The Secret to Success in Agriculture E-Commerce: E-Service Quality of Panenpa

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A B S T R A K

The development of digital technology is an innovation that able to increase the country's economic growth. This development is considered as the key solutions to any problems in Indonesia. Sectors that have high potential is the agricultural sector. Agricultural e-commerce system is one the instance form of implementing digital technology in the agricultural sector. It plays a pivotal role in helping farmers to market their agricultural products and on the other hand, it provides benefits for fresh products consumers. The aim of this research is to synthesize the existing literature on the e-service systems in the agricultural fields by exploring the readiness of the e-commerce, tailored to working women/working housewives in Bali. This research used a qualitative method, and the data was collected using purposive sampling technique through the interview method. For the results, researcher founded knowledge gaps and beliefs in the domains of delivery service, product quality and payments fulfilment. To bridge identified gaps, researcher strongly suggest renewal and improvement on the lacking to meet customers satisfaction and escalate repurchase intention. For practitioners, this study is meaningful in the study of electronic service quality of agricultural e-commerce to understand customer’s motivation and expectations towards the use of e-service.

1. INTRODUCTION

Industrial 4.0 is known as an era of transformation to the digital era that aim to scale up the industry to the next level. One of the most important assets in the presence of the 4.0 revolution is digital technology that is presented to develop by giving positive impact on a country’s economic growth (Kementerian Komunikasi dan Informatika, 2021). President of Indonesia, Joko Widodo states, Indonesia’s 4.0 industry is the fastest among other countries in Southeast Asia (Suara.com, 2021). Google and TEMASEK (2018) also states that Indonesia is one of the countries with the largest digital economy development which is supported by adequate amount of high internet service users. Along with the revolution, the development of the industrial sector gradually will improve the country’s economy.

According to McKinsey & Company (2018), In 2017 Indonesia had 30 million online shopping users out of a total population of around 260 million people and was estimated to have 8 billion online trading markets consisting of formal and informal online trade. According to Statista (2018b), Indonesia’s e-commerce has grown rapidly as the number of internet users has increased. In March 2017, there were 104.96 million internet users, or more than half of the population. Indonesian internet users are anticipated to reach 133.39 million by 2021 (Statista, 2018). In addition, the development of the digital economy can boost the source of income for small and medium enterprises (SMEs) by up to 80% and increase GDP growth by up to 2% per year. The rapid growth of the digital economy in Indonesia has had a significant impact on several industrial sectors in Indonesia. The industrial sector that is considered to have potential consists of 4 sectors, namely: the financial sector; the culture, tourism, and creative economy sectors; agricultural sector, and Agro-logistics sector (Kementerian Komunikasi dan Informatika, 2021).
The agricultural sector is one of the sectors that has abundant natural resources, so it has great potential in Indonesia for the future. According to Government Statistic Centre Body (2021), in the second quarter of 2021, the agricultural sector grew by 0.38% when compared to 2020 in the same quarter. In the second quarter of 2021, the GDP of the agricultural sector reached Rp. 596.01 trillion. Currently, the agricultural sector has contributed to the national economy by 14.27% or Rp. 4.175, 84 trillion.

As the farming country, agriculture sector in Indonesia is expected to have contribution towards economic developments in every region, mainly Bali. However, On the first quarter Bali dan Nusa Tenggara (BALINUSRA) encountered minus economic growth by 5.15% in which the number states huge gap compared to other regions such as Jawa minus 0.83%, Sumatera 0.86%, Sulawesi Maluku Papua 3.26% (Cnbcindonesia.com, 2021). According to Kementerian Keuangan Republik Indonesia (2021), in the first quarter of 2020 Bali’s economy began to correct by -1.44% (yoy) or -7.67% (q-to-q) which indicates that the improvement of economy has experienced a slump. To be exact, Bali only relies on their tourism sector where other sectors such as agriculture and fisheries, construction, education, and health have not been managed optimally by the governments and eventually the sector cannot run optimally.

