrepreneurs can apply e-commerce marketing methods.

Marketing using e-commerce technology can be done through various media. The following is a graph of the use of MSME e-commerce media in Karangasari village(Rakanita, 2019).



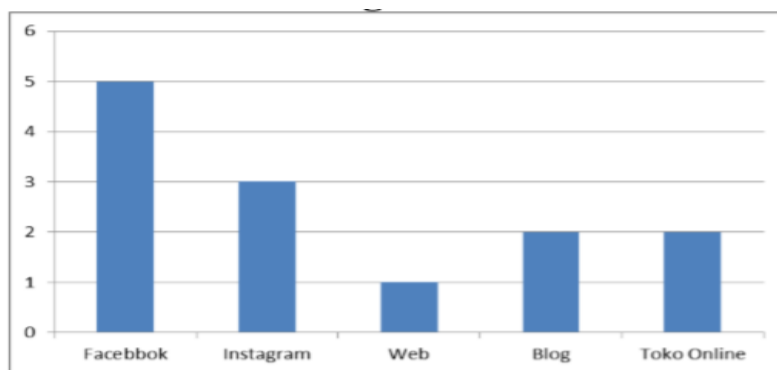


Figure 3. Types of use of MSME e-commerce media in Karangasari Village

It can be seen from the picture that several types of e-commerce media used by MSME actors in Karangasari Village are different, including Facebook, Instagram, web, blogs and online stores. Facebook is the most widely used e-commerce media by MSMEs, this is because Facebook is the easiest to learn and more interesting media compared to other e-commerce media. The use of e-commerce media will provide challenges for MSMEs to increase their competitiveness, because in online business there is very tight competition.

Table 3 : Weighting on marketing choices through e-commerce on attitude consideration

Description	Marketing Options Through E-Commerce			Weight
	Buy and Sell Online at Marketplace	Internet Banking and SMS Banking	Cable TV and Internet Provider	
1. Products	5	5	4	0.171
2. Product selling place	4	4	5	0.165
3. How to receive orders	5	4	3	0.168
4. Payment method	5	3	3	0.169
5. Shipping method	5	5	5	0.165
6. Customer service	3	4	5	0.163
Score	7.697	7.598	7.583	
Ranking	1	2	3	

Marketing through e-commerce can be done through several media. Marketing can be done through TV, internet providers, internet and SMS banking, as well as marketplaces. Based on research conducted by (Darsono et al., 2019), in table 3, e-commerce through the marketplace has the most effective weight compared to other media. The thing that makes the marketplace better is the payment method.

Developing payment methods such as virtual accounts or e-banking is one of the conveniences provided by the marketplace. As a seller in the marketplace, entrepreneurs are also facilitated with purchase history which can make it easier to store sales and profit data. In addition, the innovation that is always evolving also makes the marketplace more secure in transactions. Sellers and buyers are more awake and protected from internet crime or fraud.

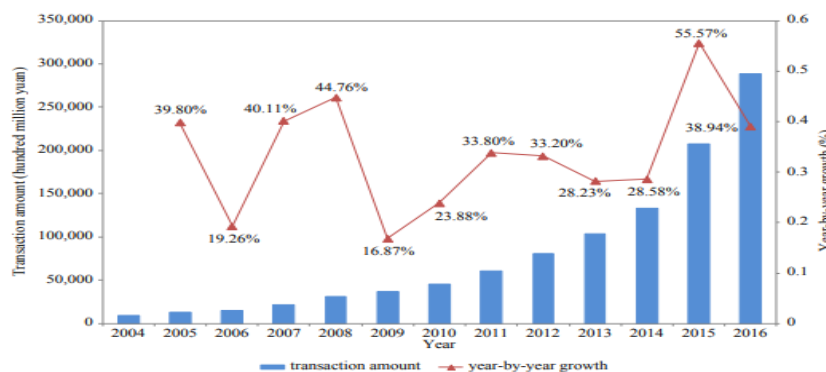


Figure 4. Total e-commerce transactions in China (2014-2016)

The increasing value of e-commerce can also be seen from the number of transactions that occur in the e-commerce system. It can be seen in Figure 3, the research conducted by(Yang et al., 2020)in China shows that transactions through e-commerce always increase from 2004 to 2016. The increase that occurred was seen sharply in 2015 with a transaction growth value of 55.57%.

