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Original Article

Evaluating Perceived Benefits toward E-Commerce Adoption and Business Performance

Febrina Mahliza[1], Riska Rosdiana[2], Budi Suryowati[3], Fanny Suzuda Pohan[4]

[1,2] *Faculty of Economics and Business, Universitas Mercu Buana, Jakarta, Indonesia*
[3,4] *Faculty of Economics and Business, Universitas Trilogi, Jakarta, Indonesia*

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Abstract *- E-commerce is the use of the internet for a business transactions. Businesses will see whether there are perceived benefits through the adoption of e-commerce and its impact on business performance. This study evaluates the effect of perceived direct and indirect benefits on e-commerce adoption and its impact on business performance. This study used the purposive sampling method and conducted data from 115 respondents of micro-enterprises in Jakarta. Data were analyzed using Partial Least Square (PLS). The results show that the perceived direct benefits and the perceived indirect benefits have a positive effect on e-commerce adoption. The adoption of e-commerce has a positive effect on business performance.*

Keywords *- perceived direct benefits, perceived indirect benefits, e-commerce adoption, business performance*

I. INTRODUCTION

E-commerce is the use of the internet for business transactions. It allows for commercial transactions between enterprises and individuals [1]. Through the adoption of e-commerce, enterprises can develop their business without the constraints of distance and time.

Enterprises will see whether there are perceived benefits through the adoption of e-commerce. The higher perceived benefits will lead to the adoption of information technology [2]. The benefits provided by the system can be divided into two, namely perceived direct benefits and perceived indirect benefits [3]. The perceived direct benefits include reducing operational costs and paper usage, while indirect benefits include increasing customer service [4].

Reference [5], [6] show that the perceived direct benefits felt by business actors have a significant positive effect on the adoption of information technology. However, they showed that the perceived indirect benefits do not significantly affect the adoption of information technology. Reference [7] shows that the perceived indirect benefits have a positive and significant influence in deciding the adoption of information technology. This means that enterprises who feel the higher perceived direct benefits will tend to adopt information technology, while the perceived indirect benefits can affect or not affect the adoption of information technology.

The adoption of e-commerce has a significant positive effect on business performance [8], [9]. The use of e-commerce will have a greater positive impact on business performance, including increased customer satisfaction [10]. Higher e-commerce adoption will lead to higher business performance.

Studies on the perceived benefits of e-commerce adoption have been carried out based on the above description. However, there is still little research discussing the effect of perceived direct and indirect benefits on the adoption of e-commerce. Thus, this study will focus on the effect of perceived direct and indirect benefits on the adoption of e-commerce. Furthermore, this study will see the effect of e-commerce adoption on business performance.

This study focused on evaluating e-commerce adoption by micro-enterprises because micro-enterprises dominated over 90% of SMEs in Indonesia. In the context of SMEs, e-commerce adoption in developing countries is found that perceived benefits are influential in determining usage of e-commerce [11]. This study also evaluated e-commerce adoption by micro-enterprises that use social media. In 2018, 18.9% of internet users in Indonesia used social media as the second reason for using the internet after communication reasons [12].

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

A. E-Commerce

E-Commerce is the use of the internet for business transactions [1]. E-Commerce enabled commercial transactions digitally between and among enterprises and individuals. Types of e-commerce are Business-to-Consumer (B2C), Business-to-Business (B2B), Consumer-to-Consumer (C2C), Mobile e-commerce (M-commerce), Social e-commerce, and Local e-commerce.

E-Commerce adoption is the decision of the business owner to use e-commerce in selling and marketing

activities. Many researchers have investigated the adoption of e-commerce. Several theories were found to support the previous researchers. One of the popular theories among researchers is Technology Acceptance Model. Reference to [13], Technology Acceptance Model (TAM) explained that perception of the benefits (perceived usefulness) is one of the factors that preceded the behavior of using information technology.

B. Perceived Benefits and E-Commerce Adoption

Benefits become a strong determinant of the use of a technology, adoption, and behavior of users [13]. The benefits provided by a system can be divided into two, namely perceived direct benefits and perceived indirect benefits [3]. The perceived direct benefits can be in the form of reduced transaction costs, increased cash flow, reduced inventory, and improved information quality. The perceived indirect benefits can be in the form of increased operational efficiency, improved customer service, improved relations with business relationships, and increased competitive ability.

The perceived direct benefits include reducing operational costs and reducing paper usage [14], while the perceived indirect benefits include increasing customer service [4]. The perceived direct benefits can also be in the form of increased data accuracy and transaction processing speed, while the perceived indirect benefits can be enhancing company image, increasing competitive competition, and improving customer service [6].

Reference [5], [6] show that the perceived direct benefits have a significant positive effect on the adoption of information technology. Reference [7] shows that the perceived indirect benefits have a positive and significant influence in deciding the adoption of information technology. Therefore, the following formulated hypothesis used for this study:

H1 = Perceived direct benefits have a significant positive effect on e-commerce adoption.

H2 = Perceived indirect benefits have a significant positive effect on e-commerce adoption.

C. E-Commerce Adoption and Business Performance

E-Commerce adoption is the decision of the business owner to use e-commerce in selling and marketing activities. E-commerce adoption can be seen in the form of C2C transactions [1]. The C2C transactions are one form of transaction that can be applied in the adoption of e-commerce using social media [15].

