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Digital Transformation of Farmers through Facebook: A Case Study of Farmer Empowerment in Konawe, Southeast Sulawesi Indonesia

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ABSTRACT: Digital transformation in the agricultural sector is increasingly significant with the presence of social media, especially Facebook, as an instrument of farmer empowerment in rural Indonesia. This study aims to analyze the contribution of Facebook use to aspects of watermelon farmers' empowerment in Amandete Village, Konawe, Southeast Sulawesi, through a descriptive qualitative approach. The results show that Facebook is not only used as a means of social communication, but has also developed into a primary medium for obtaining technical agricultural information, sharing experiences, and marketing crops directly to consumers. Through farming community groups on Facebook, farmers gain new knowledge related to cultivation techniques, fertilization, and pest control, while improving their technical skills and ability to solve problems independently. The platform also strengthens social networks, participation in digital farmer groups, and access to wider resources and market opportunities. Despite barriers such as limited digital infrastructure and technological literacy, the findings confirm that the use of Facebook has strengthened small-scale farmers' adaptive capacity, self-reliance, and socio-economic resilience. This study makes conceptual and empirical contributions in filling the literature gap on the role of social media in farmer empowerment, and recommends the need for policy support and contextualized digital mentoring so that the benefits of digital transformation can be felt inclusively and sustainably in rural farming communities.
KEYWORDS: *Facebook, Farmer Empowerment*

I. INTRODUCTION

Digital transformation has become one of the key pillars in the development of the agricultural sector, especially in developing countries. The application of information and communication technology (ICT) such as social media is increasingly recognized as an effective tool to support increased productivity, efficiency, and empowerment of farmers. In Indonesia, increased internet access and smartphone penetration have opened up new opportunities for farmers to obtain information, expand social networks, and market products directly without intermediaries. One of the most popular platforms among farmers is Facebook, due to its interactive features, ease of use, and wide reach in rural communities.

Despite the enormous potential of social media such as Facebook, its utilization in the context of rural agriculture remains suboptimal and not fully understood. Many farmers use Facebook only as a means of entertainment or personal communication, while its function as a tool for empowerment and digital transformation in farming activities has not been thoroughly explored. In areas such as Konawe, Southeast Sulawesi, there are indications that a group of watermelon farmers have begun to utilize Facebook for agribusiness purposes, such as sharing information on cultivation techniques, farmer group discussions, and crop promotion. However, no study has systematically documented how this process contributes to farmers' empowerment in terms of knowledge, skills, and decision-making capacity.

Previous studies have highlighted the use of ICT or the internet in general in the context of agriculture (Lwoga, 2020; Widiastuti & Mulyono, 2024), but very few studies have specifically examined the role of Facebook as a medium for digital transformation and farmer empowerment in Indonesia. Some studies have explored aspects of information access or the use of digital applications (Wibowo, 2020), but there is still a lack of research linking Facebook activities to the dimensions of farmer empowerment, especially within a clear theoretical framework. In addition, there is still a lack of research that qualitatively examines farmers' experiences and perceptions in using social media to support their empowerment.

This research is important to support the rural digital transformation agenda and strengthen farmer empowerment policies through a community-based technology approach. By examining the role of social media from the perspective of farmers themselves, this study is expected to contribute to the development of a digital agricultural extension model that is more participatory, contextual, and based on local experiences. Practically, the results of this study can also be used as a basis for stakeholders (government, extension workers, and farmer organizations) to design communication strategies and capacity building for farmers that are more adaptive to digital developments.

This study aims to analyze the contribution of Facebook use to aspects of farmer empowerment, such as knowledge, skills, and problem-solving capacity. The main research question is: How does Facebook use contribute to farmer empowerment in the local context?.

This study makes conceptual and empirical contributions to fill the literature gap on the role of social media in farmer empowerment, particularly in rural Indonesia. This research introduces a theory-based approach of empowerment and diffusion of innovation to understand the dynamics of digitalization in small-scale farming. The findings of this study are expected to broaden the understanding of how Facebook serves not only as a communication medium, but also as a tool to develop farmers' capacity in facing the challenges of modern agriculture.

II. LITERATURE REVIEW

In recent years, the integration of digital platforms into agricultural practices has been of growing academic interest, especially in the context of rural community empowerment and innovation dissemination. This section presents a synthesis of previous studies related to the role of social media-particularly Facebook-in supporting digital transformation and farmer empowerment. The review is organized thematically across four main areas: the use of social media in agriculture, digital transformation processes among smallholder farmers, theoretical perspectives on empowerment, and communication strategies in digital agricultural extension.

