

Exploring Trust in Purchase Intention: An Empirical Research on Agricultural Application

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Abstract—The emerging issues of trust in online purchasing occur since the consumers unable to directly verified the products. Since trust plays a crucial role in online purchasing, it is important to identify the antecedents of trust in the context of online purchase intention. This study aims to determine the direct effect of trust and the indirect effect of trust mediated by perceived risk toward purchase intention. This study also aims to investigate the antecedents of trust in online purchase intention. This study is focused on providing empirical findings of purchase intention on agricultural application because there are a variety of digital start-ups that produce applications in the agricultural sector, helping farmers in selling agricultural products to consumers directly. This study was conducted on 121 respondents taken through a purposive sampling method. Data were analyzed using Partial Least Square (PLS). The results indicate that information quality becomes an antecedent of trust that has positive effect on consumers' trust. Trust has a positive direct effect on purchase intention. In the terms of indirect effect of trust on purchase intention mediated by risk, trust has a negative effect on perceived risk and perceived risk has a negative effect on purchase intention.

Keywords: *agricultural application, purchase intention, trust, perceived risk, information quality*

I. INTRODUCTION

The emerging issues of trust in online purchasing occur since the consumers unable to directly verified the products. The previous studies argue that trust is one of the crucial factors that influences consumer's purchase intention [1,2]. Trust becomes an important factor that increases purchase intention [3].

Since trust is likely to play a crucial role in online purchasing, it is important to identify the antecedents of trust in the context of online purchase intention. In determining online purchasing intention, trust is the consumers' expectation in seller that has appropriate behaviour in fulfilling his/her commitments to consumers [4]. Trust is the belief that consumers have in the good faith of online sellers after learning of their characteristics [5]. A lack of trust becomes the greatest barrier to make online purchasing by consumers [6].

In prior studies, trust has been suggested directly and indirectly affects consumers' purchase intention. Trust with its antecedents have been studied through its direct effect on purchase intention [2,7,8]. Trust with its antecedents have also

been studied through its indirect effect on purchase intention [2,8,9].

Few studies that analyze the indirect effect of trust in purchase intention mediated by risk. The perceived risk is a potential loss perceived by a consumer when contemplating online purchasing [10]. The perceived risk on online purchase intention can be reduce by trust [11]. A consumer will be more likely to engage in online purchasing when trust is high by reducing his/her perceptions of perceived risk.

Based on the description above, this study aims to investigate the direct effect of trust and the indirect of trust mediated by perceived risk on purchase intention. This study also aims to investigate the antecedents of trust in the context of online purchase intention. In this regard, Indonesia was chosen as the region in which the research conducted because the development e-commerce in Indonesia is increasing along with the increasing number of internet users from year to year. In 2017, 16.83% of internet users used the internet to sell online, while 32.18% of internet users used the internet to shop online [12].

This study is focused on providing empirical findings of purchase intention on agricultural application. It is because there are a variety of digital start-ups in Indonesia that produce applications in the agricultural sector that focus on empowering farmers, especially marketing farmers' products and selling them directly to consumers. These agricultural application digital start-ups are full supported by the government contained in various policies.

II. CONCEPTUAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

A. Purchase Intention

Intention is assumed to be the immediate antecedent of behaviour [13]. Purchase intention is a consumers' willingness to buy a given product at a specific time or situation [7]. Online purchase intention focuses on whether consumers are willing and intending to buy product via online transaction platform [5].

Previous studies have measured the intention of purchase [2,7,10,14]. Transactional intention is the intention of someone to buy a product. Referential intention is the intention of

someone to refer products to others. Preferential intention is described as the behavior of someone who has the main preference on that product. The explorative intention is described as the behavior of someone who is always looking for information about the product that he is interested in and looking for information to support the positive characteristics of the product.

In determining online purchasing intention, trust plays a crucial role [9]. Trust is the belief that consumers have in the good faith of online sellers after learning of their characteristics [5]. A lack of trust becomes the greatest barrier to make online purchasing by consumers [6]. If there are no trust in the seller by consumers, they prefer to make alternatives to fulfil their needs and desires [15].

B. Trust and Information Quality

Trust plays a crucial role in e-commerce because consumers are unlikely to buy online if they do not trust the sellers [16]. Trust is the consumers' expectation in seller that has appropriate behaviour in fulfilling his/her commitment to consumers [4]. The definition of trust is complicated because it is an abstract factor.

When online purchasing, consumers are hard to validate the information offered by the sellers [7]. The content of sellers in websites can influence consumers' perceived trust [17]. The information quality given on the websites becomes an antecedent of trust that related to consumer's purchase intention [16].

