

Social Impacts, Capacity and Awareness on the Intention to Participate in the Digitalization of e-Agriculture on e-Commerce Platforms: A Case Study of Durian Households in Tien Giang Province, Vietnam

Nguyen Phuong Quang^{1,2} 

¹ Faculty of Marketing and Sales, FPT Polytechnic, FPT University, Can Tho Campus, Vietnam

² Asia Pacific University (APU), Kuala Lumpur, Malaysia

Abstract

The study provides a new perspective for the entire investigation, providing an overview of the theoretical implications related to behavior, participation intent, and the digitization of e-agriculture on e-commerce platforms. In addition, the main point is the approach of durian farmers specifically in Tien Giang province, about the intention to participate in e-agriculture. This study presents relevant factors that have an impact on the intention to participate in e-agriculture, specifically durian farmers. From the actual situation of agriculture in the Mekong Delta, typically Tien Giang province. Especially the theoretical of agriculture, e-agriculture and the intention to participate in e-agriculture on the e-commerce platform, an empirical approach in Tien Giang province, Vietnam. The model proposes factors including Social Impact for Agriculture, Adaptive Capacity, Agriculture Awareness, Digitalizations of e-agriculture, e-agriculture on e-commerce has a positive impact on the intention to participate in e-agriculture on e-commerce platforms. This research data was surveyed by direct interviews with 210 durian farmers in Cai Be district of Tien Giang province. Research methods using PLS-SEM. The results of the study show that the factors that have an impact on the intention to participate in e-agriculture on the e-commerce platform: The case of durian farmers. From the fact that this study serves as a premise and proposes implications that are appropriate for further studies on the intention to participate in e-agriculture on the e-commerce platform, related to the intention to participate (e-agriculture) of farmers, especially durian fruit e-agricultural products. An experimental evidence in Tien Giang province, Vietnam.

Keywords

Agriculture, digitalization, electronic, e-agriculture, e-commerce, durian households, intention.

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Introduction

Agriculture is a very important sector and contributes to an important role in Vietnam's economy (Dinh, 2023). Agricultural activities in the role of providing food, food and supporting materials for industries and services also create more job opportunities for workers. Accompanying the development of agriculture, the market also has a close linkage. Today's trend in applying and accessing e-commerce platforms is thriving in Vietnam. In addition, traditional agriculture is undergoing a transformation to digital agriculture, or e-agriculture to develop in the new era. From 2010 to 2024, Vietnam's agriculture has developed rapidly, and has many achievements.

However, along with the development of agriculture, the fact that farmers (farmers) are still not synchronized and access technology (Binh, 2017; Dinh, 2023). E-commerce is the development trend of the world economy in the digital revolution 4.0 (digitalization) and Vietnam also participates in this trend. E-commerce is gradually dominating many sectors of the economy, including agriculture.

E-commerce has been opening up great opportunities for the agricultural sector, especially e-agriculture as well as contributing to supporting traditional agriculture in promoting and expanding markets, especially agricultural products with local characteristics in each region.

Mekong Delta, Vietnam. There are many localities with characteristics of agricultural products with prominent regional elements. Durian is a popular fruit in Southeast Asia. In particular, Tien Giang province belongs to the Mekong Delta region of Vietnam, is an agricultural product with a typical taste with good quality and has become a typical agricultural product of the province (Statistical Yearbook of Tien Giang Province, 2022; 2023).

However, along with the development of agriculture with regional product elements, the majority of durian farmers are still following traditional methods to access the market or market their products, instead of approaching e-agriculture in the direction of digitizing products and selling agricultural products on e-commerce platforms. On the other hand, at present, for durian farmers to access digitalization, technology (information technology level), adaptability and fear of change, it has gradually led to barriers for farmers in sustainable agricultural development according to electronic digitalization 4.0. Therefore, it is very important and necessary to understand the factors affecting the intention to participate in e-agriculture on the e-commerce platform: a case study of durian farmers in Tien Giang province, Vietnam, to contribute to clearly recognizing and evaluating the factors affecting the intention to participate in e-agriculture child.