In the same year, Bali’s agricultural sector encountered difficulties wherein experienced a decline by 1.06% from the previous year, namely 2019. Furthermore, data published by the Indonesian Central Statistics Agency (2023) reveals that the province of Bali has quite a small number of individual agricultural businesses, namely 369,271 business units compared to the number of agricultural businesses in the East Java region, namely 5,676,717 business units. Apart from that, the number of agricultural companies with legal entities in Bali also only reached 105 units or only one sixth of the number of agricultural companies in East Java which reached 637 units. The farmer exchange value of Bali province has an average of below 100 likewise Bali’s local farmers have not got any benefits nor prosperities working in this sector. This issue shows that the agriculture sector in Bali has not managed to covered nor equivalent to the tourism sector which is currently has been very low (Nusabali.com, 2021). To address this issue, Agriculture in Indonesia is any longer thinking about solving problems with solutions, but also having the urge to be able to contribute to the growth and development of the country and have a significant impact on people’s lives.

According to Kementerian Komunikasi dan Informatika (2019), The lack of agricultural harmony with the application of digital agriculture 4.0 technology, in fact not a few Bali’s local farmers have low welfare in carrying out their profession. Moreover, the produce products is not absorbed in Bali’s local market while the agricultural production must continue to run but market demand is decreasing/low will lead to oversupply and in the end prices fall so that farmers experience big losses and do not get satisfactory results wherein are not balanced with what they should get. If this happens continuously, then farmers will gradually continue to reduce production and food shortages can occur.

Agricultural e-commerce is a business model that is close to e-commerce with selling the agricultural products as their focus (Katadata, 2018). The business are more likely to be concerned with satisfying the demands of consumers and improving the farmers livelihood. The e-commerce provides service and products of agricultural...
items (primary needs) such as fruit, vegetables, and meat. Basically, this e-commerce system can be used by farmers to become a place for carrying out promotions, providing information, improve sales on agricultural products. The wider the place to market agricultural products, the demand for production will increase so that production activities will run where farmers get more profitable results. On the other hand, consumers will get an affordable price offer.

![Figure 2. The development of Agritech Startups in Indonesia](image)

Based on data published by Tech in Asia (2022), the number of agritech startups in Indonesia is growing from year to year. Statistical data shows that the number of agritech startups has increased from 13 companies in 2015 to 59 startup companies in 2022. Several players in the agritech and e-grocery sectors refer to the report, namely Agree, Agromaret, Arena Tani, Aruna, Chiibeli, Edenfarm, Effishery, Eratani, FishLog, Gokomodo, Sayurbox, TaniHub, and many more. According to PT. Panen Pangan Indonesia (2021), Panenpa is a Bali based e-commerce wherein running in the modern agricultural sector which has a mission to advance the agricultural sector by escalating the national economy. For market segment on the other hand, Panenpa collaborate with few institutions in Bali mainly targeting on working women.

The biggest problem for online buying as technology advances is that people's shopping habits change. One of the most crucial factors in surviving the face of severe competition is to establish a service-oriented approach that can maintain customer satisfaction. Many people's buying habits are influenced by the advance of e-commerce. With the services offered, nowadays many people prefer to do online shopping because it is considered more practical and efficient regardless of their geographical location. This is also supported by the findings of Rahi & Abd. Ghani (2019) which succeeded in proving that the e-service quality dimension can increase people's interest in adopting technology, where the findings also show that e-service quality can play an important role in providing experiences for consumers in the online environment includes navigation, order processing, information search, shipment tracking, and even product availability.

Due to the strong interest, Peter & Olson (2014) argued that consumers are more likely to respond by purchasing or repurchasing a product or service that is directly influenced by buying behaviour that increase customer satisfaction on product and services. The reaction might take the shape of criticism, feelings, recommendations, loyalty, and sense of satisfaction all of which must be taken into consideration by every firm when it comes to growing a company (Dwi Yustica, Dhandy, 2021). According to Kotler & Keller (2016), consumer tend to have feelings on products and services, with joy and disappointment arising from the outcomes of the utilized goods or services. According to Machfud and Kartiwi (2013), since the existence of agricultural e-commerce is still unimproved and unpopular to the public, the growth and main potential of the e-commerce remains untapped. Moreover, the barrier in the community remains high (Machfud, Kartiwi, 2013). Customer satisfaction can be gained through product purchases regardless of the physical items (Soegoto, 2014). Optimism
for the e-commerce growth in agriculture industry is still superb and there is still a lot of hope for agricultural e-commerce to growing sustainably in the future.

