

THE CAPACITY OF AGRITOURISM FARMERS IN UTILIZING DIGITAL COMMUNICATION TECHNOLOGY IN MALANG AND BOJONEGORO REGENCIES

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ABSTRACT

The volatility of agricultural price has resulted in decreasing income for small-holder farmers thereby encouraging changes in farming practices. Agritourism is an opportunity for business diversification to increase farmers' income and reduce the distribution chain. A survey to 215 farmers from population of 460 who manage agritourism in four sub-districts in Bojonegoro and Malang regencies was conducted in September-October 2018. Data were analyzed using Partial Least Square (PLS) version 3 for inferential analysis. The results showed that the capacity level of farmers to create information was in the low category and the capacity to evaluate in the medium category. The level of agribusiness development was in the medium level because few farmers are able to pursue food processing business. Factors that influence the capacity of agritourism farmers were farmers' profiles which include formal and non-formal education, and business motivation, the availability of digital technology that include infrastructure and communication cost, and group support which includes marketing ability, collaboration with stakeholders and business innovation.

Keywords: Agritourism, Capacity of farmers, Digital Communication Technology

INTRODUCTION

The price of horticultural products fluctuates, which has an impact on farmers' income. In order to protect family welfare, farmers develop agritourism business to shorten distribution chain and stabilize crops' price. Farmers are turning to agritourism as an effort to add value to existing farming.

Policies related to agritourism are Law No. 13/2010 which describes horticulture-based agritourism as an activity to develop a region as a tourist attraction, both individually and as part

of a wider tourist area along with other tourist objects. The development of agritourism is dependent on the development of human resources, promotion, and institutions within the government, private sector, and society (Yeboah *et al.*, 2016). The challenge experience by farmers as agritourism organizer is the capacity to utilize digital communication technology.

Previous research showed that the use of Digital Communication Technology (DCT) in the agricultural sector is beneficial to facilitate the process of sharing knowledge within and between various agricultural networks including researchers, exporters, extension agents, traders and farmers (Adegbidi *et al.* 2012; Aker *et al.*, 2016). Seminar (2011) states the lack of capacity in utilizing digital communication technology has the potential to threaten the existence of established business patterns of traditional farming. Therefore, there is a problem of digital divide that includes not only the ownership of digital devices but also the capacity to utilize those devices to develop agritourism businesses.

Tembo *et al.* (2010) suggested that the use of information technology at the agricultural extension level was determined by the amount of information technology training, age, and level of education. Mpiti and Harpe (2015) stated that farmers' lack of information literacy had impact on the inability to utilize information available and promote their products to the market. On that basis, this study modified indicators developed by ETS (2007) which consist of access, manage, evaluate, create, and communicate information to measure the capacity to utilize digital communication technology.

Farmers' capacity is essential to enable agribusiness actors to be involved in the knowledge transfer process, including designing products or processing agricultural or livestock products (Muhammad & Isikhuemhen, 2009). Study by Prawiranegara *et al.* (2015) showed that extension is an effort to improve the quality of a person's behavior which includes cognitive, affective and psychomotor/conative in order to improve the welfare of their families and communities.

The management of agritourism is carried out by Community Tourism Group (Pokdarwis). In Bojonegoro and Malang Regency, Pokdarwis is experiencing problems related to the capacity to use digital communication technology needed in developing agritourism businesses which include constraint of marketing agritourism services and products, cooperating with stakeholders, and developing business innovation. Based on this description, this study aims to: (1) analyze the capacity of farmers in utilizing digital communication technology in Bojonegoro and Malang Regency and the influencing factors and (2) analyze how capacity to use digital communication technology influence the agritourism business development.

METHODOLOGY

This study was conducted from September to October 2018 in Bojonegoro and Malang Regencies, East Java Province, Indonesia. The selection of research area was carried out in proportionate stratified random sampling in four sub-districts and then four villages. A number of 215 respondents were selected 460 people by the error limit of 5 percent. The population was farmers who manage agritourism, members of the Community Tourism Group (Pokdarwis), own smart phones, and the decision makers in farming/processing of crops.