The information quality can be perceived in terms of accuracy, timeliness and sufficiency of information [2]. As a trust antecedents, the information quality can be convinced as the consumers' perception about the sufficiency and accuracy of the information in the website e.g. the services offered and the online procedure transaction [16]. Consumers may perceive that the site is suitable or not suitable to make online purchasing based on the information quality on the website. The higher quality information in the website that perceived by consumers, the more likely they are think that the seller is trustworthy.

Consumer's perceived trust depends on the perception of the quality on the website. The quality information in website positively influences the consumers' trust [1]. The perceived information quality becomes a main predictor of trust in sellers [2]. Therefore, we hypothesize that:

H1: The information quality has a positive effect on trust in companies of agricultural application.

C. Trust, Perceived Risk, Purchase Intention and The Relationship Among Them

The empirical findings suggest that a consumer's trust directly and indirectly affects his or her purchasing intention. Several previous studies have confirmed the direct effect of trust in the intention to purchase online [2,7,16,18]. Their findings are consumer's trust has a strong positive effect on the purchase intention.

Before making purchase decisions, a substantial degree of trusting beliefs in seller's including integrity, benevolence and competence is needed by consumers [2]. Benevolence represents a belief in seller to exploit consumer's vulnerabilities. Competence is tangible characteristics of system like security [19].

The indirect effect of trust in purchase intention is mediated by risk [16]. When consumer's trust increased, consumers are likely to perceive less risk than if trust were absent. When seller can be trusted to demonstrate competence, integrity and benevolence, there is less perceived risk in it [5].

The perceived risk is a consumers' belief about the potential negative outcomes from online purchasing [16]. The perceived risk is a potential loss perceived by a consumer when contemplating online purchasing [10]. Various types of risk have been identified in the e-commerce literature, e.g. financial, product performance, delivery, and privacy risk

Trust has a strong positive effect on purchase intention as well as a strong negative effect on perceived risk [1,8,16]. A consumer will be more likely to engage in online purchasing when trust her/his trust is high (direct effect). A consumer will be more likely to engage in online purchasing when trust is high by reducing his/her perceptions of perceived risk (indirect effect). Therefore, we hypothesize that:

H2: Trust has a negative effect on perceived risk.

H3: The perceived risk has a negative effect on purchase intention on agricultural application.

H4: Trust has a positive effect on purchase intention on agricultural application.

Based on the hypothesis development, the framework (research model) of this study is illustrated in Fig. 1.

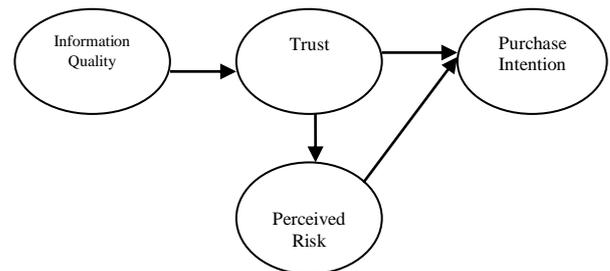


Fig. 1. Research model.

III. METHODOLOGY

A. Measurement of Variable

Type of this study is causality study. The variables that used in this study are latent variable (construct) and manifest variable (indicator). The variables can be seen in Table I.

TABLE I. CONSTRUCT MEASUREMENT

Construct	Indicator	Supporting Literature
Information quality	Accuracy Timeliness Sufficiency	[2]
Trust	Integrity Competence	[2,7,10,14]
Perceived risk	Financial Product Performance Delivery	[10]
Purchase Intention	Transaction Reference Explorative	[2,10,14]

Table I shows the construct measurement for this study and the supporting literature for each construct. The constructs including four latent variables. Each variables includes indicators

B. Respondents

The respondents in this study were taken by purposive sampling method. The criteria are they lived in Jabodetabek Region and had online purchasing experiences but not on agricultural applications. The data obtained from 121 respondents (Table II) where this number is still included in the sample size of SEM analysis which requires minimum sample of 5 times the number of indicators to be analyzed [20].

TABLE II. PROFILES OF RESPONDENTS

Measure	Items	Frequency	Percentage
Gender	Male	35	25.75%
	Female	101	74.25%
Age	< 20	13	9.56%
	20-29	82	60.29%
	30-39	31	22.79%
	40-49	7	5.14%
	≥50	3	2.22%
Frequency of purchasing online	<1 time a week	87	63.97%
	1-3 times a week	45	33.09%
	4-6 times a week	3	2.21%
	>6 times a week	1	0.73%

Table II summarizes the descriptive information of the dataset. About 25.75% of the respondents were male and 74.25% were female. A majority of respondents is about 20-29 years old (60.29%). The respondents were regular Internet consumers. About 63.97% of subjects purchase online less than one time a week.