**Literature Review**

To understand the readiness and development of electronic service of agriculture e-commerce towards customer satisfaction and repurchase intention. It is essential to know the relationship between the variables raised based on existing theories and empirical studies. The past theoretical and empirical studies which become the basis of the current studies are very relevant and require systematic review.

Electronic Service Quality and Customer Purchase Intention have been defined according to Kotler and Keller (2009:143), service quality is a totality of features and characteristics of products and services which to satisfy stated or implied needs will depend on ability. Product quality can be stated if the seller can deliver a product or service that meets and achieves the expectations of the customer. According to Parasuraman (2005), E-SERVQUAL was developed with the aim of providing an accurate measurement of service quality on e-commerce websites. To increase customer satisfaction, an e-commerce business must provide services that are in accordance with what is offered in the business. E-Service Quality consists of 7 dimensional aspects which are a combination of 2 types, namely Electronic-Service Quality (E-S-Qual) and Electronic Recovery Service Quality (E-RecS-Qual) namely efficiency, system availability, fulfilment, privacy, responsiveness, compensation, and contacts.

Retno et al. (2019) confirmed that customer satisfaction is a variable that mediates e-service quality with consumer behaviour. The results showed that e-service quality has positive and significant impact towards customer satisfaction and consumer behavioural intention. Every company is considered obliged to provide maximum service to increase or maintain customer satisfaction. This also has been confirmed by prior research by Shin & Lee (2019), that e-service quality and e-CRM in online fresh food mall have a significant impact towards customer satisfaction and customer commitment and moreover the customer satisfaction and commitment have a significant effect towards e-customer loyalty.

Electronic Service Quality and Repurchase Intention are defined by Nusifera et al., (2020) examined the results prove that the variables that have a significant influence on customer satisfaction and loyalty are the quality of information, design, response, security, and delivery. Research also shows that consumer satisfaction has a significant impact on consumer loyalty. If consumers are satisfied with all services from agriculture e-commerce, consumers will make repeated purchases of products. Shin & Lee (2018) also examined that service quality that has significant impact towards e-customer satisfaction. E-customer satisfaction of online fresh food shopping malls have high influence towards repurchase intention. If the company can provide appropriate services and services, such as fast and safe product delivery services, it will increase repurchase intention.

Based on the background and theoretical basis, the framework can be described as follows:

![Figure 3. Research Framework: Understanding E-Service Quality for Agriculture E-Commerce](image-url)
2. RESEARCH METHOD

Researcher conducted this research to analyse the electronic service quality of Panenpa, embedded in an agriculture e-commerce in Bali. This research takes Denpasar and Gianyar into consideration since Gianyar is the main office of Panenpa Indonesia and Denpasar is the capital city of Bali wherein most of the people are used to the Internet usage which supported with multiple level of productivity and modernity.

Data collection method is one of the most crucial methods in which every researcher needs to understand regarding to the techniques to obtain appropriate data (Sugiyono, 2017:308). According to Kriyanto (2009:93) Data collection consist of various methods which are used by researchers to collect and obtain important information to explore the problem. Researcher used the electronic service quality theory by Zeithmal in Tjiptono (2016:178-179) to guide researcher’s interviews and assessments of agriculture e-commerce customers beliefs and perceptions towards the electronic services of the company. This research developed an in-depth interview, where through purposive sampling approach there were two informants selected in this study namely one for the working women/working housewives as the customers and one for the service providers, in aim to explore all seven constructs (efficiency, system availability, fulfilment, privacy, responsiveness, compensation and contacts) of the electronic service.