In-depth interviews also conducted to 5 people who are working as extension agents from the Cooperative, Small and Medium Enterprises Office, Bojonegoro District Tourism Office, travel agents, and local internet service providers. The collected data was tabulated and analyzed using descriptive statistical tests. For inferential statistical analysis, Smart Partial Least Square (PLS) version 3 application was used. Based on the results of validity tests conducted on 30 Pokdarwis members in Malang Regency, most items in the research instrument are classified as valid. This can be seen from the value of *r* count which ranges from 0.380 to 0.824. The resulting cronbachs alpha values ranged from 0.504 to 0.855 which showed greater than *r* table (0.361) so that it was reliable to use.

There are four independent variables observed. They are farmer profile (X_1) with 10 sub-variables, level of availability of digital technology (X_2) with 6 sub-variables, group support (X_3) with 4 sub-variables, and level of extension support (X_4) with 5 sub-variables. There are two dependent variables which consist of the level of capacity to utilize digital communication technology (Y_1) with 5 sub-variables and the level of agritourism business development (Y_2) measured by 4 sub-variables.

The questionnaire consist of 154 questions in ordinal and ratio scale. Data were analysed using PLS-SEM that use formative indicators and a prediction-oriented variance-based approach to maximize the explained variance of a construct (Ratzmann et al., 2016).

RESULTS AND DISCUSSION

Extension Education in Community Tourism Group

Community tourism group (Pokdarwis) is an institution that organizes tourism in the village level. The legal umbrella for Pokdarwis is Law Number 10/2009 on Tourism and the Presidential Instruction No. RI. 16/2005 concerning Culture and Tourism Development Policies. The formation can be initiated by the community itself or encouragement from the village government, with some members coming from local farmer groups. Agricultural commodities in

the research sites are apples, snakefruit, star fruit, vegetables, and cow's milk. The services offered by two villages include natural and cultural tourism, educational tour, and homestay.

Two Pokdarwis in two regencies have been established since 2010 and have been approved by their village governments in 2012. Two other pokdarwis were pioneered in 2015 and 2016. The condition of agritourism extension in Malang Regency was more prominent than Bojonegoro Regency because it's closer to the city center and has strong support from the provincial and regency governments. Extension service agencies come from many sources, for example the universities from inside and outside Malang, the Culture and Tourism Agency, the Office of Cooperative, Small and Medium Enterprises, and the Department of Industry. The ability of Pokdarwis to collaborate with agritourism stakeholders is very important to access sustainable extension service.

Capacity Level of Farmers

Capacity is the ability of individuals to perform work that is affected by self characteristics which consist of behavior, namely knowledge, attitudes and skills. The capacity to utilize digital communication technology is interpreted as the ability of respondents to use various devices and digital communication applications, both connected and not connected to the internet, for the purposes of agritourism businesses. Table 1 gives an overview of the capacity of farmers managing agritourism in utilizing digital communication technology

Table 1: The number and percentage of farmers based on capacity to utilize digital communication technology

No	Supporting factor	Category (Score)	Frequency	%
1	Accessibility to information sources	Very low (8-10)	43	20
		Low (10,1-12)	38	17,7
		Medium (12,1-14)	37	17,2
		High (14,1-16)	97	45,1
2	Organizability of information	Very low (5-6,25)	20	9,3
		Low (6,26-7,50)	9	4,2
		Medium (7,51-8,76)	23	10,7
		High (8,77-10)	163	75,8
3	Creativity of information	Very low (4-5)	22	10,2
		Low (5,1-6)	93	43,3
		Medium (6,1-7)	25	11,6
		High (7,1-8)	75	34,9
4	Evaluability of	Very low (5-6,3)	42	19,5

	information	Low (6,4-7,7)	45	20,9
		Medium (7,8-9)	91	42,3
		High (9,1-10)	37	17,2
5	Communicability of information	Very low (6-7,5)	16	7,4
		Low (7,6-9)	13	6,0
		Medium (9,1-10,6)	15	7,0
		High (10,7-12)	171	79,5

n: 215 respondents

The capacity level of Pokdarwis members to create information in the form of photos and sound recordings is in the low category. Moreover, this shows that farmers are less able to summarize and re-packaging information based on the knowledge they had.