Materials and methods

Mekong Delta, Agriculture in Tien Giang Province, Vietnam

The Mekong Delta is a large delta, the largest producer and exporter of tropical food and fruit trees in Vietnam. The Mekong Delta has 13 provinces/cities, divided into sub-regions including the Long Xuyen Quadrangle; Eastern Coastal Region; Dong Thap Muoi and Ca Mau Peninsula. (Chinh et al., 2017). In particular, Tien Giang province is located in a large food and food production area of the country, has very favorable ecological natural conditions for the development of high-tech agriculture and comprehensive agricultural development, Rich and high-quality crop structure and has a specialized area for fruit trees (Department of Industry and Trade of Tien Giang province, 2019). Among the 13 provinces/cities in the Mekong Delta, Tien Giang province is the province with a large durian planting area. In 2022, the province's durian planting area will be 17,600 hectares, and in 2023, the durian planting area of Tien Giang province will be 22,000 hectares,

there will be a sharp increase in planting area, because durian products bring high economic value to farmer households, More specifically, according to data from the General Statistics Office of the Ministry of Agriculture and Rural Development, in 2023 the total area of durian trees in Vietnam is estimated at 131,000 hectares, an increase of 20% compared to 2022.

In particular, the Mekong Delta region accounted for 34.6% compared to the Central Highlands (40.4%), the Southeast (19.4%) and the South Central region (5.6%). The Tien and Hau rivers are planted a lot of durian trees due to their characteristics suitable for freshwater alluvial land, not flooded. Tien Giang Durian province is planted in Cai Lay district. (Ministry of Agriculture and Rural Development, 2023).

According to Decision No. 504/QD-UBND dated February 25, 2022 of the Provincial People's Committee approving the project to adjust and restructure the agricultural sector in Tien Giang province to 2030. With the goal of specializing in durian planting areas as planned. On the other hand, currently in Tien Giang province, the area specializing in durian cultivation is concentrated in the West, including Cai Lay district, Cai Be district, Cai Lay town, Tien Giang province. Currently, Tien Giang province is creating, managing, exploiting and developing the certification mark "Tien Giang Durian" used for durian products of Tien Giang province in the Vietnamese market and export. At the same time, according to Decision No. 3595/QD-UBND dated October 1, 2019 of the People's Committee of Tien Giang province decided to promulgate the E-commerce Development Program of Tien Giang province until 2015. Along with the global development trend, the province's agriculture also catches up with market access, by participating in technology in production to improve quality, increase product competitiveness in terms of price, in addition to increasing output, the market access factor transforms from a specific traditional market to an e-commerce platform market very important.

In addition, according to Decision No. 504/QD-UBND dated February 25, 2022 of the People's Committee of Tien Giang province, the decision to approve the project of restructuring the agricultural sector of Tien Giang province to 2030. It is considered a development orientation to bring the province's agriculture to develop in the direction of digitalization, agricultural electronics and participation in the e-commerce

platform are all inevitable for agriculture today. In conclusion, from many important issues in reality in agriculture in general, e-agriculture, durian products and the e-commerce market in particular, the implementation of research on factors affecting the intention to participate in e-agriculture on the e-commerce platform: a case studies in Tien Giang province, Vietnam are very important and necessary to implement.

Electronic agriculture (e-agriculture)

Electronic agriculture (e-agriculture) is promoted by developed countries such as Japan, South Korea, and Israel,... attention has been paid to development for many years, in order to improve the value of agricultural products. In Vietnam, in order to achieve the goal of building a new countryside along with restructuring the agricultural sector, sustainable agricultural development needs to build an e-agriculture, apply digital technology, and apply scientific and technological advances. According to the Prime Minister's Decision No. 176/QĐ-TTg dated January 29, 2010 approving the project on development of high-tech agriculture by 2020. High-tech agriculture includes e-agriculture (Phú, 2005; Thăng, 2012). At the same time, according to Thăng (2012), it is added that e-agriculture has the application, technology, and knowledge to agricultural production to increase quality productivity.

Electronic agricultural digitization helps connect 4 houses, including farmers (farmers), entrepreneurs (companies), scientists (researchers) and managers. Farmers (farmer households) can access scientific and technological advances, choose to apply them to improve productivity, economic efficiency, labor efficiency, etc. For agricultural products, the good application of e-agriculture will support the product business on the e-commerce platform, proactively everything, and bring optimal efficiency. According to the Prime Minister's Decision No. 1896/QĐ-TTg dated December 17, 2012 on approving the high-tech agricultural development program under the national high-tech development program until 2020, this is a part of bringing positive effects to e-agriculture.