Researcher purposively selected a Bali based agriculture e-commerce where the customers who have been repurchasing products and the service provider were invited to participate in this study. This study conducted an in-depth interview with the co-founder and head of sales & partnership of the agriculture e-commerce with customers who have been using the systems. This research obtained oral informed results from all informants. The interviews were audio recorded. The interview results then analysed through the triangulation procedure.

3. RESULTS AND DISCUSSION

All the findings are from the in-depth interviews results with service providers and customers and this finding is utilized using the evaluation of electronic service with the users.

Part I: Findings from in-depth interviews

Perceptions of systems efficiency

Panenpa E-Commerce business efforts is expected to help consumers to meet their food needs by creating an online market innovation in the form of a WhatsApp-integrated website. Panenpa strongly believe they are strong enough to compete with other fresh online e-commerce competitors by offering service in which is most likely to be wanted by working woman/working housewives mainly in Bali. They considered their electronic service is suitable with their target market profile, wherein most of them tend to choose both WhatsApp and website this program was started since the main target of this business is in tier 2 and tier 3 cities, the services that relate to the market are hybrid, so they don’t fully use the application. They clearly stated that, their electronic service quality by far have met and fulfil the customer needs. In other words, they are implementing strategy concepts by fulfilling customer satisfactions by meeting all their expectations. Working women on the other hand, their job is the main reason they need practical things. Based on the customer’s point of view, Panenpa has an excellent service. With their job profile, they are very helpful in the terms of grocery shopping. Panenpa is very practical and would be suitable for people who have no time to spend for shopping. Ultimately, Panenpa has nice and beginner-friendly website design, and easy to use.

Perceptions of availability

The results of research that conducted at Theory by (Díaz and Coutra, 2013) states that every company must pay attention to their website quality and type that they use. This is crucial where each design symbolizes the distinctive image of the brand itself. With this, a company can generate new customers and maintain the customer loyalty. The customer realizes the website is often down/crashed due to certain factors “In the future, I would suggest Panenpa using an application-based since sometimes the website crashes”. This issue might decrease the customer satisfaction gradually since they must wait at sudden situation. But fortunately, Panenpa has another option which is the WhatsApp-integrated website system “I always make an order through WhatsApp, sometimes I often forget to use the website, this feature really helps me”. which connects to WhatsApp as another option for placing orders.
Perceptions of fulfilment

Working woman as the customers recognized benefit that Panenpa service very helpful mainly for the COD payment system and bank transfer is available with various bank options. However, “for COD sometimes the drivers don’t provide any change” the COD features they think need some improvement where COD courier must provide change for cash payments. Furthermore, the consistency of sorting the product quality and delivery time must be considered despite of the products exchange and voucher benefits. “Some items don't match my expectations and the delivery was not fresh”. Despite their 6 districts and city free delivery services, Panenpa has not successful yet in fulfilling customer’s delivery expectation. Their service remains inconsistent in terms of delivering fresh products.

Perceptions of privacy

Regarding privacy, almost all informants said that they have no concern/worries and mostly confident about their choice related to the system privacy. “I have no concern related to my data, they only asked for my email, phone number, and home address which is normal” (informant 3). In terms of making payments on the other hand, they feel quite safe since they are making payments through banks “there is no problems since I use mobile banking and its super safe” (informant 4). In Panenpa’s point of view, “Our systems have a frontend and a backend engineer” (informant 1) that is mentioned to fix any errors related to the systems.

Perceptions of responsiveness

According to Panenpa’s internal team perspectives, they always prioritize their CRM (Customer Relation Management) by prioritizing information. CRM is a data collection application that consist of consumer data, customer’s purchase history data, and complaints data which have been used by various e-commerce companies as guidance in carrying out the company’s mission (Hwang, 2002).

