Mapping Farmer's Digital Compentencies Using The Agrowing Digital Platforms

Ahsin Daroini(✉) and Adisty Riska Hardianti

Pascasarjana, Universitas Islam Kadiri, Kediri, Indonesia
ade@uniska-kediri.ac.id

Abstract. Technological developments provide convenience in carrying out daily activities including agriculture. One of the agricultural breakthroughs is the use of digital platforms as promotional and marketing media in digital competence. Using the Indonesian digital literacy framework, this study aims to map farmers' digital competencies in utilizing the Agrowing digital platform. This research was designed with a constructivist paradigm and the case study method can be mapped about the process of use by farmers, as well as the competencies needed in developing the application. The results of the study show that there are two groups of competencies needed: [1] agricultural skills which include leadership, mastering commodities, and basic knowledge of agribusiness; [2] use of mobile phone applications which include the ability to download and install applications, fill in personal data correctly and in selecting and using application features.

Keywords: Digital Competence, Farmers, Digital Marketing.

1 Introduction

In today's digital era, the presence of information technology cannot be separated from people's daily lives. Data shows that Indonesian internet users are ranked 6th in the world, this number is expected to continue to grow along with the ease of obtaining internet access in Indonesia. Data from the Association of Indonesian Internet Service Providers (APJII) states that Indonesia's internet users will reach 77.02% or 210 million people out of the 273 Indonesian population in 2021 [1].

The interesting thing is, the presence of information technology is an opportunity for digital strat-ups to develop the agricultural sector [2]. Online marketing opportunities are the main attraction for digital startup business models. Start-up companies are increasingly developing and providing solutions to problems in people's lives [3].

Tech in Asia data shows that in the second quarter of 2017, the dominating start-ups in Indonesia came from the E-Commerce and Fintech industries. As the population uses the internet and e-commerce penetration increases, this sector's contribution to the economy in Indonesia has the potential to continue to increase. In simple terms, E-Commerce is the process of buying and selling products or services through the Internet [4]

© The Author(s) 2024
Z. B. Pambuko et al. (eds.), *Proceedings of the 4th Borobudur International Symposium on Humanities and Social Science 2022 (BIS-HSS 2022)*, Advances in Social Science, Education and Humanities Research 778,
https://doi.org/10.2991/978-2-38476-118-0_143

As the largest e-commerce market in Southeast Asia with contributions of up to fifty percent of all transactions in this region, Indonesia is also known as an agrarian country with agriculture as one of the main sectors supporting the national economy and prosperity. Even though the share of the agricultural sector in the formation of Gross Domestic Product (GDP) tends to decrease, the role of the agricultural sector in absorbing labor cannot be replaced by other economic sectors [5]. On the other hand, the agricultural sector also contributes as a provider of raw materials for industry, creates added value, generates foreign exchange and provides employment.

Basically, agricultural activities begin with the procurement of production facilities (the manufacture and distribution of farm supplies), farm production (production on the farm), and marketing (marketing) of farm products or their processed products known as agribusiness [6]. In the midst of the rise of start-upcompanies that generally focus on the social, trade, games and entertainment sectors, it turns out that not a few start-up companies want to focus on developing systems that help manage agriculture, fisheries and other agro- industries [7]. Seeing this potential, technology and agriculture-based startups began to develop e-commerce businesses in the agribusiness sector.

Start-up companies also need to design their branding strategy. The goal is to quickly introduce the company, both for the services provided or as a business that is worthy of being known. Startups have many important tasks at the beginning of their journey, namely finding potential users, delivering quality products,and trying to understand market conditions [8]. One of the complementary actions to boost the growth of a start-up business requires a marketing strategy, starting from using social media for promotion to building a brand identity. Such as choosing a domain name, logo, color and other identities that can be embedded in people's minds [9].

