Perception of e-business adoption in agribusiness MSMEs

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Abstract. Climate change is unavoidable due to global warming and will have a broad impact on every aspect of life, including agriculture. This poses a significant threat to the agricultural sector. Furthermore, it raises new problems of the sustainability of food production and agricultural production systems in general. This has an indirect impact on agribusiness MSME, particularly in terms of the availability of food for raw materials for MSME products. Furthermore, agribusiness MSMEs should be competitive to face the global market. As a consequence, they should embrace innovations that support business activities in the current era of the Industrial Revolution 4.0. Using e-business in their business practices is one of the efforts that agribusiness MSMEs can make. E-business is a type of internet-based business practice that can help improve the efficiency of various business processes. This research aims to determine the perceptions and levels of e-business adoption among agribusiness MSMEs in Sukoharjo Regency. The survey method was used in this study, along with the purposive sampling technique. A questionnaire was used to gather data from 252 agribusiness MSMEs in Sukoharjo. An in-depth interview was used to identify the research variable indicators more thoroughly. The results reveal that the frequency of e-business use by MSME actors in Sukoharjo Regency remains low. However, MSME actors have a positive perception of the benefits of using e-business. Therefore, there is a great opportunity for the future implementation of e-business.

1. Introduction
Agriculture is inextricably linked to climate change, which is characterized by the phenomena of climate changes and unpredictable weather patterns [1]. Climate change has an impact on every aspect of the natural and human ecosystem, as well as on food security [2]. It also depends on humans' ability to adapt to climate change. Due to the extreme uncertainty of climate change, its impact can pose risks [3]. This is a threat to agricultural productivity and food security [4].

Climate change has an impact on all aspects of the food and agriculture sectors, including production, food supply, food chain, accessibility, and food availability [5]. Climate change causes changes in temperature, rainfall patterns, sea level, and atmospheric CO$_2$ concentrations, all of which have a negative impact on agricultural production. Projections and findings reveal that climate change alters cropping patterns in several regions [6]. As a result, the government is expected to be more adaptable in dealing with this uncertainty by implementing agricultural adaptation strategies in response to changes in cropping patterns, which will have an impact on crop yields and food security [7].

There is an issue with food availability, which has an impact on raw material availability. This raw material stock has an adverse effect on agribusiness MSMEs, particularly now that the world is experiencing dramatic changes as a result of globalization [8]. Globalization, also known as the digital
era, requires agribusiness companies or agribusiness SMEs to compete, collaborate, and be sustainable [9]. This is a challenge that agribusiness MSMEs must face to gain a competitive advantage [10]. MSMEs can take various strategies, one of which is through innovation in management. Management innovation can boost productivity, performance, and competitiveness in the response to global competition [11].

MSMEs require information and communication technology to run their businesses in an increasingly global and digital economy [12]. MSMEs should use IT to change their business activities [13], one of which is by adopting e-business to compete [14] in the global market. The implementation of e-commerce and e-business can present many opportunities for businesses and improve the performance of these MSMEs. Thus, it can be confirmed that MSMEs are capable of contributing to the country's economy, particularly with technological revolutions such as e-business [15].

E-business is often used in online transactions with the support of an internet network [16]. The internet, as part of technological advancements, has the potential to reshape markets and businesses [17]. The application of information technology in marketing is an attempt to broaden market access [18]. Nowadays, entrepreneurs in international trade encounter two major challenges: market access and increased competitiveness [19]. One effort to develop and improve MSMEs' competitiveness is to expand the role of information technology [20].

The ever-increasing potential of internet and cellphone users in Indonesia provides ample opportunity for MSMEs to grow their businesses. At the moment, less than 1% (75 thousand) of Indonesia's total MSMEs (56 million) use e-commerce [21]. E-commerce and e-business are two innovations that are supporting to the expansion of MSMEs businesses. E-business is defined as a business process that employs information and communication technology to achieve company growth and change [22]. The implementation of e-business through the use of network and communication information technology has had a major impact on business actors. The benefits manifest themselves in the form of increased sales, company image, and investment [23]. However, not all MSME actors in Sukoharjo Regency have utilized e-business, even though competitive MSMEs can exist so will affect the sustainability of the business [24]. The research aims to find out the responses of MSMEs related to the use of e-business in marketing their products, perceptions of benefits and constraints in the utilization of technology in the era of globalization.

2. Materials and method

The survey method and the purposive sampling technique were used in this study. Respondents of the research were agribusiness MSMEs operating in Sukoharjo Regency where each sub-district consisted of 21 agribusiness MSMEs. So, the questionnaire was utilized to collect data from 252 respondents in Sukoharjo Regency. An in-depth interview was performed to inquire into the indicators of the research variables. Data were collected and evaluated using a Likert scale of 1-5. The Likert scale was used to assess a person's or group's attitudes, opinions, and perceptions of social phenomena [25].

The average score for the e-business adoption process was interpreted using the following criteria: 1.00-1.80: awareness; 1.81-2.60: interest; 2.61-3.40: evaluation; 3.41-4.20: trial; and 4.21-5.00: adoption. Meanwhile, the benefits and challenges were interpreted as follows: 1.00-1.80: very low; 1.81-2.60: low; 2.61-3.40: fair; 3.41-4.20: high; and 4.21-5.00: very high.