E-commerce has many advantages as a method of marketing agricultural goods. The rapid dissemination of information from entrepreneurs to buyers can also accelerate the sale of agricultural products. When viewed from agricultural materials that have a short shelf life, e-commerce is the right medium for marketing.

The development of e-commerce continues not only in developed countries but also in developing countries. One of the case studies conducted by(Lilavanichakul, 2020)in Thailand, the value of e-commerce has increased every year from 2014 to 2018. This increase did not only occur in the domestic market but also in the international market. Opportunities to consider e-commerce as a marketing method are wide open to all sectors:

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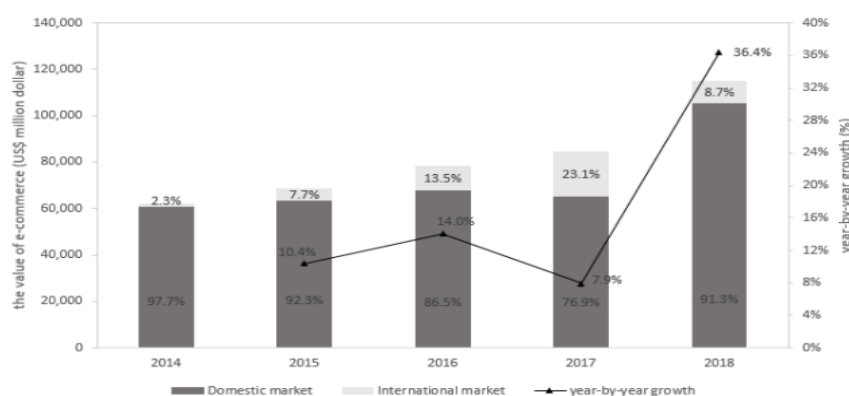


Figure 1. Thailand's total value of e-commerce (2014-2018)  
Source: Electronic Transactions Development Agency (ETDA, 2019)

**Figure 5. Total Value of e-Commerce in Thailand (2014-2018)**

Although the graph of the value of e-commerce is increasing every year, which can be seen in Figure 5, this figure is still relatively slow in e-commerce adoption, so a number of challenges need to be reconsidered. According to research conducted by(Lilavanichakul, 2020), things that are a challenge in e-commerce adoption include:

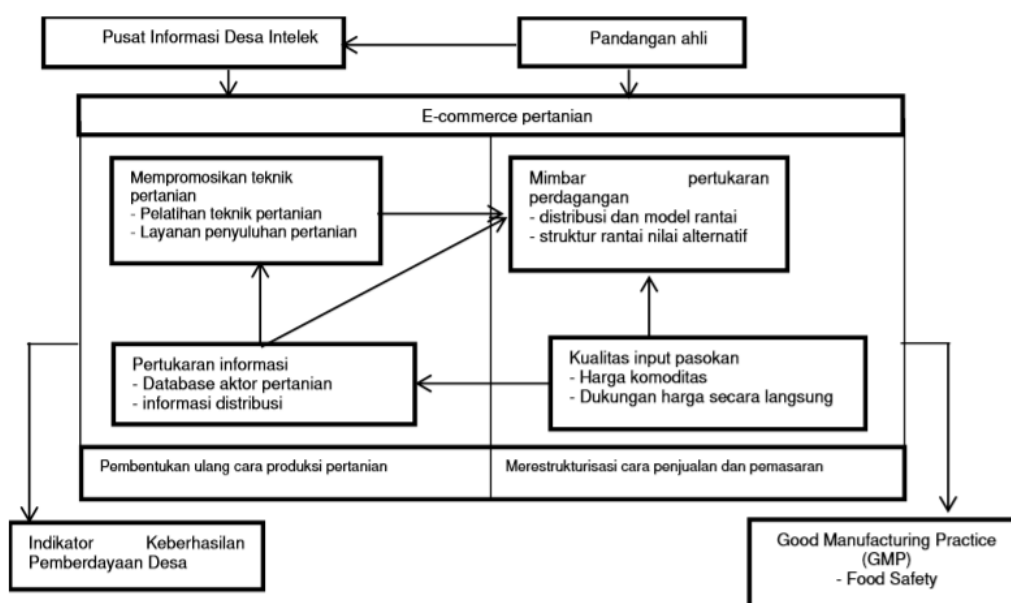
- 1) The structure of the agricultural e-commerce market in Thailand is considered to be monopolistic competition. The range of product differentiation is limited to agricultural products.
- 2) Internet accessibility and connectivity are important factors in adopting agricultural e-commerce. Limited internet access and affordable mobile devices, especially in rural areas, lead to a lack of awareness of the use of digital technology.
- 3) Logistics infrastructure is described as the quality of infrastructure related to trade and transportation. In Thailand, the logistics system faces heavy traffic, low levels of critical infrastructure in rural areas, and high costs in the cold chain system, leading to logistics challenges, requirements such as long delivery times and complicated handling of fresh produce.
- 4) E-payment is one of the main issues in the development of agricultural e-commerce. Even so, the number of e-commerce users was around 51.3% in 2018, but 2.7% were paid by credit cards (ETDA, 2019). Meanwhile, some Thai consumers (6.8%) choose not to buy products and services online for fear of fraud, online security, and privacy (ETDA, 2020).