Internet can have a positive or negative impact depending on the way and the purpose of its use. Therefore, ittakes an individual's ability to sort and select information. According to UNESCO, this ability is referred to as digital literacy. Specifically defined as the ability to use information and communication technology (ICT) to find, evaluate, utilize, create and communicate content or information, with cognitive, ethical, social emotional skills and technical or technological aspects [10].

The advancement of digital innovation and the ease of accessing the internet need to be accompanied by adequate quality of human resources. Farmers in Indonesia are dominant with the assessment only having basic education. Meanwhile, the demographic structure of the Indonesian population has complex categories. The average age of the Indonesian population is 27.2 years or the intermediate category (intermediate), with a dependency ratio of 51.31. This means that there are 50% of Indonesia's population in unproductive conditions. Meanwhile, based on spatial distribution, 50.3% live in rural areas and 49.7% in urban areas. Meanwhile, the educational background is relatively varied with the Literacy Rate (AMH) around 92.37%. From the table above Fig 1, it is known that internet use in Indonesia is starting to spread and spread. So that the internet has the opportunity to be optimized in marketing communication activities, especially in the agribusiness sector.

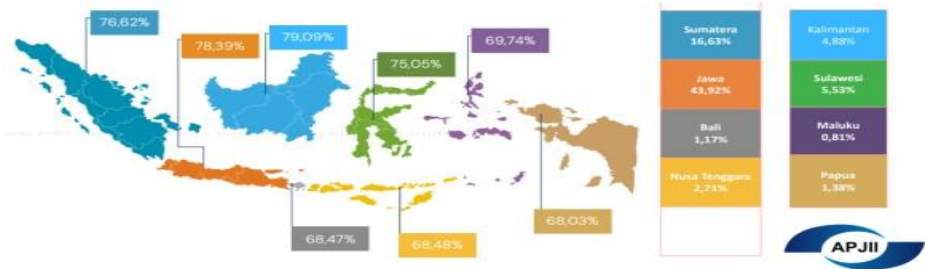

Fig. 1. Penetration of Internet Users in Indonesia *Source: APJII, 2022*

In 2015, the Research and Development Center for the Implementation of Post and Information Technology (Puslitbang PPI) conducted a survey on the use of information technology (ICT) among farmers and fishermen. As a result, the literacy level of farmers and fishermen is still low. The most widely used types of equipment are televisions, cell phones, and radios. Another important finding noted by the Ministry of Communication and Information (Kominfo) is that fishermen use ICT for business development more than farmers.

But in fact, farmers have started to take advantage of advances in information technology by using smart phone devices. Farmers often use gadgets to communicate and seek information related to agriculture. Starting from cultivation activities, fertilization, harvesting, to marketing a commodity. Based on the above trend, it is interesting to conduct a study on competence. Especially at this time, the existence of information technology has become a necessity for the community. Therefore, the author will map what the competencies of farmers using the Agrowing platform are for promotion and marketing. By knowing this, an application platform can be developed according to the needs of farmers and a branding strategy can be designed for managers of similar applications that target farmers as their target users.

2 Method

This research uses constructivism paradigm with a qualitative approach. Constructivist researchers study the various realities that individuals construct and the implications of these constructs for their lives with others [11]. This study uses a case study research method, in order to provide a more detailed description of a symptom or phenomenon. The final result of this research is usually in the form of typologies or patterns regarding the phenomenon being discussed [12].

Case studies are considered appropriate to answer the focus of research with contemporary (present) phenomena in a real-life context. This research uses exploratory and descriptive case studies. This research uses exploratory and descriptive case studies [13]. In itsuse, case studies are used to focus on aspects of the competencies needed by farmers in using the digital Agrowing platform.

The researcher conducts in-depth interviews directly with the informants and makes observations (observations) on the group that is the object of research. Informants who were interviewed were 5 people consisting of, members of the applica-

tion development team Agrowing, garden foreman and user farmers as many as four people. Interviews allow researchers to get accurate data [14].