2.1. Social Media

Social media platforms such as Facebook, WhatsApp, and YouTube are increasingly being utilized as tools for information exchange, social networking, and market access for farmers in various countries, including developing regions. Research by Anwarudin et al. (2020) and Hamzani (2024) shows that farmers actively use Facebook groups to seek farming advice, share experiences, and access informal training materials. This platform is particularly relevant in areas with limited access to formal extension services, as it provides fast, flexible, and inexpensive information (Lwoga, 2020). However, specific studies on the role of Facebook specifically, as opposed to internet use in general, are still very limited, especially in the Southeast Asian context.

The digitization of agriculture includes not only technology adoption, but also changes in knowledge flows, decision-making patterns, and social interactions. Agustina & Abdillah (2023) note that digital platforms are changing the way farmers manage production and interact with markets. In Indonesia, various initiatives to improve farmers' digital literacy have shown mixed results, depending on infrastructure readiness and the digital divide (Widiastuti & Mulyono, 2024). Ragnedda et al. (2024) emphasize that this transformation process is uneven, heavily influenced by socio-demographic factors and local ecosystem readiness. While many studies have highlighted the economic benefits of using digital technologies, few have examined how social media contributes to dimensions of empowerment, such as increased self-confidence, independence, or problem-solving skills.

2.2. Empowerment Theory and Farmer Capacity Building

Empowerment is generally understood as the process by which individuals gain control over decisions and resources that affect their lives (Zimmerman, 2000). Suharto (2010) divides empowerment into three interrelated dimensions: personal empowerment (knowledge, self-efficacy), relational empowerment (participation in groups), and collective empowerment (influence over policies or institutions). In the context of agriculture, empowerment is closely related to access to information, market autonomy, and decision-making capacity (Sikhondze, 1999). However, studies that explicitly explore the contribution of social media to farmer empowerment, especially in remote rural communities, are still minimal.

Agricultural communication in the digital era has shifted from a one-way approach to a more participatory and interactive model. Muthiah (2021) explains that platforms such as Facebook are not only used to convey information, but also form a dialogical learning environment where farmers can exchange knowledge. Steinke et al. (2022) stated that for agricultural development, participatory design of ICT solutions can overcome challenges by considering the needs and capacities of users. However, challenges such as information overload, misinformation dissemination, and digital literacy gaps can reduce the effectiveness of social media in the extension context.

While various studies have examined the role of digital technologies in the agricultural sector, there is very little empirical evidence on the specific role of Facebook as a catalyst for farmer empowerment, particularly in rural Indonesia. Most of the literature focuses on ICT access in general, and has not explored specific mechanisms of how Facebook helps farmers to acquire knowledge, conduct peer learning, and make collective decisions. In addition, little has been done to examine how this digital engagement affects dimensions of empowerment such as problem-solving ability, self-confidence, and group participation, especially in areas such as Konawe where extension services are still limited.

This study uses empowerment theory (Suharto, 2010; Zimmerman, 2000) and innovation diffusion theory (Rogers, 2003) to explain how Facebook plays a role in supporting digital transformation and increasing farmers' agency. The framework links the three main dimensions of Facebook utilization-information seeking, communication, and digital learning-with three indicators of farmer empowerment: knowledge, skills, and problem-solving ability.

III. RESEARCH METHODS

This study uses a descriptive qualitative approach to explore in depth how the use of social media, especially Facebook, supports the process of digital transformation and empowerment of farmers in the local context. This approach was chosen because it allows researchers to understand the experiences, meanings, and social dynamics encountered by farmers in the use of digital technology, rather than simply measuring variable relationships quantitatively.

The research was conducted in Amandete Village, Amonggedo Sub-district, Konawe Regency, Southeast Sulawesi. The location was purposively selected because it is a watermelon production center and exhibits an interesting social phenomenon: farmers have started actively using Facebook for agricultural needs, such as sharing information, communicating, and marketing crops.

The research informants were selected using purposive sampling technique, namely watermelon farmers who actively utilize Facebook in farming activities. The number of informants was determined based on the principle of information sufficiency until reaching the data saturation point, which is when no new information emerges. This technique is in line with the views of Moleong (2017) and Creswell (2016) who emphasize the importance of selecting relevant and information-rich informants.