Lack of trust in digital payments affects the adoption of e-commerce in agricultural commodities.

- 5) Challenges to e-commerce policy and regulation, including consumer protection, cybersecurity, trade policy, e-commerce tax, and environmental policy, are unpredictable changes. Lack of information leads to economic losses, reduced investment opportunities and risks for smallholders and SMEs.
- 6) Lack of digital skills affects the digital divide and unequal opportunity. (Lubis, 2019) A small number of Thai farmers and SMEs can adapt to digital channels. The government should encourage farmers and SMEs with training courses (i.e. e-commerce marketing, entrepreneurship, smart farmers and technology applications) and implementation of long-term projects (more than 2 years) to ensure the functioning of farmers' online businesses. In addition, the availability of funding sources, the development of co-creation between parties and competition for new business models will give birth to innovative startups and e-commerce companies that have the potential to die. As noted above, various challenges lead to a long-term transition from traditional to digital transactions in agricultural markets. The majority of Thailand's population is engaged in agricultural activities, so that agriculture will remain the main economic sector in Thailand. Some individual farmers and cooperatives are actively launching digital channels, which causes competition among online sellers. The policy framework for developing a digital economy should emphasize five key issues, including connectivity, payments, digital skills, logistics and digital regulation.

In general, Thai consumers focus on health, convenience, and side with local farmers. Some consumers prefer to buy agricultural products offline because of their freshness. Therefore, the next phase of agricultural e-commerce development in Thailand should focus on creating a digital ecosystem to link the chain of activities between partners through digital platforms. Improving the digital ecosystem and providing farmers and consumers with a more convenient way to transact digitally will turn traditional commerce into commerce.

(Nadarajan & Ismail, 2011) designing an e-commerce framework for agricultural products (Figure 6). The framework plays an important role in increasing the competitiveness of the agricultural sector, especially in rural areas. In general, there are two important components of the role of e-commerce in agribusiness, namely 1) agents of information change and 2) agents of promotion of agricultural techniques. In addition, e-commerce also plays a crucial role in restructuring sales and marketing through sophisticated distribution technology. Its main component is as a trading platform and supplier of quality agricultural inputs. To increase the marketing of agricultural products at a global level, companies need to adopt international certifications such as Good Manufacturing Practice (GMP) and Food Safety (FS).



**Figure 6. Agricultural E-Commerce Framework**

Utilization of ICT through the company's website can make it easier for sellers to market their products more effectively and efficiently (Soegoto & Nugraha, 2020). Through the use of logistics companies, which are currently growing rapidly, entrepreneurs can expand the distribution range of their products. However, the distribution of agricultural products in Indonesia has several obstacles, including 1) the uneven development of infrastructure in remote villages, so that the delivery process becomes constrained, 2) the internet speed is not stable, especially in remote areas of Indonesia, 3) Indonesian farmers on average have old age, so not many are literate in technology, information, and communication (ICT), 4) the nature of agricultural products that are perishable or perishable and easily damaged, so that they cannot last long for a certain distance delivery, 5) there is no special technology for shipping agricultural commodities that have these special characteristics. Therefore, e-commerce development policies should be able to be carried out by taking into account external aspects, so that the benefits of e-commerce can be optimally useful, especially for agribusiness actors.