C. Data Collection

Data were collected from March to April 2019. The data were collected using an online questionnaire where items were measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was developed by the reference of previous studies and has been tested for the validity and reliability.

D. Data Analysis

Data were analyzed using Structural Equation Modelling (SEM) with Partial Least Square (PLS) approach. The PLS technique estimates the model parameters that minimizes the

residual variance of the dependent variables of the whole model [21]. It is recommended for small samples [22].

IV. RESULTS AND DISCUSSION

A. Measurement Model Evaluation

Measurement model evaluation can be seen from the results of convergent validity, construct reliability and discriminant validity. Convergent validity is seen from the values of the outer loading. The outer loading value of indicator which is higher than 0.7 is valid (Table III).

TABLE III. VALUES OF OUTER LOADINGS

Constructs	Indicators	Loadings	T-Values
Information Quality	Accuracy	0.925	37.207
	Timeliness	0.924	45.756
Perceived Risk	Sufficiency	0.937	70.277
	Delivery	0.868	32.622
Purchase Intention	Financial	0.844	20.483
	Performance	0.903	37.905
Trust	Transaction	0.867	25.495
	Reference	0.829	21.500
	Explorative	0.775	15.596
	Integrity	0.979	180.861
	Competence	0.978	174.317

Table III indicates the loading for each indicator is higher than 0.7. It means all indicators are valid. Each indicator is also significant because the t-value is higher than 1.645 (significant at 0.05). It can be concludes that the construct has good convergent validity.

The reliability of construct can be seen from the value of composite reliability and cronbach's alpha. Construct has good reliability if the value of composite reliability is higher than 0.8 and the value of cronbach's alpha is higher than 0.7. The construct validity is seen from the value of Average Variance Extracted (AVE). Construct is valid if AVE value is higher than 0.5. Assesment of measurement model from the values of outer loading, composite reliability, cronbach's alpha, and AVE are shown in Table IV.

TABLE IV. VALUES OF CRONBACH'S ALPHA, COMPOSITE RELIABILITY, AVERAGE VARIANCE EXTRACTED (AVE)

Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Information Quality	0.920	0.949	0.862
Perceived Risk	0.842	0.908	0.760
Purchase Intention	0.763	0.864	0.680
Trust	0.956	0.978	0.957

Based on Table IV, all constructs are reliable. It is because each construct has composite reliability and cronbach's alpha value that is higher than 0.7. All constructs are also valid. It can be seen from the AVE values that are higher than 0.5.

In order to confirm the discriminant validity among the constructs, the square root of the AVE must be superior to the correlation among constructs. If the AVE square root value of each constructs is higher than the correlation between

constructs, it is said that the model has good discriminant validity. Evidence of discriminant validity based on The Fornell-Larcker Criterion is shown in Table V.

TABLE V. THE FORNELL-LARCKER CRITERION

	Information Quality	Perceived Risk	Purchase Intention	Trust
Information Quality	0.928			
Perceived Risk	-0.307	0.872		
Purchase Intention	0.546	-0.395	0.824	
Trust	0.841	-0.290	0.526	0.978

Table V presents the square roots of the AVE (in the diagonal and bold term) and the correlation among the constructs. It can be concluded that the discriminant validity is achieved because the diagonal values (in bold) are higher than the values in its row and column. Their values indicate adequate discriminant validity of the measurements.

B. Structural Model Evaluation

Evaluation of the structural model looks at the relationship between constructs and their t-values based on PLS output. The t-values for the path coefficients were estimated via the bootstrapping procedure. Summary of test results for the structural model are shown in Table VI.

TABLE VI. SUMMARY OF STRUCTURAL MODEL

Path	Coefficients	T-values
Information Quality → Trust	0.841	20.047
Trust → Purchase Intention	0.450	6.970
Trust → Perceived Risk	-0.290	3.069
PR → Purchase Intention	-0.265	3.431

Table VI presents the results of t-values for constructs. Construct that has t-value ≥ 1.645 is significant. From the results, all constructs are significant. It is because the t-values are higher than 1.645. It indicates that all hypothesis are accepted.