Pokdarwis members' capacity to access, organize, and communicate information are in the high category. This means that farmers managing agritourism have been able to find the information needed through the internet, manage it, and deliver it to other group members. The capacity to evaluate information is in the medium category. This is because farmers consider that digital communication technology can assist the process of interpersonal communication, business promotion, printing documents, and buying and selling transactions. The ability to evaluate information helps respondents determine the level of accuracy, compatibility, and reliability of the information obtained. The ability to analyze information at a moderate level can be improved so that it further supports the success of farmers managing agritourism businesses in accordance with input obtained from guests and work partners. This is in accordance with the findings of Herawati *et al.* (2017) which state that the capacity level of farmers determines farm management.

Factors Influencing The Capacity to Utilize Digital Communication Technology

Evaluation of measurement and structural models conducted on the results of Partial Least Square (PLS) analysis shows that the factors that influence the utilization capacity of digital communication technology consist of farmer profiles, level of availability of digital technology, and group support. The profile factor of farmers has a greater influence than the other two factors. The structural model equation that influences the utilization capacity of digital communication technology is $Y1 = 0.537X1 + 0.095X2 + 0.156X3$. The measurement model (outer model) presented on Figure 1, while the structural model (*inner model*) presented in Table 2.

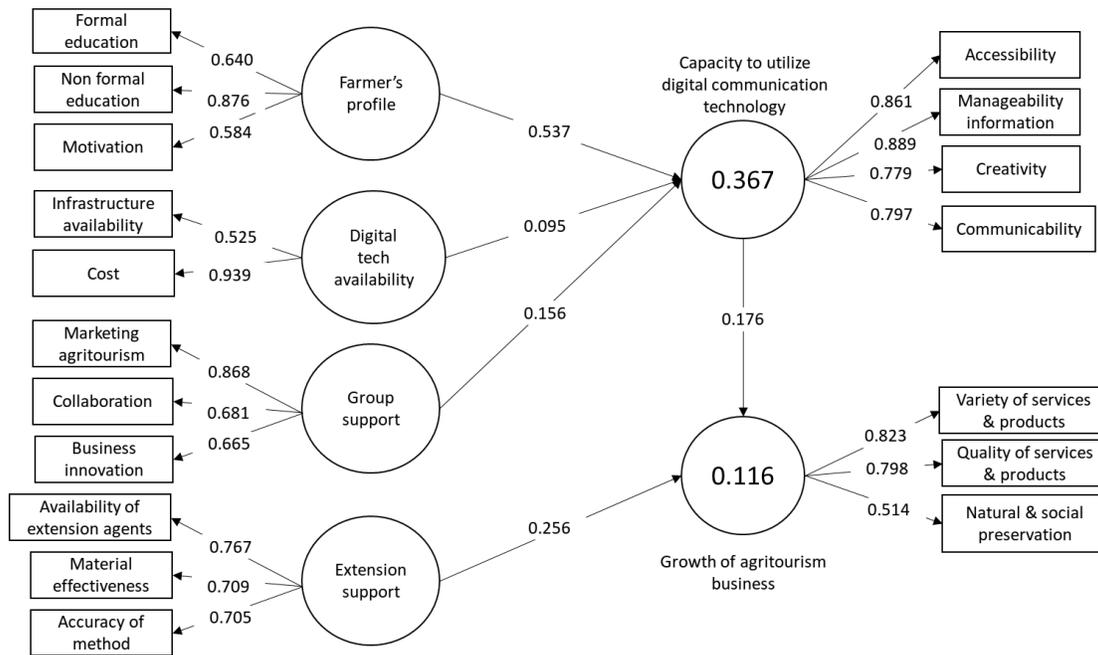


Figure 1: Model measurements (outer model) for capacity of farmers in utilizing digital communication technology for developing agritourism business

The level of digital communication technology availability has 6 sub-variables, but only two have an effect on the capacity to use digital communication technology, namely the infrastructure and communication costs. Farmers are accessing internet using cellular-based broadband connection that cost less than IDR50,000/month. This fee is considered affordable for young farmers who use various feature within WhatsApp application.