The study focused on two main themes: first, Facebook utilization in the context of agriculture (covering the dimensions of information, communication, and digital learning); and second, farmer empowerment, which includes understanding of cultivation techniques, ability to overcome problems, and participation in digital-based farmer groups. These dimensions refer to empowerment theory (Suharto, 2010).

Data were collected through three techniques: (1) semi-structured guided in-depth interviews, (2) participatory observation of farmers' digital behavior and interactions on Facebook, and (3) documentation in the form of activity screenshots, farmer group archives, and other digital materials. Data validity was maintained through source and method triangulation (Miles & Huberman, 1994).

Data analysis was done thematically, starting from interview transcription, open coding, to identification of themes and patterns. This process was iterative and reflective, taking into account the local social context. Validation was conducted through member checking and peer debriefing techniques to ensure accuracy and objectivity of interpretation.

IV. RESULTS AND DISCUSSION

4.1. Informant Characteristics

The characteristics of the informants in this study describe the socio-economic background and digital readiness of watermelon farmers in Amandete Village, Konawe, Southeast Sulawesi. Field findings show that most respondents are between 30 and 50 years old, which is considered the productive age in the agricultural sector. This age is important as it signifies that the farmers are in an economically active phase and have great potential to adapt to technological change.

From an educational perspective, the majority of informants have a formal education background only up to elementary or junior high school level. Nevertheless, they demonstrate openness to new information, especially that which is practical and applicable in supporting agricultural activities. This is interesting because it challenges the assumption that a high level of formal education is the sole prerequisite for the adoption of digital technology. In this context, strong field experience actually becomes the main strength. The informants have between 5 and 15 years of experience in watermelon farming, indicating a high level of skill in horticultural cultivation.

From the perspective of production resources, the cultivated land area ranges from 0.5 to 1.5 hectares, reflecting the small-scale farming patterns commonly found in rural areas of Indonesia. The volume of watermelon production per harvest season also varies between 2 and 8 tons, depending on the size of the land and the cultivation techniques applied by each farmer. These findings indicate a diversification in production capacity, which likely also influences farmers' motivation to use digital media for marketing their harvests or improving the efficiency of their farming operations.

Interestingly, in terms of digital technology adoption, farmers are not only using Facebook but are also actively utilizing messaging applications such as WhatsApp and video-sharing platforms like YouTube. This demonstrates an organically developing pattern of multiplatform engagement, where farmers choose media that best suit their needs and ease of access. This phenomenon aligns with the findings of Febriani (2021) which highlight the role of social media in shaping community-based digital extension models in Indonesia.

When linked to previous research, these findings support the results of (Lwoga, 2020) which state that being of productive age and having farming experience are the main predictors in the adoption of information technology in the agricultural sector. On the other hand,, Ragasa et al. (2018) show that a low level of formal education is not the main barrier for farmers in accessing technology, as long as they have strong social networks and practical experience. Research by Widiastuti & Mulyono (2024) affirms that limited education does not pose a significant obstacle as long as the digital media used are contextual and easily accessible. Meanwhile, the study by (Steinke et al., 2022) emphasizes the importance of a multi-channel approach (Facebook, YouTube, WhatsApp) in building a digital ecosystem that empowers rural communities in a participatory manner.

Thus, the characteristics of the informants presented in Table 1 serve not only as descriptive background but also reinforce the argument that small-scale farmers in rural areas of Indonesia possess a high adaptive capacity toward community-based digital transformation, particularly through familiar and contextual social media platforms.

Table 1. Informant Characteristics

Informant Characteristics	Description of Field Findings
Age	Most respondents are in the age range of 30–50 years, which is considered a productive age for agricultural activities.
Education Level	The majority of farmers have an education level equivalent to elementary or junior high school, but are quite open to new information.
Farming Experience	Farmers have farming experience ranging from 5 to 15 years, indicating a high level of skill.
Land Area	The average land area cultivated ranges from 0.5 to 1.5 hectares per farmer.
Production Volume	The production volume per season ranges between 2 and 8 tons, depending on land area and cultivation techniques.
Digital Technology Adoption	Some farmers also use messaging applications (WhatsApp) and YouTube as sources of agricultural information.

4.2. Pattern of Facebook Utilization in Farming Activities

Along with the increasing use of social media in rural areas, Facebook has undergone a transformation in its function among farmers. No longer just a means of social communication, the platform is now actively used to support agricultural activities, ranging from information seeking to marketing harvests. The various digital activities carried out by farmers through Facebook reflect a shift in work and learning patterns in the era of digital agriculture.