**Factors Influencing MSMEs in Utilizing E-commerce**

The factor that most influences MSME actors in utilizing e-commerce is the ease of product promotion and marketing. MSME actors realize that by utilizing e-commerce, their business will be more easily recognized by the wider community. Without promoting and marketing their products continuously, their business will be eroded in the increasingly fierce business competition. In addition, MSME actors are also aware that they have to keep up with the increasingly modern times and the increasing demands to be more creative in running their business. The desire to develop a business is also one of the factors that support MSME actors to take advantage of e-commerce, the absence of space and time limits in the digital world makes the business they do will open up opportunities to be able to sell their products to the global market. Another factor that encourages SMEs to use e-commerce is to be able to build brands, get closer to customers, help communicate faster with customers and be able to satisfy customers with faster service.

While the factors that become obstacles in utilizing e-commerce are intense competition in the online business world, strength in traditional markets where the main seller is dominated by sales in traditional markets due to regular customers, lack of trust between sellers and buyers, lack of knowledge of SMEs about e-commerce and network problems.

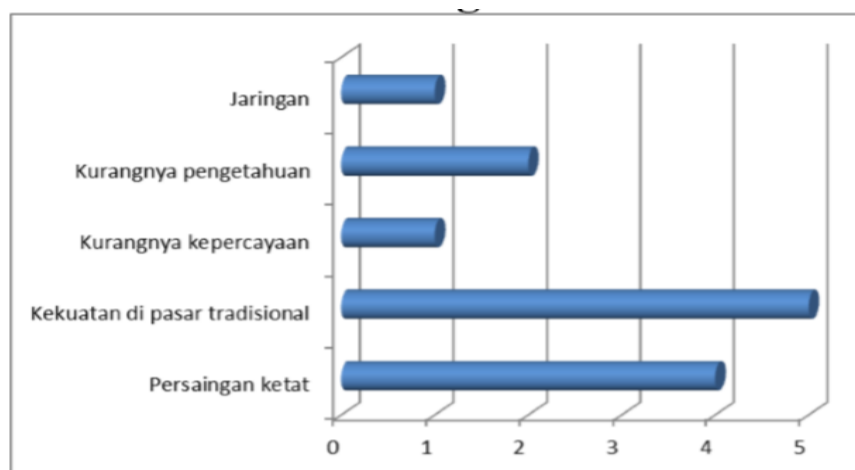


Figure 7. Barriers to MSME e-commerce in Karangasari Village (Rakanita, 2019)

Strength in traditional markets is the biggest factor in preventing MSME actors in Karangasari Village from utilizing e-commerce, this is because MSME actors assume that they already have regular customers who will buy their products.

The development of e-commerce in agriculture can be done by building an e-commerce platform such as research conducted by (Ketut Eddy Purnama et al., 2018). In the concept of e-commerce as strengthening MSMEs based on one village one product, the importance of product uniqueness, selling value, and marketing system needs to be considered.