Intention to participate

Intention is the behavior that farmer households intend to participate in on the basis of the theory of technology adoption (TAM) and the original foundation of TRA theory (Davis, 1989) for the relationship between the interpretation of human behavior on the acceptance of the use

of technology, the electronic case of the main field is agriculture. According to Venkatesh et al. (2003), it is described that the behavioral intention or intention to participate in digital technology (electronic) users emphasizes the factor of performance conditions or the ability to adapt to implementation. In the field of agriculture, research shows that there are many factors that affect the use of e-commerce platforms in the consumption of agricultural products.) the Government's various plans to support farmers through empowering them by enacting e-commerce innovations have not produced any impact (Fidowaty and Supriadi, 2020). Many farmers are still unable to effectively use e-commerce and related technologies.

However, according to Pillai and Sivathanu (2020), the approach is based on the level of application of the Internet of Things (IOT) by farmers in India through the basis of behavioral theory. From there, there is a specific branching of research on behavioral intentions in how rural consumers (or farmers) absorb the innovation of applying technology and also the digital internet in the agricultural sector. In other cases, the intention to participate describes an activity, willing to cooperate to participate in the call or rejoin (Soliman, 2021). According to Casaló et al. (2010), re-participation intention expresses user interest and re-use intention, showing that participation intention shows that community impact has an influence on both direct and indirect participation intentions.

Research and discussion

Overview of the entire theory

Social Impacts for Agriculture (SIA)

Social impact was first used at a seminar on ethical responsibility at Yale University in 1969. Previously, according to Darley and Latane (1968) Social impact predicted the sources that could influence the goal and vice versa. Along with that, social impact also means impacts that can affect society and the environment. Today, there is a shift in the view that social impact theory is the ability of the goal to influence the source, which is considered a two-way change (Lantané, 1981; Latané and Wolf, 1981). The new social impact has a related aspect that is agriculture because agriculture is associated with environmental activities (Dreoni et al., 2021). Agriculture is a manufacturing sector that plays a very important role in the national economy, along with the development of the state and the economic

development of the region. Under the impact of society, agriculture has changed and transformed to suit (Dinh, 2023).

Agricultural development needs to pay attention to sustainable development, based on the available advantages of modern localities, productivity and quality, in which according to the document of the 13th Congress, it is determined that "Focus on the development of agriculture to produce large goods, apply high technology, promote potential, advantages of each region and locality". In particular, pay attention to the impact of society in rural development according to the Prime Minister's Decision No. 150/QĐ-TTg dated January 28, 2022 approving the strategy for sustainable agricultural and rural development for the 2021-2030 period, with a vision to 2050. In addition, agriculture must develop according to socio-economic cohesion according to Decision No. 899/2013 QĐ-TTg of the Prime Minister dated June 10, 2013 approving the agricultural restructuring project in the direction of increasing added value and sustainable development, emphasizing 3 economic pillars, society, and environment in agricultural development.

Adaptive Capacity (AC)

Adaptability is a process of changing to suit a variety of conditions (Smit et al., 2001; Engle, 2011). In the context of new development, adaptability can be approached in terms of adaptation to change (Vincent, 2007). On the other hand, adaptability also has a multidimensional perception: it is determined by many factors that have complex relationships at different levels (Lennie, 2005; Vincent, 2007).

In approaching this perception, adaptability is considered from the perspective related to farmers, specifically from the perspective of agriculture.

Agriculture Awareness (AA)

Awareness of agriculture is understood as the application of factors related to technology to the field of agricultural production, farmers have a high dependence on factors related to the environment and people (Natis et al., 2019; Mashi et al., 2022). There are few studies that approach the cognitive factor of agriculture related to technological factors (Tembo et al., 2008; Mashi et al., 2022). Because this is considered a new direction for agriculture, partly has an impact on the economy, especially countries with developing agriculture.

Digitalizations of e-Agriculture (DOEA)

Digitization of e-agriculture is the process of applying digital technologies from production to processing, distribution, and consumption of agricultural products (Nguyen, 2023). From there, changing the way of managing, producing and consuming products from traditional to modern and smart. According to the Food and Agriculture Organization (FAO), the specific definition is proposed as follows: E-agriculture is an emerging field with a combination of agricultural informatics, agricultural development and entrepreneurship (FAO, 2015).