The other evaluation of structural model can be seen through R-square value. The value of R-square represents the percentage of variance explained for the dependent variables. The influence of information quality towards trust model gives r-square value of 0.707. The influence of trust towards perceived risk model gives r-square value of 0.084. The influence of trust and perceived risk towards purchase intention model gives r-square value of 0.341.

C. The Influence of Information Quality on Trust

The information quality which is reflected through accuracy, timeliness and sufficiency, has a positive effect on trust. The influence of information quality towards trust is significant because its T-statistic value is greater than 1.645 ($20.047 > 1.645$). Therefore, H1 is accepted. It indicates that the quality of information that provided in agricultural application influences the consumers' trust in those companies.

This findings is supported by the findings [2] that quality information positively influences consumers' trust in companies. As a trust antecedents, the information quality can be convinced as the consumers' perception about the

sufficiency and accuracy of the information that provided by companies [16]. The higher the quality of information provided by companies, the higher the trust perceived by consumers.

D. The Influence of Trust towards the Perceived Risk

The indirect effect of trust towards purchase intention is mediated by perceived risk. Trust in company which is reflected through integrity and competence, has a negative effect towards the perceived risk with construct coefficient of -0.290. The effect of trust towards perceived risk is significant because its T-statistic value is greater than 1.645 ($3.0690 > 1.645$). Therefore, H2 is accepted. It indicates that the consumers' trust in the company of agricultural applications influences the perceived risk. The higher the trust of consumers in agricultural application company, the lower the risk perceived by them.

This finding is the same as the result of the previous studies [1,8,16]. A consumer's trust has a strong negative effect on a consumer's perceived risk [16]. In the e-commerce context, the uncertainty perceived by customer towards sellers will be reduced by trust.

E. The Influence of Perceived Risk on Purchase Intention

The indirect effect of trust towards purchase intention is mediated by perceived risk. The perceived risk, which reflected through the terms of financial, product performance, delivery and privacy, is has a negative effect on purchase intention with construct coefficient of -0.265. The effect of perceived risk on purchase intention is significant because its T-statistic value is greater than 1.645 ($3.431 > 1.645$). Therefore, H3 is accepted. It indicates that risk perceived by consumers influences the purchase intention on agricultural application.

This finding is supported [1,10] that the perceived risk has a negative significant effect on online buying interest. The higher the risk perceived by consumers, the lower the intention to purchase on agricultural application. The perceived risk has a negative significant effect on purchase intention in agricultural products online. It means that purchasing intention of agricultural and non-agricultural products is influenced by perceived risk [23].

F. The Influence of Trust on Purchase Intention

Trust has a positive direct effect towards purchase intention with construct coefficient of 0.450. The effect of trust on purchase intention is significant because its T-statistic value is greater than 1.645 ($6.970 > 1.645$). Therefore, H4 is accepted. It indicates that in the term of direct effect, trust significantly and positively affects the purchase intention on agricultural application. The higher the trust of consumer in agricultural application companies, the higher the intention in purchasing on agricultural application.

This finding is consistent with previous studies [1,2,7,10]. Trust positively influences online shopping directly because consumers believe that the company is able to carry out its competence and integrity in fulfilling the consumers' needs. Not only in general online purchases but trust has also a significant positive effect on purchase intention on agricultural products online [24].

V. CONCLUSION

Trust has direct and indirect effect on purchase intention. According to the explanation above, trust has a positive direct effect on purchase intention. Trust in companies is supported by information quality provided by the companies. The information quality has proven to be a positive significant factor that influenced consumers' trust in companies.

The indirect effect of trust in purchase intention is mediated by risk. Trust negatively influences the perceived risk. The perceived risk negatively influences the purchase intention on agricultural application. It indicates that the consumer will be more likely to engage in purchasing on agricultural application when trust is high by reducing their perceptions of perceived risk.

A. Implication

This study contributes empirical evidence about direct effect and indirect effect of trust on purchase intention. This finding can be used as a reference for academics and researchers especially for the same proposed model. This finding can represent the consumers behaviour on purchase intention especially in the terms of intention to purchase agricultural products online.

This finding can be implicated for managerial implication in the company of agricultural application. This finding can be an important input for companies in designing decision in order to provide the quality of information on agricultural application to consumers. It is because information quality has proven to be a significant factor that influenced consumers' trust in companies.

B. Limitation

In discussing the limitations of this research, it is possible to further research to allocate more resources to target a larger sample in Indonesia. Comparison of the research model can also be conducted over several countries (developing versus developed countries) to test for generalizability, particularly in different geographic regions. The contrasting contexts may provide some interesting results.

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