3. Results and discussion

3.1. E-business adoption process

The frequency with which MSMEs actors use e-business in their business practices demonstrates the process of adoption.
Table 1. The level of e-business adoption by MSMEs.

| Type of Service                                                                 | Average Score | Interpretation |
|--------------------------------------------------------------------------------|---------------|----------------|
| Communication and the internet (such as website, e-mail, Facebook, Twitter, Instagram, etc.) | 3.42          | Trial          |
| Access to communication and data (searching product information, product specifications, prices, product attributes, how to use the product, etc.) | 2.56          | Interest       |
| Product promotion (marketing products via the website or social media, such as Facebook, Instagram, Shopee, Bukalapak, etc.) | 2.68          | Evaluation     |
| Transactions (banking, e-commerce, purchasing, or ordering of raw materials) | 2.46          | Interest       |
| Remote control and decision making (automatic application for remote business control) | 1.40          | Awareness      |
| Observation of competitors (knowing competitors' product innovations, examining competitor strategies, etc.) | 1.99          | Interest       |
| MSME financial recording (digital financial application) | 1.21          | Awareness      |
| Other applications and services (such as searching, browsing) | 2.49          | Interest       |
| **Total average score**                                                          | **2.28**      | **Interest**   |

Source: Primary Data Analysis, 2019.

Table 1 shows that, in general, the e-business adoption process of MSMEs players in Sukoharjo Regency is considered low. The level of e-business adoption as seen from eight types of services has an average score of 2.28, indicating the Interest stage. MSMEs in this regency have already researched information about future innovations. This suggests that MSMEs have begun to consider whether they should make an effort to promote and market their products via social media platforms such as Facebook, Instagram, Shopee, and Bukalapak. Further, MSMEs players have used websites, e-mail, Facebook, Instagram, and other applications in their communication and interaction at the Trial level, as indicated by the score of 3.42. This signifies that MSMEs have experimented with various innovations during the adoption process.

3.2. Perceptions of the benefits of using e-business for MSMEs

The use of e-business to support business practices provides advantages in day-to-day business operations. Table 2 presents MSMEs' perceptions of the benefits of using e-business.

Table 2. Perceptions of the benefits of using e-business for MSMEs.

| Type of Benefit                                                                 | Average Score | Interpretation |
|--------------------------------------------------------------------------------|---------------|----------------|
| With e-business, I can reach a greater number of customers and potential customers in a shorter period. | 4.14          | High           |
| With e-business, ordering or purchasing raw materials can be done electronically and more efficiently. | 3.68          | High           |
| With e-business, the marketing distribution chain can be simplified, allowing for lower product prices and higher profit margins. | 3.72          | High           |
| E-business makes it simple to find data about the business (product innovation, reference raw materials, market potential, etc.). | 3.88          | High           |
| E-business enables the electronic management of business finances. | 3.03          | Fair           |
| E-commerce facilitates the development of positive consumer relationships (more interactive and more intensive). | 4.19          | High           |
| E-business reduces telecommunication costs. | 3.74          | High           |
| E-business allows for faster, easier, and more effective promotion. | 4.24          | Very high      |
| **Total average score**                                                          | **3.83**      | **High**       |

Source: Primary Data Analysis, 2019.
Table 2 details that the average score of MSMEs’ perceptions of the benefits of using e-business is 3.83, which is considered high. This demonstrates that their perceptions of the eight benefits of e-business can be felt in the day-to-day operations of their businesses. E-commerce can improve the efficiency, ease of use, and practicality of a company’s operations.

3.3. Perceptions of challenges on e-business implementation

Although e-business can help the development of product marketing, there are several barriers to its use. Table 3 shows the perceptions of the barriers to e-business application.

Table 3. Perceptions of challenges on e-business implementation.

| Type of challenge                                                                 | Average Score | Interpretation |
|----------------------------------------------------------------------------------|---------------|----------------|
| It takes a long time to connect to the internet.                                  | 2.42          | Low            |
| The costs of e-business access are relatively high.                              | 2.46          | Low            |
| When compared to the benefits that I can obtain, the cost of accessing e-business is relatively high. | 2.20          | Low            |
| It is difficult for me to adapt to online-based methods of making transactions and obtaining information. | 2.85          | Fair           |
| I prefer traditional business (manual or face-to-face with sellers or partners). | 3.28          | Fair           |
| **Total average score**                                                           | **2.64**      | **Fair**       |

Source: Primary Data Analysis, 2019.

Table 3 demonstrates that MSMEs in the agribusiness sector in Sukoharjo Regency face significant challenges in implementing e-business, as evidenced by the average value of 2.64. This means that MSMEs are still experiencing difficulties transitioning from manual to technology-based methods. Even though the current market is characterized by advances and sophistication in information technology, as exemplified by the proliferation of online markets, several MSME actors continue to implement physical transactions. This impediment must be addressed and a solution to this condition must be devised so that MSME actors in this area can compete in the market.

4. Conclusion

The existence of climate change problems that affect food availability will have an impact on the availability of the raw materials for agribusiness MSMEs. This problem relates to suppliers and consumers. The era of globalization forces agribusiness MSMEs to be more competitive by developing the role of technology. One of them is by utilizing e-business. The level of e-business adoption by MSMEs in Sukoharjo Regency is low, but MSMEs actors have a positive perception of the benefits of e-business use, implying a significant opportunity for implementing e-business in the future.

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