Farmers who use digital communication technology are able to access information from diverse sources. It results in farmers' awareness of established tourist destinations and the services provided as a reference for their own agritourism development. Farmers are also increasingly open to visitors' requests and desires.

Table 2: Significant value of latent variables of capacity in utilizing digital communication technology

No	Matrix influence of latent variables	Path coefficient	T Count	Cuts off ($\alpha = 5\%$)	Conclusion
1	Influence of farmers' profile to capacity of utilize DCT	0,537	11,253	≥ 1.96	Significant
2	Influence of availability of digital infrastructure to capacity of utilizing DCT	0,095	1,990	≥ 1.96	Significant
3	Influence of group support to capacity of utilizing DCT	0,156	2,754	≥ 1.96	Significant
4	Influence of extension support to agritourism business development	0,256	3,659	≥ 1.96	Significant

Note: t-count value > t-tabel value (1.96) = significant, $\alpha = 5$ percent

The result above is in accordance with the findings of Agricultural Research and Development (2014) that the expected output from the use of agricultural technology is affordable investment costs and higher product prices than production costs. This is supported by Yusrizal (2016) that price sensitivity is one of the factor influence internet usage. With the wider range of mobile broadband, the cost of internet access becomes more affordable. The benefits obtained from these expenditures are that farmers get information about agritourism production costs and income potential. The availability of this information is considered to help business development.

The quality of digital communication services is in the moderate category considering that cellular networks in the research area are not stable. The coverage of 4G connection is not evenly distributed, especially in rural areas. With these qualities, respondents often find difficulty to call, send messages, send videos, and photos using WhatsApp application. The use of messenger applications such as WhatsApp and social media can be the initial efforts to optimize devices and communication applications to market and develop agritourism businesses.

Nearly 75% of agritourists have social media accounts. This account connects members and allows information exchange among them. Social media popular with young people is Facebook (58.98), followed by Instagram (36.72) and Twitter (4.30). For the younger generation, social media is not only used to display photos of activities but also to sell products and services. Products sold are not usually related to agricultural products or processed products because they

do not use preservative therefore have short expiry date and they are sold by consignment method.

Both agritourism locations in Malang Regency have social media accounts, especially on Instagram, which are well managed by Pokdarwis members. The groups' social media accounts are linked to Pokdarwis members' account. It reflects the higher capacity of Pokdarwis members in Malang Regency in using social media compare to Pokdarwis members in Bojonegoro Regency. Pokdarwis in Malang Regency has better ability to manage and update content regularly. Updating the contents of social media is an important activity that often overlooked by small and medium scale tourism managers. This is consistent with the research of McGrath (2006) and Mpiti and Harpe (2015) who found that social media content that is not regularly updated can reduce the enthusiasm and interest of potential visitors.

Group support is a set of activities carried out and facilitated by social units consisting of two or more individuals who held quite intensive and regular social interactions in utilizing digital communication technology for business development. The model in Table 2 shows that group plays a role as information providers and serve as marketing contact. This is supported by the research of Hermanto and Swastika (2011) who wrote that groups play a role in organizing farmers to develop their own capacities. This is in line with research of Setiawan *et al.* (2012) which explains the role of the farmer group as an intermediary between rural communities and communities outside the village, a place to improve their skills and their communities, a forum to solve problems, and to manage innovation.

The role of Pokdarwis to promote agritourism services and collaborate with stakeholders are optimized by their capacity in using digital communication technology. The group becomes a source of innovation in adding value to existing agritourism business. It is in line with Dollisso and Martin (1999) statement that effective extension can be done through existing farmer institutions by taking into account aspects of needs, opportunities and capabilities. A study by Ruhimat (2014) also sum up the role of group support by emphasizing the farmers' learning experience through intensive, scheduled, and continuous trainings.