More specifically, the digitalization of e-agriculture is the transition from tradition to digitalization and application of e-agriculture, with more inheritance and development in agriculture (Okediran and Ganiya, 2019). It is concretized in relation to the concepts, development, and evaluation of applications to apply information technology to agriculture (Okediran and Ganiya, 2019).

E-agriculture on e-Commerce (EAEC)

An e-commerce floor is a place to buy and sell goods, products, or services and internet customs clearance data (Wigand, 1997; Sekabira et al., 2012). Along with the development of the digital age, technology develops, agriculture also accompanies and develops. Today's agriculture is accompanied by a development chain that rapidly applies and synchronizes new technologies called e-agriculture (Patel et al., 2022). E-agriculture applied on e-commerce platforms is considered a new point that brings many positives to agriculture under the application of technology and the internet (Baourakis et al.; 2022; Patel et al., 2022).

According to Baourakis et al. (2002), the internet is seen as an effective tool to support the marketing of agricultural products (food and organic food), especially on e-commerce platforms. According to Groves and Da Rin (1999), the essence of agriculture is to develop according to the trend of the future era, in which it is necessary to maintain the ability to promote international agricultural products in the application of e-commerce. In addition, e-commerce platforms are considered a measure for future agricultural development (Hennessy et al., 2016; Panpandrea and Margo, 2000). In this study, the approach of agriculture in the direction of developing e-commerce agriculture is considered a new direction, especially e-agriculture on e-commerce platforms.

Intention to participate in the Digitalization process (IPD)

There are many theoretical bases related to the behavioral intentions of many authors. In particular, intentional behavior theory is based on the approach of TRA theory that shows that there is a relationship between variables to explain human behavior in terms of acceptance of technology use (Davis, 1989). On the other hand, according to Venkatesh et al. (2003) to explain the user's intention to use the technology including the impact of social influence and the conditions of adaptation to implementation. Then, according to Awais Muhammad and Samin Tanzila (2012), the view of digitalization on the internet has basically created a global environment. The application of the Internet has shortened the distance and reached many people.

Agriculture is a part of a country's economic development. Especially countries with long-standing agriculture, typically Vietnam (Thoa, 2015). Agriculture follows the trend it will be strengthened if it is supported by electronic tools, in which e-commerce is an important part (Wen, 2007). Research by Orécalixto and Vicente Ramos (2021) shows that the application of e-commerce tools contributes to the consumption of products more efficiently than the traditional consumption process. According to Awa et al. (2015), the TAM model was applied to survey the intention to apply technology to operations on e-commerce platforms. The intention to participate in technology to expand modern distribution channels and use information technology in cultivation and livestock has used the TAM model (Liu et al., 2021). Research by Fidowaty and Supriadi (2020) identified various Government plans to improve the financial situation of farmers through empowering them by enacting e-commerce innovations that did not make any impact.

On the other hand, Tembo et al. (2008) have synthesized the factors that affect the use of technology digitization in agriculture in developing countries in the construction of binary models, in which the factors affecting the adoption of technology, the demographic characteristics and perceptions of farmers are mentioned. Many farmers still do not have access to e-commerce platforms and related technologies in the agricultural sector, research shows that there are many factors affecting the intention to participate in e-agriculture in using e-commerce platforms in consuming agricultural products. In short, the approach of farmers to the intention

to participate in agricultural digitalization and access on the e-commerce platform is considered a new direction that needs to be paid attention to.

The theoretical bases have been presented, and the research hypothesis is specifically proposed as follows

H1: Social impacts for agriculture have a positive impact on the digitalization of e-agriculture.

H2: Adaptive capacity has a positive impact on the digitalization of e-agriculture.

H3: Awareness of agriculture has a positive impact on the digitalization of e-agriculture.

H4: Social impact on agriculture has a positive impact on e-agriculture on e-commerce platforms.

H5: Adaptive capacity has a positive impact on e-agriculture on e-commerce platforms.

H6: Awareness of agriculture has a positive impact on e-Agriculture on e-commerce platforms.

H7: Digitalization of e-agriculture has a positive impact on the intention to participate in digitalization.