3 Result and Discussion

3.1 The Results

Agrowing.co.id is a platform for providing premium quality agricultural products for consumers, both retail (Business to Customer) and business (Business to Business). Agrowing.co.id became the brand of PT. Agrowing Agriculture Indonesia with the main product of tropical fresh fruit from the archipelago.Agrowing started its work in 2017 with a vision to become an e-commerce platform that provides quality fruit at affordable prices. The background is the obstacles faced by farmers related to the quality of production and prices cannot compete with foreign products, also the number of agricultural extension workers in Indonesia is already large but, in the field, it is seen that they are still very lacking by Fig 2.

Donnie Aqsha, Founder and CEO of agrowing.co.id stated:

"Our focus is to help farmers cultivate fruit according to GAP (Good Agriculture Practices), and develop applications to help farmers produce products that meet market demands."

To ensure supply sustainability, agrowing.co.id establishes mutually beneficial partnerships with farmers through the application platform of the garden management system, namely SOP Buahku. The Buahku SOP is used to monitor availability, increase productivity, and improve the quality of products produced by farmers.

Fig. 2. Digital Growing Platform *Source: https://www.agrowing.co.id/*

The target users on this platform and application are garden managers who have leadership competencies, are able to control the work of farmers and have knowledge related to commodities. While agrowing.co.id partners can come from any circle, both companies and individuals who own land or gardens and have capital in garden development. As stated by Septina Mugi Rahayu as Research and Development Agrowing.co.id:

"Targeted customers such as farmers, orchard managers, resellers, offices, retailers and exporters to household resellers, Agrowing continues to strive to increase the number of customers through promotions on social media or through offline events."

In this application the head of the garden (garden manager) can find out the steps that must be taken as well as long-term predictions, such as when to harvest and how

much to harvest. So that with this platform and application it can make it easier for Agrowing to communicate to buyers about its product inventory. In addition, there is a trading feature that allows online sales to be made via the agrowing.co.id website as an agribusiness e-commerce platform. Agrowing.co.id has plantation partners, one of which is BDB Farm with an area of 10 hectares and is part of the Indonesian Horticulture Business Contact (KBHI). The products sold come from partners who have been verified in terms of quality and product type and have a warranty.

Agrowing also provides a wide range of services related to agriculture and animal husbandry. These include providing livestock for aqiqah and agro-tourism packages to training related to agriculture and animal husbandry, such as cultivation.

“Agrowing currently has a 10-hectare BDB Farm partner and is a member of the Indonesian Horticulture Business Contact (KBHI). The products sold come from partners who we have verified first the quality and typeof product and there is a guarantee that will be given," (Interview Rahayu)

With the platform it has developed, Agrowing strives to provide a wide range of quality products and services related to agriculture and animal husbandry. One of the focuses of agrowing.co.id is to improve the quality of local Indonesian fruit, through the development of garden management applications with GAP (Good Agricultural Practices) standards. This has become a unique selling proposition with the emergence of startups similar to agrowing.co.id.

To introduce the agrowing platform and application, especially the BUAHKU SOP, the Agrowing Team held workshops and counseling. The form of workshops and counseling to farmer groups, especially farmers/owners of pineapple and mango podang plantations in the Kediri area. Let's talk about the application. In addition, we participate in several exhibitions every month to introduce the Garden Management Application, namely BUAHKU SOP (Rahayu Interview).

As an alternative to empowering the farming community, A growing proves that the main use of e- commerce for agribusiness products is as a media for promotion, communication and information. This utilization is very influential on the effectiveness and efficiency of the work process, if it is carried out intensely and maximally. To join Agrowing, according to the Founder and CEO of agrowing.co.id, Donnie Aqsha, severalcriteria are needed for farmers:

"It may take leadership, basic knowledge in gardening, mastering commodities (planted fruit), willingand able to use smartphones."