The following are quotes from some farmers who expressed their experiences in using Facebook as part of farming activities:

" I open Facebook almost every day to check updates in the farmers' group, especially during planting season. There, many people share information about planting methods and which fertilizers are suitable." (Farmer D, 45 years old).

This quote shows that Facebook is used as a high-frequency medium in agricultural activities. Farmers rely on Facebook groups as a source of technical information relevant to the planting cycle. This reflects Facebook's function as an alternative extension media that is daily and according to the actual needs of farmers.

" I sell my harvest through local Facebook groups. I just post it, and then buyers contact me directly via WhatsApp. It's quick and easy." (Farmer E, 39 years old).

This statement indicates that Facebook has evolved into a direct marketing medium for farmers. By taking advantage of the local group feature and connectivity with WhatsApp, farmers can reach consumers without intermediaries. It shows how social media shortens the distribution chain of agricultural produce and increases the potential for direct economic value for farmers.

" Sometimes it's difficult when the signal is bad or when I run out of data. But I still make an effort to open Facebook, because the information there is really important." (Farmer F, 50 years old).

This quote highlights the barriers to digitalization that farmers still face, such as limited network infrastructure and the burden of internet quota costs. However, this statement also shows the high commitment of farmers to the use of Facebook as a source of information that is considered valuable. In other words, technical limitations have not completely hindered the use of social media, although it is still a challenge that needs to be addressed systemically.

From the three quotes above, it can be concluded that Facebook has taken an important role in supporting farmers' digital activities, both in the form of providing information, marketing tools, and group communication media. Farmers use Facebook regularly and strategically, although they still face technical obstacles such as internet networks and device limitations. In the researcher's view, this shows that social media has great potential as an instrument for agricultural digital transformation that is inclusive and community-based. For this reason, it is important for all parties, including the government and extension workers, to encourage a stronger and more sustainable rural digital ecosystem. The pattern of Facebook utilization is shown in table 2.

Tabel 2. Facebook Usage Patterns

No	Theme	Category	Brief Description of Field Findings
1	Use of Facebook for Agriculture	Frequency of Use	Most farmers actively use Facebook every day for agricultural activities.
2	Farmers' Digital Activities	Information	Farmers seek information related to cultivation, fertilization, and pest control through Facebook groups.
		Communication	Facebook is used by farmers to discuss, ask questions, and answer questions with other farmers or extension workers.
		Group Participation	Most farmers follow farmer community groups on Facebook to expand their networks and exchange information.
		Marketing	Some farmers post their crops and establish transactions through Facebook Marketplace or local groups.
		Learning	Farmers follow educational content such as videos and agricultural articles shared on Facebook as a learning medium.
3	Access Technology	Devices Used	The majority of farmers use smartphones to access Facebook, only a small percentage use laptops.
4	Barriers to Digitalization	Technological Barriers	The main obstacles include weak internet signals, limited digital capabilities, and internet quota costs.

The results of the study show that the social media platform Facebook has been actively used by most farmers as part of their farming activities. Facebook not only serves as a means of entertainment or personal communication, but has also transformed into a tool that supports various important aspects of farming. Based on the field findings summarized in Table 2, Facebook is used to obtain technical information, communicate with fellow farmers or extension workers, participate in digital farming communities, market crops, and access learning materials independently. In addition, there is also data that reveals the form of access to technology used and the obstacles faced by farmers in the digitalization process.

In more detail, the use of Facebook in the context of agriculture encompasses several dimensions. First, in terms of frequency of use, the majority of farmers are known to access Facebook every day for agricultural purposes. This shows that social media has become part of their routine and serves as a major source in supporting production and distribution activities.

Second, in the category of farmers' digital activities, Facebook plays a role as a medium for searching for information. Farmers use this platform to access technical knowledge such as cultivation, fertilization, and pest control methods that are widely shared in Facebook groups. In addition, Facebook is also a communication medium that allows farmers to discuss and answer questions with fellow farmers or extension workers online.

In the aspect of group participation, it was found that most of the farmers are members of Facebook-based farmer community groups. Through this group, they expand their social networks and share information related to farming activities. Furthermore, in the marketing dimension, some farmers use Facebook Marketplace and local buying and selling groups to sell their crops directly to consumers. As for the learning aspect, many farmers follow educational content such as videos and agricultural articles shared on Facebook, so this platform also functions as a flexible and accessible learning medium.