Perceptions of compensation

“Externally we have a CRM which coordinates all complaints/errors”. CRM in Panenpa is useful and is intended to provide information to the operational team if there are complaints or feedback from consumers. For instance, “If the item received is not suitable, it can be returned and exchanged” Panenpa provides a shopping voucher or return of goods by 1x12 hours from the item received. In terms of service, the results of feedback or complaints from customers are used as a reference for comparison with electronic services, for instance the user interface. CRM is the main reference used by Panena to develop the quality of electronic services offered to consumers. This relates to Cox and Koezler (2004) states, Information-oriented, transaction-oriented, and customer-oriented should be included as a consideration for the electronic service mainly the website effectiveness.

Perceptions of contacts

Regarding the contacts, all informants said that Panenpa service is very fast when it comes to responding their customers. Fortunately, then the product that is not fresh is replaced. “Everytime I place an order, Panenpa is very fast when it comes to responding”.

Part 2: Discussion

In an e-commerce, the efficiency of a system is one of the crucial benchmarks in the development of an online-based business. (Al-dweeri et al., 2017; Zeithaml et al., 2002) stated that the website is considered efficient when a website system has an ability to provide services and be able to assist customers in purchasing products provided by service/product providers. According to the findings, Panenpa has a revolutionary system where the implementation of the WhatsApp-integrated website system has helped and satisfied customers who use the service. Their services have been winning customer’s expectation on system efficiency of the website. The usage provides benefits for busy women/working housewives to complete their work. Simultaneously, Panenpa also provides another backup option for the customers such as the use of WhatsApp for making orders. If all clear information related to products contained in the system, it would benefit the customers.

According to Panenpa e-commerce, they have managed to fix any errors on their website since they have a frontend and backend engineers. Information quality on website is one indicator to improve customer satisfaction (Ghaffari & Ashkiki, 2015). This services that in accordance with their expectations a positive experience is formed by resulting in customer’s satisfaction and desires to repurchase the products and reuse the services. Moreover, according to (Nasser et al., 2015) there is a significant difference between the online and offline market. Customers make purchases through the website so that companies should develop attractive information on the website. This greatly benefits the company by optimizing website performance. The company will easily acquire new customers by developing informative information so that eventually the customers are willing to come back.
Moreover, Privacy is an important element that is important in electronic service quality. Prior research by (P. Rita et al., 2019) stated, security/privacy has a significant impact on e-service quality in online e-commerce. Privacy is a dimension that has a very important role for online businesses. This includes consumer personal data which should not be used illegally or to benefit the company. When placing an order, Panenpa customers are asked to fill in data such as name, telephone number, home address, and email. Website privacy is the willingness of potential customers to provide personal information into the online platform of a website. Online business needs to pay attention to their website (Belanger, Hiller, & Smith, 2002). Most customers assume that it is normal for customers to want to shop through online platforms. This matter is confirmed by (Ashurideh et al., 2017b; Ayot, et al., 2016; Tiwari, Tiwari, & Singh, 2017) that a website must be concerned with their security where it gives substantial impact on customer's satisfaction and build trust between the customer and the company.

According to Panenpa's internal team perspectives, they always prioritize their CRM (Customer Relation Management) by gathering information that consists of input or complaints from their customers. Panenpa provides various vegetables and fruits packages, online discounts, and promos with free shipping benefits to 6 districts/city across Bali. This relates to prior findings (Nusifera, Najib, Kirbrandoko, 2020), CRM is a crucial guide for the company because it is considered to increase customer loyalty and beliefs towards the products and services.

Based on (Intan, Setiawan, Shinta, 2020), finding results, the company should focus on providing benefits and compensation to customers if an error occurs on the system or services. Panenpa provides a shopping voucher or return of goods by 1x12 hours from the item received. Compensation to customers can be in the form of free gifts, vouchers goods return and for the long-term goals it will increase customer satisfaction and maintain customers loyalty. As the result the company would be able to survive and compete with other competitors.

Unfortunately, not all services that offered/provided by Panenpa can meet every of their customers’ expectations on the other hand. Therefore, researcher identified knowledge gap and beliefs in the domains of delivery service, product quality and payments fulfillment. Inconsistent delivery time can reduce consumer spending interest, wherein there are various competitors such as traditional market, food stall, supermarkets and so forth that can be easily found everywhere in Bali.