After a more in-depth search, leadership is needed because this application is a guide as a notification to the garden head whether each stage has been carried out. So that garden heads with leadership skills are able to direct farmers to want to act according to the BUAHKU SOP (Fruit Garden Management Application) plan in order to achieve the set goal of producing quality fruit. Furthermore, knowledge about gardening is needed which includes understanding of land, types of land and the needs of workers as well as the post-harvest pre- planting process.

"Educated farmers must know basic things in gardening such as land area, soil type, worker needs, treatment of plants from pre-harvest, harvest to post-harvest." (Interview Rahayu).

Another thing that is needed is the exploitation of commodities, including an understanding of the quality of garden crops in the form of fruit. In addition, the most important thing is the ability to use smart phone devices.

"We carry out Quality Control on IT development of orchard management applications. Conduct socialization to garden/land owners and farmers, especially the head (manager) of the orchard about this orchard management application. Scheduled a direct visit to the garden from the Agrowing team to check the quality of the soil and seeds." (Septina Mugi Rahayu Interview)

Based on observations and trials of the application, it can be mapped that the use of the Agrowing application also requires digital literacy. Especially in the introduction of the application and its use. The first is an understanding of access to applications, which includes an introduction to official applications as well as howto download and install applications on a mobile phone. The second relates to account creation, including understanding the application login which requires verification and access to personal data.

Next in menu selection which requires the ability to understand each menu in the existing user interface. This includes the accuracy of data entry so that the application used can be in accordance with its designation.

Based on Table 1, it can be grouped that there are two major parts needed so that the application can be used, the first is the ability group related to agriculture which includes leadership, basic knowledge of gardening, and mastering commodities. The second is the group related to the use of mobile phone applications which includes the ability to download and install applications, fill in personal data correctly and select and use application features.

Table 1. Findings of Expertise Needs for Using Platforms and Applications

Skills/Abilities	Requirements / Stages required
Basic knowledge of gardening	Mastery of basic things in gardening such as land area,soil type, worker needs, treatment of plants from pre- harvest, harvest to post-harvest.
Leadership	Can be a leader or mover who can instruct farmers onthe correct stages in gardening.
Able to download and install applications	The BUAHKU SOP application can be installed onthe cellphone before use
Able to fill in personal data correctly	The BUAHKU SOP application can be filled with the required data
Able to select and use application features	The BUAHKU SOP application can be used and conduct monitoring or sales

Source: Processed data, 2022

The Fruit Garden Management application, namely BUAHKU SOP for garden managers through a digital platform, provides a menu for shop partners and buyers (end-users). In addition, in the use of the application farmers only need to follow the steps instructed in the application. The agrowing team performs regular tracking through applications to farmers' treatment of plants. The application database will

produce a post-harvest evaluation in the hope that it will produce quality fruit products according to market criteria that have been determined by agrowing.

4 Discussion

The presence of Agribusiness e-commerce is expected to cut the distribution chain of agricultural products in Indonesia, because conventionally farmers will sell their agricultural products to middlemen. Then the middlemen sell to big collectors in the wholesale market. From the main market will be distributed to markets or retailers, and finally the agricultural products to consumers. So that the long distribution chain causes the selling price of agricultural products to be high to consumers, but it does not necessarily have an impact on the high income obtained by farmers.

From the literacy aspect, it turns out that Agrowing requires two literacy groups, the first related to agriculture or plantations, which of course are already owned by farmers. And the second relates to literacy using applications, or digital literacy. In accordance with Indonesia's digital literacy framework, in terms of protection, farmers still need to develop their ability to understand the safety and comfort of mobile phone application users, especially with regard to personal data protection. Although the rights aspect has been fulfilled in accordance with the terms of use of the application, there is a tendency for mobile phone users to still dominantly ignore reading and understanding the End User License Agreement (EULA).