H8: E-agriculture on e-commerce platforms has a positive impact on the intention to participate in digitalization.

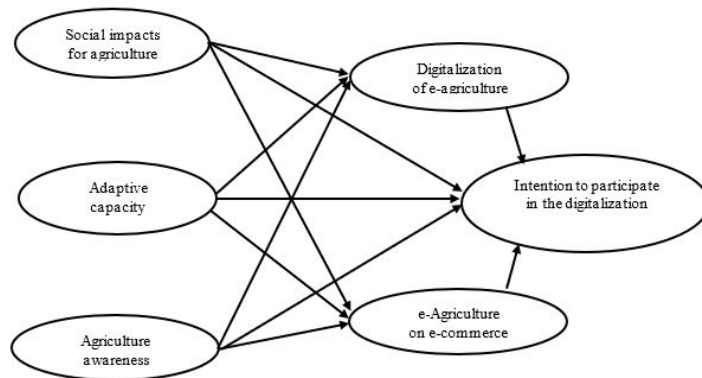
H9: Social impacts for agriculture have a positive impact on the intention to participate in digitalization.

H10: Awareness of agriculture has a positive impact on the intention to participate in digitalization.

H11: Adaptive capacity has a positive impact on the intention to participate in digitalization.

Research models

From the practical basis and theoretical bases related to the field of agriculture, e-agriculture, e-commerce platforms, the proposed research model with the aim of identifying and understanding the cognitive factors of society, adaptability, awareness of agriculture, etc. Influencing the intention to participate in e-agriculture on e-commerce platforms: a case study of durian farmers in Tien Giang province, Vietnam (Figure 1).



Source: own processing

Figure 1: Conceptual frameworks of the proposal

Research methods

This study uses the PLS-SEM multi-group structure analysis method using SmartPLS software to validate the research model, which is built with factors including social awareness, adaptability, agricultural awareness, e-agriculture digitalization, and e-commerce agriculture. Impact on the intention to participate in the digitalization process of durian farmers in Tien Giang province. The access to farmers is large enough to ensure representativeness in the study by sampling stratified and systematic probabilities in accordance with actual conditions in the locality with a sample of 210 durian growing households. The study was conducted through a direct questionnaire of local farmers including 3 communes such as My Trung commune, My Tan commune and Thien Trung commune in Cai Be district, Tien Giang province. The scale used includes nominal, ordinal, proportional, and Likert scales of 5 degrees from 1 strongly disagree to 5 strongly agree. In addition, in order to ensure high reliability for the study, before conducting a survey and interviewing 210 farmer households, a qualitative interview was conducted with 10 experts including local agricultural officials, officials with expertise in agriculture, experts with knowledge of e-agriculture, etc. To calibrate the questionnaire in accordance with reality, then conduct practical interviews on a large scale with a sample of 210 farmers. Results from the survey from July to August 2024 in Cai Be district, Tien Giang province, Vietnam.

Research results

To conduct research in accordance with actual conditions. From the theoretical basis, the preliminary qualitative questionnaire is carried out. Carry out research through 3 steps.

Step 1: Selectively find out the theoretical basis suitable for the research.

Step 2: Conduct a qualitative interview survey of 10 people, including experts, people with deep experience in agriculture, who are interested in e-agriculture, etc digitization and technology (agricultural officials working at the commune/ward grassroots; agricultural research experts, farmers' association officials...) then adjust the appropriate scale and the appropriate questionnaire.

Step 3: Conduct a survey according to the actual situation of 210 durian farming households in 3 My Trung communes, My Tan commune and Thien Trung commune in Cai Be district, Tien Giang province.

Described and presented (As show Table 1), through face-to-face meetings with farmer households, 210 samples were suitable and satisfactory. From there, it aims to understand the intention to participate in agricultural digitalization including the variables described in detail before. In the total number of farm households participating in the interview, the demographic characteristics of the households are presented in detail (As show Table 2).