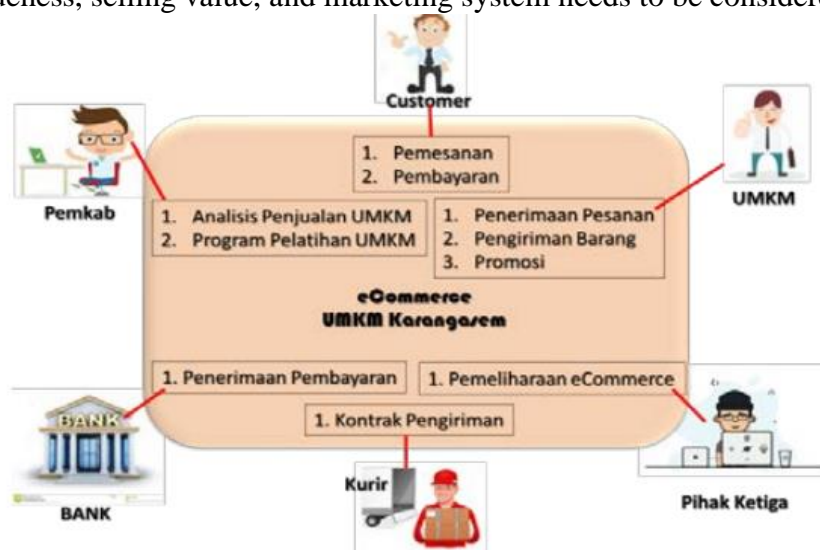


Figure 8. Diagram of Karangasem Regency e-commerce system development

Seen in Figure 8, each part of the explanation system is as follows: Customer, buyer or consumer; City/district government, government agency in charge of policy; Banks, intermediaries between MSMEs and customers; Courier, the party who delivers the product to the customer; Site maintenance party/third party, as system maintainer; SMEs, product providers and sellers

The introduction of e-commerce can be done by conducting workshops and maintaining the sustainability of the system and the community that implements it as a form of community service. The introduction strategy offered needs to be implemented as a flow or guide.

In creating a successful and sustainable MSME e-commerce, in general, MSMEs must find ways to be able to build satisfaction, loyalty, and good relationships with customers

online so that they keep coming back to our company's web store. The key to the success of an electronic retail company is when the company is able to optimize several e-commerce success factors such as the following:

- Selection and Value, Choice and value factors include attractive product choices, competitive prices, satisfaction guarantees, and after-sales customer support.
- Performance and Service, Performance and service factors include navigation, shopping, and purchasing processes as well as fast and easy delivery confirmation. Look and Feel, Display and taste factors which include web displays, websites, shopping areas, multimedia products, catalog pages and features interesting shopping.
- Advertising and incentives, Advertising and incentive factors include: targeted web and email promotions and special offers, including advertising on various affiliate sites.
- Personal attention Personal attention factors include personalized web pages, personalized product suggestions, web advertisements and e-mail notifications, and interactive support for all customers.
- Community relationship, the relationship factor with the community includes virtual communities of customers, suppliers, company representatives, and others through newsgroups, talk rooms, and various links to related sites.
- Security and Reliability, Security and reliability factors include the security of customer information and transactions on the website, reliable product information, and reliable order fulfillment.

### **E-commerce in Agricultural Management Ecosystem**

E-commerce plays an important role in the development of farming which covers various aspects of agricultural management, including production and operations, finance, marketing, and human resources. During the COVID-19 pandemic, companies can optimize the use of e-commerce to improve efficiency and managerial effectiveness. In the aspect of production and operations, the form of e-commerce utilization is in the form of purchasing agricultural production inputs. Although in general, farmers still use the offline method for purchasing agricultural facilities and infrastructure, but many farm shop owners have used e-commerce to buy stock of their agricultural input products. In general, farmers are still limited to using technology in the form of telephone and internet to send messages,

Indirectly, e-commerce creates improvements in the value chain ecosystem of agricultural products whose benefits can be felt by agribusiness actors. (Wibowo, 2015) Explained the benefits of using e-commerce as a buying and selling platform, namely: 1) increasing market share, 2) reducing operational costs, 3) increasing consumer loyalty, 4) improving inventory management, 5) shortening production time, and 6) improve the revenue chain. In the financial aspect, e-commerce creates sustainable funding by collaborating with external parties called investors. The profit-sharing system is said to be the ideal method to create an adequate funding ecosystem in the midst of uncertainty and high risk in farming.

The marketing aspect is the most familiar aspect for the community, because many e-commerce have helped a lot in marketing agricultural products. Especially during the COVID-19 pandemic, people have responded to existing policies by changing their food shopping patterns. Purwanto et al. (2020) found the fact that as much as 21.63% of the people had changed their shopping patterns with the online system during the COVID19 pandemic, either using the marketplace, social media, or short messages. The use of e-commerce has become a new habit for the community, especially sellers and buyers in responding to policies implemented by the government during the COVID-19 pandemic.