This is still guided by the Agrowing application manager so that farmers can get optimal results in utilizing the features in the application. The last interesting thing, the Agrowing team carried out Quality Control on IT development of orchard management applications. In the last part, productive utilization is still in the process of mentoring, especially to make applications on mobile phones that can be used in relation to more productive performance.

5 Conclusion

Utilization of e-commerce sites and internet technology can help market and also serve as an easy and fast transaction portal. Agrowing understands this potential. From the results of the study, it was found that there are two groups of competencies needed, firstly agricultural skills which include leadership, basic knowledge of gardening, and mastering commodities. The second is the use of mobile phone applications which include the ability to download and install applications, fill in personal data correctly and select and use application features.

References

1. Asosiasi Penyelenggara Jasa Internet Indonesia, “Profil Internet Indonesia 2022,” *Apji.or.Od*, no. June, p. 10, 2022, [Online]. Available: apji.or.id

2. V. Babenko, L. Zomchak, M. Nehrey, A.-B. M. Salem, and O. Nakisko, "Agritech startup ecosystem in ukraine: ideas and realization," in *Digital Transformation Technology: Proceedings of ITAF 2020*, 2022, pp. 311–322.
3. S. Kraus, C. Palmer, N. Kailer, F. L. Kallinger, and J. Spitzer, "Digital entrepreneurship: A research agenda on new business models for the twenty-first century," *Int. J. Entrep. Behav. Res.*, vol. 25, no. 2, pp. 353–375, 2019.
4. A. Kale and R. Mente, "M-Commerce: Services and applications," *Int. J. Adv. Sci. Res.*, vol. 3, no. 1, pp. 19–21, 2018.
5. M. Adesugba and G. Mavrotas, "Youth employment, agricultural transformation, and rural labor dynamics in Nigeria," 2016.
6. S. A. Bhat, N.-F. Huang, I. B. Sofi, and M. Sultan, "Agriculture-food supply chain management based on blockchain and IoT: A narrative on enterprise blockchain interoperability," *Agriculture*, vol. 12, no. 1, p. 40, 2021.
7. J. Juswadi, P. Sumarna, and N. S. Mulyati, "Digital marketing strategy of Indonesian agricultural products," in *International Conference on Agriculture, Social Sciences, Education, Technology and Health (ICASSETH 2019)*, 2020, pp. 105–110.
8. E. Konya-Baumbach, M. C. Schuhmacher, S. Kuester, and V. Kuharev, "Making a first impression as a start-up: Strategies to overcome low initial trust perceptions in digital innovation adoption," *Int. J. Res. Mark.*, vol. 36, no. 3, pp. 385–399, 2019.
9. M. Donner, R. Gohier, and H. de Vries, "A new circular business model typology for creating value from agro-waste," *Sci. Total Environ.*, vol. 716, p. 137065, 2020.
10. S. Boulianne and Y. Theocharis, "Young people, digital media, and engagement: A meta-analysis of research," *Soc. Sci. Comput. Rev.*, vol. 38, no. 2, pp. 111–127, 2020.
11. F. Bogna, A. Raineri, and G. Dell, "Critical realism and constructivism: merging research paradigms for a deeper qualitative study," *Qual. Res. Organ. Manag. An Int. J.*, vol. 15, no. 4, pp. 461–484, 2020.
12. C. E. Wilshire, T. Ward, and S. Clack, "Symptom descriptions in psychopathology: How well are they working for us?," *Clin. Psychol. Sci.*, vol. 9, no. 3, pp. 323–339, 2021.
13. S. E. Gallagher and T. Savage, "Challenge-based learning in higher education: an exploratory literature review," *Teach. High. Educ.*, pp. 1–23, 2020.
14. C. McGrath, P. J. Palmgren, and M. Liljedahl, "Twelve tips for conducting qualitative research interviews," *Med. Teach.*, vol. 41, no. 9, pp. 1002–1006, 2019.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (http://creativecommons.org/licenses/by-nc/4.0/), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.