	Surveys	Ratio %
My Trung Commune	70	33.33
My Tan Commune	70	33.33
Thien Trung Commune	70	33.33
Total	210	100

Source: own processing

Table 1: Description of survey area

With characteristics including gender, age, planting experience, and household size. Accounting for 72.9% with 153 people (farmers) being male and 27.1% with 57 people (farmers) being female were surveyed, this clearly shows that most of the male workers (heads of households) are

Number of respondents		Ratio %	
Sex	Male	153	72.9
	Female	57	27.1
Total		210	100
Planting Experience	From 1 to 4 years	21	10.0
	From 5 to 7 years	31	14.8
	From 8 to 10 years	68	32.3
	Over 10 years	90	42.9
Total		210	100
Age	From 30 to 40 years old	31	14.8
	From 41 to 50 years old	82	39.0
	From 51 to 60 years old	90	42.9
	Over 60 years	7	3.3
Total		210	100
Households size	2 people	11	5.2
	3 people	21	10.0
	4 people	43	20.5
	over 4 people	135	64.3
Total		210	100

Source: own processing

Table 2: Demographic characteristics of farming households.

in agriculture, because most of the agricultural work is done by men who take on more heavy and difficult jobs than women. at the same time, this is also a characteristic of agricultural traditions in Vietnam, so far the main workers have been men and women are the sub-workers in agricultural labor.

The age groups under 30 are not shown because this age group is young and tends to go to work far from their homeland, do other jobs and also have little interest in the agricultural sector, accounting for a low percentage of 30 to 40 years old (14.8%). The age group of 41 to 50 years old (39%) and the age group of 51 to 60 (42.9%) are almost similar for the reason that this age group is often used to farming, orcharding, has no interest and changes other jobs. The age group over 60 accounts for 3.3%, at least because they are older, their health is starting to weaken and they are starting to gradually reduce agricultural labor.

The experience of planting fruit trees (Durian) of farmers accounts for the lowest from 1 to 4 years (10%) and the experience group is from 5 to 7 years (14.8%) because the characteristic tree of durian trees planted in the period from 1 to 5 years is the stage when the tree has not yet borne fruit. Farmers are only interested in caring for and gaining experience. The group of households with 8 to 10 years of experience (32.3%)

and more than 10 years (42.9%) dominated because farmers in this group had accumulated experience in the process of planting and caring for trees for a long time, knowing the experience of caring for durian and its specific characteristics. At the same time, the size of durian farming households also accounts for 4 people (20.5%) and more than 4 people (64.3%), which is a common feature of most durian farming households because most of the growing households need a lot of labor to carry out many farming jobs, tree care and harvesting.

The remaining groups of 2-person households (5.2%) and 3-person households (10%) are often considered small-scale households in agricultural farming. Table 2 clearly describes the characteristics of durian farming households, this is also a characteristic characteristic of farming households, especially showing that the agricultural sector in general (agriculture in durian farming households in particular) has specific agricultural characteristics compared to other fields.

Descriptive reliability and construct validity

According to Hair et al (2013), the reliability measure applied is Cronbach's Alpha with the value shown in Table 2. Cronbach's Alpha confidence factor is greater than 0.7. In addition, the VIF index to ensure the acceptance level, $VIF < 5$,

the model is accepted and there is no multi-collation phenomenon, the description of the perception (Table 3) shows that the VIF index is less than 5. Specifically, the entire VIF index is from less than 4, the lowest is 1,524 and the highest is 3,321. In conclusion, the research model does not violate (As show Table 3).

When using the PLS-SEM method, the convergence values are evaluated through the external load coefficients of the observed variables, as well as the AVE coefficient. According to Hair et al. (2017), the AVE coefficient needs to be greater than 0.5 and the external load coefficient must be greater than 0.7 to achieve the convergence value. This satisfies the description in (As show Table 4). To be more specific, convergent values represent a set of measurement variables that must be correlated with each other in a concept that has been studied (Kline, 2011). The test results show that all the variables mentioned satisfactorily achieve internal consistency with (external load coefficient) greater than 0.7. The average AVE citation variance of the scale is greater than 0.5 (0.632 – 0.766). Therefore, the scale of the study structure has been converged (As show Table 4).

Apply Structural Equation Modeling (PLS-SEM)

For research applying PLS-SEM has a value of R, usually the value is 0.25; 0.5 and 0.75 are

recommended (Hair et al, 2019). For this study, the R squared value is greater than 0.88, specifically R squared AEEC (0.930); DOEA (0.887) and IPD (0.907). The adjusted squared R value is greater than 0.88, specifically AEEC (0.929), equivalent to 92.9%; DOEA (0.886) corresponds to 88.6% and IPD (0.905) corresponds to 90.5%. In short, the above variables all have an impact of over 50% (>50%) on the variation of the dependent variable is satisfactory and consistent. This proves that this study proves that the model is meaningful and suitable for real conditions.