The use of e-commerce in agribusiness activities creates many opportunities, thereby contributing positively to the entrepreneurial ecosystem in Indonesia and can help reduce the national poverty rate, especially in rural areas (Renolafitri 2020). Utilization of e-commerce

agricultural products for developing countries such as Indonesia requires a lot of support from various parties, such as infrastructure development that helps smooth logistics distribution (WTO 2013). Indonesia as a country with potential for biodiversity should benefit from the existence of e-commerce because it creates opportunities to compete in the global market through comparative advantage.

### **E-commerce Agricultural Product Marketing**

There are various agricultural e-commerce platforms in Indonesia with various functions that generally have the same goal, namely increasing agricultural sustainability through technology. One aspect of agricultural management that has received great attention is marketing. A common problem experienced by farmers is that it is difficult to access the market, so that farmers often get prices that are lower than the price they should be. This is the main factor causing the low competitiveness of Indonesian agriculture. Technology acts as a cutting tool for long agricultural value chains, so that economic benefits can be optimized for farmers and consumers.

(Pradana, 2015) Some examples of e-commerce that act as marketing of agricultural products are TaniHub, Sayurbox, Kecipir.com, Chilibeli, HappyFresh, RegoPantes, and Brambang.com. E-commerce marketing agricultural products acts as a value chain cutter, so that the distribution channel between farmers and consumers becomes shorter. The majority of e-commerce buy agricultural products directly from farmers or collectors. This business model can benefit farmers because of their limited access to technology or not being digitally literate. E-commerce is an online store on a large scale that has been known by most of the people so that it creates its own brand image for customers. Farmers as suppliers play a role in providing quality products,

One of the e-commerce agricultural products in Indonesia is TaniHub, which is an application and website-based e-commerce platform to distribute and market agricultural products such as fresh produce, beef, chicken meat, chicken eggs, to basic necessities. The company was founded in 2016. TaniHub was founded by Willian Setiawan, Michael Jovan Sugianto, Miftahul Choiri, Ivan Arie Sustiawan, and Pamitra Wineka. The existence of TaniHub supports farmers to gain market access by distributing their agricultural products to consumers by buying vegetables and fruit online. TaniHub provides alternative solutions for consumers at large to get various household products such as fruit, vegetables, basic necessities, spices to frozen meals directly through the TaniHub platform. This company has a mission to help local Indonesian farmers through B2B (Business to Business) marketing. Furthermore, the establishment of TaniHub aims to improve the Indonesian economy by promoting agriculture and the local economy (<https://tanihub.com/>). (Pradana, 2015)describes the forms and types of interactions that are commonly carried out in business activities as shown in Table 4.

**Table 4. Forms and Types of Interaction in Business Activities**

No	Istilah	Keterangan
1	B2B ( <i>business to business</i> )	Transaksi bisnis antara pelaku bisnis dengan pelaku bisnis lainnya yang dapat berupa kesepakatan spesifik untuk mendukung kelancaran bisnis.
2	B2C ( <i>business to consumers</i> )	Aktivitas yang dilakukan produsen secara langsung ke konsumen dengan target konsumen adalah perseorangan.
3	C2C ( <i>consumers to consumers</i> )	Aktivitas bisnis yang dilakukan langsung individu (konsumen) kepada konsumen lainnya.
4	C2B ( <i>consumers to business</i> )	Aktivitas bisnis yang dilakukan oleh konsumen (individu) untuk menciptakan dan membentuk model bisnis.
5	B2G ( <i>business to government</i> )	Aktivitas bisnis ini merupakan turunan dari B2B, perbedaannya adalah proses ini terjadi antara pelaku bisnis dan instansi pemerintah.
6	G2C ( <i>government to consumers</i> )	Aktivitas bisnis yang dilakukan antara pemerintah dengan masyarakat sebagai konsumen

TaniHub stated that there are more than 46,000 local farmers who have marketed their agricultural products and more than 25% of those farmers whose income has increased and more than 20% of farmers' production has increased. To get farmer partners and suppliers, TaniHub also provides online facilities so you can register directly. Patriot TaniHub is a term for suppliers of agricultural products or agents who are ready to distribute products to consumers. The advantage of being a TaniHub patriot is that you can get profits and income every month. Currently, TaniHub provides delivery areas for the Greater Jakarta area, Bandung-Sumedang, Yogya-Solo-Semarang, Surabaya-Malang-Pasuruan, and Bali (<https://tanihub.com/>).