In the dimension of technology access, the majority of farmers access Facebook through smartphones, while the use of laptops is still limited. This indicates that affordability and ease of use are the main factors in the adoption of digital technology among village farmers. However, there are still obstacles to digitalization faced by farmers, such as unstable internet signal quality, limited ability to use digital technology, and a fairly high burden on internet quota costs. This obstacle is a challenge in optimizing the use of social media in the development of a more inclusive digital agriculture.

Recent studies highlight the potential of social media, particularly Facebook, as an effective tool for agricultural extension and rural community engagement. Facebook groups can bridge the information gap for rooftop gardeners in urban and rural farmers, facilitate knowledge exchange and community cooperation (Kabir et al., 2023). Social media adoption among smallholders is influenced by socio-economic factors and diffusion of innovation attributes, which shows the need for targeted policies and infrastructure development to drive wider adoption (Zondo & Ndoro, 2023). Facebook has proven effective in engaging rural residents in health awareness and research, with paid ads reaching a larger audience than organic posts (Cobb et al., 2022). In addition, farmers use Facebook not only for information exchange but also for agrarian trade and knowledge sharing, which shows the platform's role as an agricultural technology tool shaped by existing social and economic relationships (Faxon, 2023).

However, the challenges faced by Konawe farmers in the form of technological barriers affirm the findings Jonas & Hanrahan (2022) which states that poor technological infrastructure reinforces low self-efficacy, discouraging rural residents from using technology and learning new skills. Therefore, interventions are needed that not only focus on providing access, but also on capacity building and contextual digital assistance, so that social media can be used optimally to support the empowerment and independence of farmers in the era of digital transformation.

4.3. Farmers' empowerment in Utilizing Facebook

Digital transformation in the agricultural sector is starting to show a positive impact, especially among smallholders who actively use social media. One of the most widely used platforms is Facebook, which is not only a means of communication, but has also played a role as a tool in daily farming activities. Through this social media, farmers gain information, improve skills, share strategies to face agricultural challenges, and strengthen social connections in the digital farming community. As conveyed by one of the informants:

"*I usually look at the farmer's Facebook group if I want to find information about fertilizers and plant diseases. Sometimes it's faster than waiting for the extension workers to come*" (Farmer A, 42 years old).

This quote shows that Facebook has become an alternative source of agricultural technical information that is fast and easily accessible. For farmers in areas with limited access to extension workers, the platform serves as an informal extension medium, where they can get practical solutions directly from fellow farmers or other group members. The same thing was also emphasized by other farmers:

"*I learned how to plant from a video a friend shared on Facebook. Now I can grow my own watermelons, without much question*" (Farmer B, age 36 years old)

This statement reflects that social media has enabled digital independent learning. Farmers are no longer completely dependent on external help in implementing cultivation techniques, but can instead learn directly from video content or educational articles shared by their communities on Facebook. This shows an increase in independence and technical ability in farming. In facing field challenges, farmers also use Facebook as a space for discussion and joint strategies:

"*If there are pests or prices have plummeted, we usually discuss them in the group. From there, there are usually those who give advice, so you can anticipate*." (Farmer C, age 40 years old)

This quote indicates that Facebook also serves as a collective problem-solving forum. When facing problems such as pest attacks or price fluctuations, farmers can discuss and get input from their peers in their digital community. The discussion not only increases understanding, but also strengthens social resilience and adaptive strategies in dealing with farming risks.

Based on these three quotes, it can be concluded that Facebook has made a real contribution to empowering farmers, both in terms of increasing knowledge, technical skills, and the ability to solve problems independently. In addition, interaction in Facebook groups also strengthens social networks and involvement in group decision-making. In the researchers' view, these findings show that community-based social media has great potential as a means of digital empowerment, especially in rural areas that face limited access to formal counseling. Therefore, technology-based agricultural development strategies need to integrate social media more systematically in extension programs and empowerment of farming communities.

Table 3. Farmers' Empowerment in Utilizing Facebook

Theme	Category	Brief Description of Field Findings
Farmer Empowerment	Knowledge	Farmers understand watermelon cultivation techniques, recognize the appropriate type of fertilizer, and know market price trends through information obtained on Facebook.
	Skills	Farmers are able to apply watermelon planting and maintenance techniques independently and process crops better.
	Problem-Solving Ability	Farmers show their ability to deal with pest and disease

		attacks and anticipate crop failures with strategies obtained from Facebook groups.
	Access to Resources	Some farmers are starting to access market information, capital assistance, and agricultural technology from digital platforms, including Facebook.
	Group Participation	Some farmers are members of online farmer groups and actively participate in discussions and joint decision-making.