In addition, the ratio of HTMT is a criterion to be considered to evaluate the value of the distinction. The results showed that all base HTMT ratios were less than 0.9 and consistent with the study. Therefore, the distinct value can confirm the measures in the model that ensure the calculated differential value described (As show Table 5).

The results perform a Bootstrap analysis for the purpose of evaluating impact relationships. From there, consider the P value of all factors with a P value < 0.05, namely 0.000; 0.001 and 0.039 with variables this satisfies the exceptions to having 1 adaptability factor (AC) with a P value greater than 0.05, specifically 0.073. This can be explained as follows, agricultural production farmers in general and durian farmers in particular all face different difficulties at work (especially

	Code	Outer loadings	VIF
Social impacts for agriculture	SIA	0.806 - 0.910	1.870 – 3.321
Adaptive capacity	AC	0.744 – 0.862	1.524 – 2.453
Agriculture awareness	AA	0.814 – 0.866	1.888 - 2.352
Digitalizations of e-agriculture	DOEA	0.780 – 0.897	2.060 – 2.316
e-agriculture on e-commerce	EAEC	0.782 – 0.835	1.943 – 2.127
Intention to participate in the digitalization	IPD	0.832 – 0.865	1.976 – 2.579

Source: own processing

Table 3: Outer loadings and VIF.

	Var	CA	rho_A	CR	AVE
Inspection standards		≥ 0.6	≥ 0.7	≥ 0.7	≥ 0.5
AA	4	0.856	0.857	0.902	0.698
AC	4	0.818	0.828	0.880	0.649
AEEC	5	0.857	0.861	0.903	0.701
DOEA	4	0.854	0.858	0.895	0.632
IPD	4	0.873	0.873	0.913	0.724
SIA	4	0.897	0.897	0.929	0.766

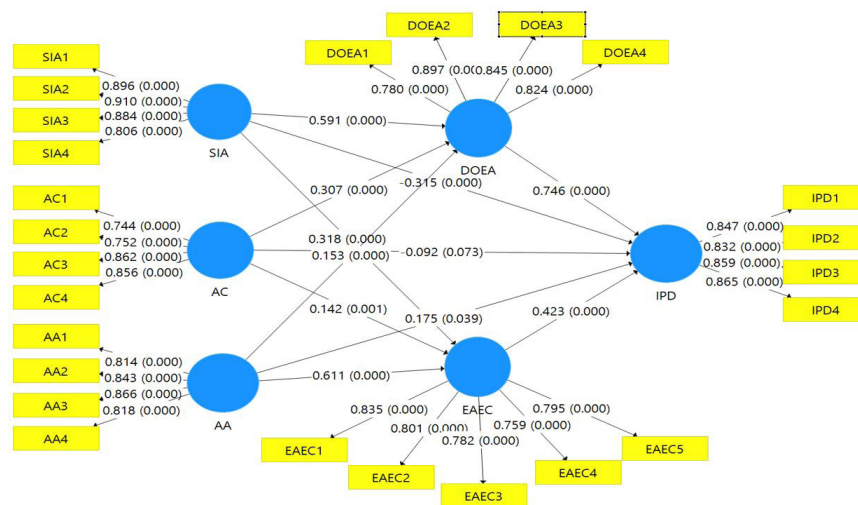
Source: own processing

Table 4: Construct reliability validity.

	AA	AC	DOEA	EAEC	IPD	SIA
AA						
AC	0.883					
DOEA	0.833	0.834				
EAEC	0.772	0.798	0.879			
IPD	0.698	0.825	0.839	0.854		
SIA	0.695	0.760	0.806	0.797	0.814	

Source: own processing

Table 5: Hetertrait monotrait ratio.



Source: own processing

Figure 2: PLS-SEM result.

agricultural work), so it is quick for farmers to get used to and adapt to digital technology factors, digitalization in the field of agriculture still faces many limitations. Therefore, it can be seen that the adaptability factor (AC) has no positive impact on the intention to participate in digitalization (As Figure 2 shows; as Table 6 shows).