According to (Seo, Kwon & Choi, 2013), one of the important things in determining the success of an online business is delivery service. Customers who do online shopping will only receive their goods through the online delivery service. Delivery service is an important element, especially for companies wherein engaged in fresh agricultural products. Fresh goods are type of goods that do not last long, where delivery service is crucial thing to be developed by every food e-commerce company (Jeong, 2012). (Shin & Lee, 2018) tested an impact of delivery service quality of online fresh food shopping malls and found that delivery accuracy and time was considered as the key behind fresh online e-commerce’s success. The goods sent are required to be in accordance with the expectations of the consumer and delivered without any damage to the quality of the goods. The lack of service improvement makes it a bit difficult for customers. So, the process of using Panenpa as another alternative to help meet the needs of the community, consumer trust has not been fulfilled perfectly.

Online fresh food e-commerce must always pay attention to customer satisfaction level by improving business performance in aim to develop proper goods delivery service that is in accordance with customers' preference/expectations. Prior research by (Retno, Budi, & Agustina, 2019), also mentioned recovery as the most influential dimension in e-service quality which has an influence on consumer evaluation mainly related to the quality of the fresh products. Every company must consider compensation in the form of discounts, apologies, or product replacement as a guarantee. This is considered effective to increase “good perception” to maintain customer satisfaction.

4. CONCLUSION

Conclusion

According to the company, they strongly believe their electronic service in using WhatsApp-integrated website is highly compatible with working women in terms of the habits and time of the workers. Panenpa has implemented CRM as a reference to meet the company’s goals, which includes customer’s complaints and inputs. On the customers point of view, Customers are satisfied wherein Panenpa has implemented fresh ideas by combining website and whatsapp systems wherein it eases the customers in making orders. Customers having an intention to repurchase since the e-commerce assist working woman/working housewives to do grocery shopping.
in amidst of working hours. Panenpa also gives compensation in the form of gift or shopping voucher. On the other hand, some of these electronic services have not been able to fully meet the customers’ expectations. Some of the services offered still need to be improvised. Despite their compensation, the delivery service is still not accordance with promised delivery hours, products quality control has not improved and the payments system mainly the COD (cash on delivery) service often does not provide any change. By optimizing the electronic service quality, the number of customers will continue to exceed. It can be obtained through customer’s inputs on errors. On the other hand, the company could gain customer satisfaction and maintain customer’s repurchase intention.

**Practical Implications**

To address the gaps, researcher would recommend some suggestions that can be submitted. The results show that customer’s expectations have not been fulfilled by the company. There are gaps of beliefs in delivery service, product quality and payments. By this phenomenon, agriculture e-commerce companies are expected to improve the electronic service quality mainly improving the delivery service wherein in must be in accordance with the schedule of hours offered to maintain the product quality. When the website occasionally experiences errors, in which the system needs to be improved and checked daily. Minimal errors will increase customers experience wherein sustain customer satisfaction. Despite the voucher and products return service, an agriculture e-commerce needs to focus on maximizing the product quality through proper sorting. Payments services needs to ease customers by only provides more cash for returns. Moreover, the company needs to create a service review feature in the system to make it easier for consumers to give any inputs or suggestions related to the services and aim to reduce misconceptions between consumers and the company. On the other hand, the service review system would ease the company on evaluating their service quality.

**Limitation and Future Research**

This study has limitation since the data collected is analysed at certain point. This study used a purposive sampling method, and the sample of this study was also limited to the customers who had experience using an agriculture e-commerce in Bali. The outcome of this research may be lacking the generalizability. It is difficult to strengthen the reliability of the results due to limited number of perspectives and research scope. Secondly, this study analysed e-service quality towards specific agriculture e-commerce in Bali in which the result of this study might not be applicable to assess agriculture e-commerce with different product segment. Furthermore, this study only deals with e-service quality as factors towards customer satisfaction and repurchase intention. For further research, researcher needs to consider larger scale of sample surveys of online fresh food customers, demographic and psychographic variables are conducted, the research will be wider and more significant.

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