Based on table 3 shows that the use of Facebook by watermelon farmers in Amandete Village is not only limited to the communication function, but has contributed significantly to the improvement of their empowerment dimension. The empowerment in question includes aspects of technical knowledge, cultivation skills, problem-solving skills, access to resources, and participation in social groups. Social media, in this case Facebook, has become a digital space that encourages farmers to learn, network, and make decisions more independently and participatory.

In terms of knowledge, the majority of farmers stated that they obtained a lot of technical information through Facebook groups, such as watermelon cultivation techniques, the selection of the appropriate type of fertilizer, and an understanding of market price trends. This knowledge is acquired practically through discussions, articles, and the experiences of other group members, which are then applied in daily farming activities.

In the skill dimension, farmers are able to apply various planting and plant care techniques independently based on information obtained from social media. Not only that, but they also show an improvement in the ability to process crops in a better way, thus encouraging production efficiency and the quality of agricultural products.

Furthermore, in terms of ability to overcome problems, farmers show increased capacity in dealing with technical challenges such as pest attacks and plant diseases. Through discussions in Facebook groups, they obtained mitigation strategies and solutions that are contextual and applicative. This shows that social media can be a forum for peer-to-peer learning that is responsive to field problems.

In terms of access to resources, some farmers admitted that they have started using Facebook as a means to access information about markets, capital assistance, and agricultural technology. This platform is an entry point for farmers to reach external resources that were previously difficult to access through conventional mechanisms.

Finally, in the dimension of group participation, the use of Facebook encourages farmers to be actively involved in online farmer community groups. They not only become recipients of information, but also participate in discussions, share experiences, and engage in group decision-making processes. This strengthens social solidarity and expands the reach of community-based farming networks.

In general, these findings show that the use of Facebook has strengthened the process of empowering farmers as a whole, both individually and collectively. Facebook functions not only as a medium of communication, but also as a medium of learning, social networking, and access to strategic resources. Thus, digital transformation through social media directly contributes to increasing the capacity and independence of farmers.

These findings are in line with the empowerment theory put forward by Suharto (2010) and Zimmerman (2000), which emphasizes the importance of individual control over knowledge, skills, and access to the decision-making process. In the digital context, research by Chandralekha (2023) shows that social media offers a new space for open dialogue, allowing citizens to contribute, share ideas, and participate in civic activities. Similar research by Kabir et al. (2023) also showed that Facebook groups can bridge the gap in extension services for rooftop farmers in urban areas, facilitating knowledge exchange, community engagement, and access to valuable information. Thus, it can be concluded that social media, especially Facebook, has an important role in supporting the empowerment of farmers in the era of digital transformation, as long as access and digital literacy can be facilitated in a sustainable and inclusive manner.

IV. CONCLUSION

The use of Facebook by watermelon farmers in Amandete Village, Konawe, Southeast Sulawesi, has contributed to supporting digital transformation and farmer empowerment, not only as a means of communication, but also as a learning medium, social network, crop marketing, and access to technical and market information. Through interactions in Facebook groups, farmers gain new knowledge, improve cultivation skills, strengthen their ability to solve problems collectively, and expand their participation in digital farmer groups, although they still face challenges such as limited infrastructure and digital literacy. These findings confirm that community-based social media, especially Facebook, has great potential to strengthen the capacity, independence, and socio-economic resilience of farmers in rural areas. Therefore, it needs to be supported with adaptive policies and mentoring so that the benefits of digital transformation can be realized in a more inclusive and sustainable manner.

RECOMMENDATIONS

1. Local governments, agricultural extension workers, and community organizations should organize regular digital literacy training that is contextual, easy to understand, and based on the needs of farmers.
2. Cross-sectoral investment and collaboration are needed to improve telecommunications infrastructure in rural areas, such as expanding internet networks and providing public Wi-Fi access.
3. Agricultural extension workers need to adopt a multiplatform approach by integrating Facebook as one of the main channels in digital extension.
4. Encourage partnerships between the government, the private sector (e.g. internet providers, agritech companies), and universities to develop supporting applications, enrich agricultural educational content, and provide online consulting services for farmers.
5. Periodically monitor and evaluate the effectiveness of Facebook in empowering farmers.

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