The leaders of Pokdarwis are cosmopolite as they are frequently communicate with other stakeholders such as the media, government officials, and universities. Many of them also part of wider tourism group in regency and province level. Pokdarwis also have the capacity to facilitate the existence of blogs, websites, electronic brochures, and making tour packages.

Extension support in the development of agritourism enterprises has a direct effect on the capacity of farmers because the extension materials provided are focused on efforts to develop variety and agritourism products. For example training on processing agricultural products,

product packaging, business licensing, product quality improvement, and training to become guides. Very little trainings provides material about the use of social media for marketing and the use of smart phones for online sales. Therefore counseling support does not affect the capacity to use farmers' digital communication technology.

In the theory of planned change by Lippitt *et al.* (1958), there are seven stages that the client goes through in making behavioral changes. In the third stage, farmers and change agents map the root of the social problems that they want to overcome, namely the prices of agricultural and livestock products that are low and affect farmers' income. In consequence, farmers are not able to send their children to advance education and young people are less interested in becoming farmers. Low levels of education make young people unable to compete in the labor market in urban areas. In the fourth stage, the community and change agents are planning actions to raise the price of agricultural products, one of which is agritourism. In the fifth stage, change efforts were made and there was an awareness that the success of agritourism lies in utilizing digital communication technology.

Extension agents as agents of change, coming from various government agencies often come to Pokdarwis to share information and provide training. In addition, extension agents also use social media to send information to the group leader, who then share it to other members. This is happen when Pokdarwis has a regular meeting equipped with online forum.

Extension agents are not the only source of information for farmers. Especially for farmers who already have smart phones. Information provided by extension agents is considered more reliable and easy to understand. In addition, extension agents are more accessible to farmers because they routinely visit and maintain relationships with Pokdarwis through the WhatsApp group. However, the community members were only willing to attend training in and outside the village if all transportation, accommodation and meal costs were borne by the organizer. This posed challenge for government extension workers with limited amount of fund.

Influence of Capacity in Utilizing Digital Communication Technology to Agritourism Development

The results of Partial Least Square analysis show that there is an influence of the capacity to use digital technology on business development. The higher the level of capacity utilization of digital communication technology, the more capable the manager develops agritourism business. The structural model equation is $Y_2 = 0.176Y_1 + 0.256X_4$. The R^2 value of 0.116 indicates that 11.6 percent of business development is influenced by the factors examined in this study.

The development of agritourism businesses is influenced by direct extension support because extension materials are focused on efforts to manage agritourism businesses, develop the

processed food industry, and marketing. There is need for extension materials on processing organic and non-organic waste for the preservation of village natural environment.

The CIPP (Context, Input, Process, Product) method applied to analyse model in Figure 1 in order to improve agritourism as existing program. In the context phase, Law No.10 of 2010 regarding horticulture and Law No.14 of 2016 on sustainable tourism is the basis for developing community-based agritourism to overcome unstable prices of agricultural products. In input phase, there should be improvement to farmer profile, digital communication technology infrastructure, and Pokdarwis support to increase the capacity of utilizing digital communication technology. In process phase, increase extension support for farmers to conduct digital marketing and increase farmers' capacity to utilize digital communication technology to develop agritourism enterprise. In product phase, increase the variety and quality of agritourism services and products, as well as the preservation of the natural and social resources.

CONCLUSION

- (1) The farmers' capacity to utilize digital communication technology is in high level to access, manage, create, and communicate information related to agritourism to overcome problems in agritourism business. It happens due to efficient group support and the availability of adequate digital technology infrastructure. This level of capacity needs to be maintained by members through continuous trainings. It becomes a concern since all agritourism businesses are still manage by pioneer members.
- (2) The capacity of Pokdarwis in developing agribusiness enterprises is in medium level because few farmers pursue food processing business. Farmers do not have the capacity to market the processed food and fruits supply is inadequate. Factors affecting the capacity of farmers to utilize digital communication technology are their profiles which consist of formal and non-formal education, and business motivation; availability of digital technology that includes infrastructure and communication cost, and group support which consist of marketing, colaboration with stakeholders, business innovation.

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