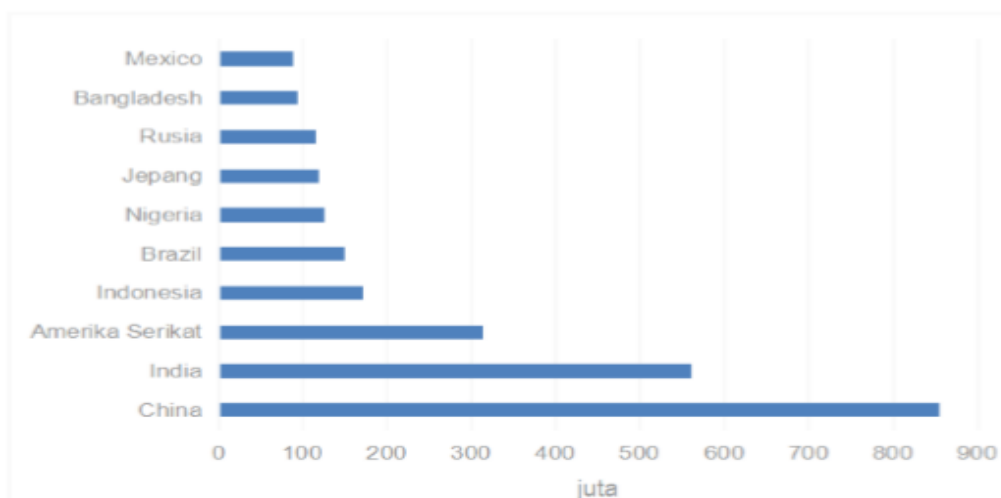
Sayurbox is also an e-commerce that markets agricultural products and is widely known by the people of Indonesia. Relly (2017) explains that through Sayurbox, consumers can order organic, hydroponic, and conventional fresh products sourced directly from farmers and producers as well as suppliers through the website or application. Sayurbox was founded by Amanda Susanti Cole and co-founder Metha T. in 2017. Sayurbox uses a “farm to table” business concept that allows consumers to get a variety of quality fresh vegetables and fruits directly from local farmers and producers. The establishment of the vegetable box was motivated by his concern about the high price disparity between farmers and consumers who often act as actors who are disadvantaged. Sayurbox aims to build an agribusiness ecosystem that is conducive and mutually beneficial between various actors (actors), namely farmers and consumers. Sayurbox also strives to educate consumers to buy agricultural products directly from farmers because it will participate in improving the welfare of farmers. According to Metha as co-founder, the biggest challenge in developing this e-commerce is to convince farmers to participate in the vegetablebox business model because the sales system to collectors has become entrenched. Another obstacle is the limitation of farmers in using technology for buying and selling transactions. Sayurbox also strives to educate consumers to buy agricultural products directly from farmers because it will participate in improving the welfare of farmers. According to Metha as co-founder, the biggest challenge in developing this e-commerce is to convince farmers to participate in the vegetablebox business model because the sales system to collectors has become entrenched. Another obstacle is the limitation of farmers in using technology for buying and selling transactions. Sayurbox also strives to educate consumers to buy agricultural products directly from farmers because it will participate in improving the welfare of farmers. According to Metha as co-founder, the biggest challenge in developing this e-commerce is to convince farmers to participate in the vegetablebox business model because the sales system to collectors has become entrenched. Another obstacle is the limitation of farmers in using technology for buying and selling transactions.

### **Government Support in E-commerce Development for Agriculture**

The development of technology and information has presented a new method in carrying out trading activities, namely through e-commerce. The practice of buying and selling activities using e-commerce has been widely practiced by many countries. Along with the increase in the number of internet users. Figure 9. shows that Indonesia is the fifth top internet user worldwide (Bahtiar, 2020). This condition illustrates that Indonesia is a potential market in the current digital era. The government should not only make Indonesia a consumer, but also prepare superior human resources in entrepreneurship. Supported by Indonesia's abundant condition of diversity of agricultural products, it should make Indonesia superior in food security and even be able to expand economic activity through exports. When digital infrastructure such as the existence of the internet is available, it is time for the government to develop programs that can make Indonesia able to produce reliable



entrepreneurs who supply goods and services, especially in agriculture for the global community.