The remaining factors, on the other hand, reflect enough statistically significant factors to represent a relationship. Positive implications for intention to participate in e-agriculture on e-commerce platforms: a case study in Tien Giang province, Vietnam. The initial hypotheses were proposed from H1 to H11, in which the hypotheses from H1 to H10 were accepted and the remaining hypothesis H11 was rejected because it was not statistically significant ($P < 0.05$) (As show Table 6).

In conclusion, the social impact for agriculture, adaptive capacity, awareness agriculture, digitalization of e-agriculture and e-agriculture on e-commerce platforms are statistically significant. The specific result is shown at a meaningful level

of 95%, The only factor that is rejected is that the adaptive capacity does not have a positive impact on the intention to participate in e-agriculture on the e-commerce platform because having a P value of 0.073 does not guarantee statistical significance. In e-agriculture, the digitalization of agriculture has no positive impact on the intention to participate in e-agriculture because of many problems and factors of individual farmers, and because traditional agriculture affects the adaptability of farmers.

	OS	SM	SD	T Statistics	P Values	Result
SIA -> DOEA	0.591	0.587	0.036	16.234	0.000	Supported
AA -> EAEC	0.611	0.616	0.044	13.920	0.000	Supported
SIA -> EAEC	0.318	0.318	0.030	10.649	0.000	Supported
DOEA -> IPD	0.746	0.735	0.083	8.949	0.000	Supported
AC -> DOEA	0.307	0.316	0.051	5.960	0.000	Supported
SIA -> IPD	-0.315	-0.314	0.068	4.629	0.000	Supported
EAEC -> IPD	0.423	0.437	0.101	4.204	0.000	Supported
AA -> DOEA	0.153	0.149	0.044	3.493	0.000	Supported
AC -> EAEC	0.142	0.138	0.041	3.486	0.001	Supported
AA -> IPD	0.175	0.166	0.085	2.066	0.039	Supported
AC -> IPD	-0.092	-0.091	0.051	1.797	0.073	Rejected

Source: own processing

Table 6: Result of the PLS-SEM.

Conclusion

This is a new approach (narrow point) in the study that has highlighted the main factors influencing the intention to participate in e-commerce on the e-commerce platform of a case study in Tien Giang province. With the approach to the survey to understand durian farmers with the intention to participate in e-agriculture (agricultural digitalization), it is shown that the proposed and survey factors are appropriate, only the adaptability factor does not have a favorable impact and satisfies the proposed theory. From this study as a basis to make some specific recommendations as follows: For the government and local authorities to create more practical support policies for farmers to access the market, access to new technology, access to e-agriculture, etc. e-commerce platforms... localities coordinate with experts with experience in digital agriculture and e-agriculture to open professional training courses for farmer households with special interest in durian farming households at the grassroots, prioritizing the development of technological infrastructure and agricultural platforms, e-agriculture, support to facilitate transportation activities because agricultural products due to the characteristics of agricultural products, agricultural products are often easily damaged and difficult to preserve for a long time.

The government, cooperatives and associations need to have a sense of responsibility and patience in supporting people, especially middle-aged people and older, in agricultural digitalization activities, e-agriculture and e-commerce platforms, because this group accounts for the majority of agricultural activities. For e-commerce platforms, the design should be simple, user-friendly, and accurate in the product search process. It can be classified by regional products so that customers can easily search as well as sellers can easily compare and contrast products to give reasonable product values. At the same time, for farmers, the use of technology is still difficult and the digital transformation process, Digital agriculture and e-agriculture in daily life habits are still slow, therefore, it is necessary to ensure the safety of transaction activities, creating a premise for the development of e-agriculture in the future. Based on this research, it is the basis for the next research on digital agriculture and e-agriculture. For farmers, it is necessary to actively participate in agricultural digitization activities, e-agriculture, and digital transformation to adapt to the market. Especially the new market, the current e-commerce platform. In that process, farmers can consult experts for timely support when they encounter difficulties.

Corresponding author:

Ing. Nguyen Phuong Quang

Faculty of Marketing & Sales, FPT Polytechnic, FPT University, Can Tho Campus, Vietnam

Asia Pacific University (APU), Kuala Lumpur, Malaysia

E-mail: quangnp3@fe.edu.vn

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