**Figure 9. Number of internet users from various countries**

The massive use of e-commerce in economic activities encourages countries to form regulations as a step to create conducive, safe, and mutually beneficial trade activities. (Bahtiar, 2020) presents the differences in e-commerce usage policies between Singapore and Indonesia. The Singaporean government is much more prepared in all respects in dealing with e-commerce problems because it has had a strategic plan regarding the use of information and communication technology since three decades ago, while the Indonesian government has only been aware of the importance of using information and communication technology recently. Nevertheless, the improvement of regulations on the use of e-commerce in Indonesia continues to be updated according to the needs of the community, so as to create a sustainable trading climate.

Companies adopt e-commerce to carry out their sales activities such as ordering, payment, and product delivery (Bahtiar 2020). There are two factors driving the development of e-commerce, namely competitive and cost. Competitive incentives relate to the ability to increase the number of consumers and the value of transactions that can be obtained through consumer demand, assurance of quality and diversity of goods and services, as well as efforts to maintain share value. Cost drive is the minimization of various costs due to the reduction of various cost burdens, such as distribution costs and deviations. The cost push is overcome by, for example, cutting the ordering and delivery of products, accelerating the distribution of information on goods and services (Sijabat, 2016).

**Table 5. Levels of e-commerce adoption**

Tingkat	Deskripsi
1 (pendatang)	<i>E-commerce</i> belum diakui sebagai sarana untuk mencapai manfaat. Terdapat karakteristik <i>e-commerce</i> dasar, seperti e-mail, media sosial, dan situs web statis
2 (berkembang)	Ada kesadaran bahwa <i>e-commerce</i> dapat digunakan untuk mencapai manfaat. Terdapat penggunaan <i>e-commerce</i> secara umum meskipun mungkin tidak digunakan dengan benar
3 (mapan)	Praktik terbaik penggunaan <i>e-commerce</i> telah muncul untuk mencapai manfaatnya. Terdapat fungsi <i>e-commerce</i> yang memungkinkan integrasi dengan proses bisnis pihak ketiga
4 (strategis)	<i>E-commerce</i> telah memiliki peran strategis dalam mencapai manfaat. Semua proses bisnis bergantung pada fungsi <i>e-commerce</i>

This condition shows that there is still an opportunity for accelerating e-commerce adoption so that business actors can get greater benefits through e-commerce adoption. The role of the government is needed to support the program through trainings that can improve the capabilities of business actors. In addition, infrastructure improvement is considered an effective step to accelerate the implementation of e-commerce in economic activities which will in the long term be able to improve the quality and quantity of Indonesian entrepreneurs. (Taufik et al., 2021) explained that Indonesia needs to make legal reforms for smooth e-commerce trade, including 1) clarifying the position of the industrial and trade sectors in the application system, 2) maintaining the neutrality of information and communication infrastructure networks throughout Indonesia, 3) accepting and paying attention to various electronic contracts, 4) providing opportunities for the functions and roles of supporting professions related to ICT, 5) raising awareness to use a security system with electronic signature technology.

## CONCLUSION

Agricultural SMEs are a form of business that still has development opportunities in various angles. Marketing that is traditionally done face-to-face can be done online using the e-commerce method. In its implementation, e-commerce provides good performance with the increasing use of e-commerce and the value of transactions carried out. So that the importance of education and the application of technology for people in Indonesia needs to be carried out by researchers and practitioners in the field. MSME players are of the view that the use of e-commerce can expand marketing, provide business efficiency, control operational costs, are not limited by space and time and can increase revenue. Broadly speaking, the use of e-commerce can be a competitive strategy that will increase the competitiveness of MSMEs. Along with the development of technology, the use of e-commerce in agriculture is a necessity that must be met. The desire to keep up with the times, the convenience of product promotion and marketing, the desire to develop a business, the ease of transactions and the absence of space and time constraints are a series of factors that support the use of e-commerce by SMEs.

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