Higher use of e-commerce will have a higher positive effect on business performance. Business performance can be seen in the form of sales revenue and customer satisfaction [16]. The adoption of e-commerce positively affects business performance [8], [9]. The effect of e-commerce adoption by enterprises can be seen in the reduced operating costs and increased speed of service [9]. Therefore, the following formulated hypothesis used for this study:

H3 = E-Commerce adoption has a significant positive effect on business performance.

Based on the hypothesis development, the research model is used for this study (Fig.1).

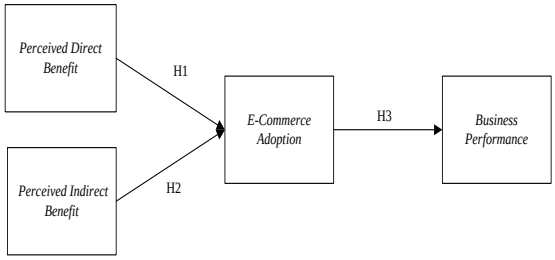

Fig. 1 Research Model

III. RESEARCH METHOD

A. Research Design

The type of this study is causality study. The variables used in this study include latent variables (construct) and indicators (Table I). This study used a purposive sampling method with several criteria, i.e., micro-enterprises who live in Jakarta, run C2C transactions, and use social media as media of e-commerce adoption.

Table 1. Operational Variable

Construct	Indicators	Literature
Perceived Direct Benefits	- Operation cost reduction (PDB1) - Paper reduction (PDB2) - Reduced information dissemination cost (PDB3) - Increased timeliness of information (PDB4) - Save time (PDB5)	[3]–[6], [14], [17]
Perceived Indirect Benefits	- Improved customer service (PIB1) - Improved business image (PIB2) - Enhanced ability to compete (PIB3)	[3]–[6], [17]
E-Commerce Adoption	- General marketing activities (ECA1) - C2C transaction (ECA2)	[15], [18]
Business Performance	- Increased revenue (BP1) - Increased sales growth (BP2) - Expanded marketing area (BP3) - Increased costumer satisfaction (BP4)	[10], [16], [19]

B. Data Collection

The primary data was taken from April to August 2019 from 115 respondents. This number is still included in the minimum SEM analysis sample size, which is 5 times the number of indicators [20]. Data was taken using an online questionnaire in which the items of the questionnaire have been tested for validity and reliability. The items were measured on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

Based on the data collection, most respondents are female, as many as 95 people (82.61%). The business period of micro-enterprises is dominated by 1-3 years, with as many as 48 people (41.74%). The majority of revenue per month is under 1 million rupiah as many as 46 people (40.00%). The majority of product categories sold are fashion, as many as 53 people (46.09%).

C. Analysis Method

This study uses a statistical method collected from primary data as an analytical method. This study used Structural Equation Modeling (SEM) with Partial Least Square (PLS). Data analyzed used SmartPLS version 3 to test the effect of independent variables toward the dependent variable.

IV. RESULTS AND DISCUSSION

A. Results

a) Evaluation of the measurement model

Evaluation of the measurement model can be seen from the results of convergent validity, which is seen from the outer loading value. The outer loading value of each indicator greater than 0.7 is valid. Based on the results of PLS output, the indicators PDB1, PDB2, and PDB3 must be excluded from the model because the outer loading value is below 0.7 (Fig. 2)

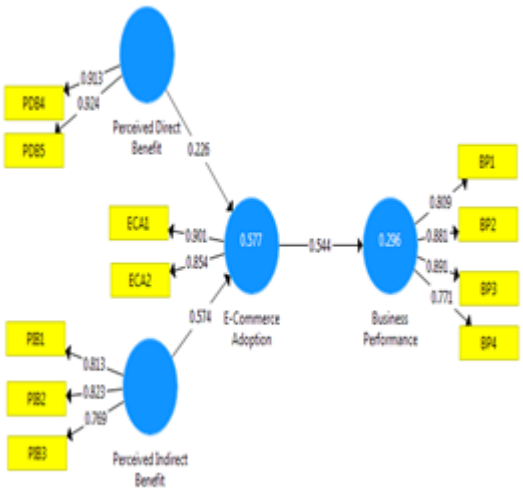

Fig. 2 The Values of Outer Loading

Besides evaluating convergent validity seen from the outer loading value, the evaluation of the measurement model is seen from discriminant validity of indicators that can be seen in cross loading between indicators and their constructs. The correlation of a construct with its indicator must be higher than the correlation of that indicator with other constructs. The following discriminant validity based on construct correlation with indicators can be seen in Table 2.

Table 2. Discriminant Validity

Indicators	BP	ECA	PBB	PIB
BP1	0.809	0.461	0.459	0.381
BP2	0.881	0.445	0.535	0.434
BP3	0.891	0.528	0.521	0.400
BP4	0.771	0.372	0.426	0.328
ECA1	0.443	0.901	0.630	0.779
ECA2	0.521	0.854	0.521	0.507
PDB4	0.527	0.586	0.913	0.681
PDB5	0.538	0.624	0.924	0.706
PIB1	0.297	0.538	0.596	0.813
PIB2	0.481	0.720	0.708	0.823
PIB3	0.292	0.489	0.474	0.769

Based on Table II, it can be seen that the correlation of the four constructs with each indicator is higher than the correlation of each indicator with other constructs. The correlation of constructs with their indicators can be seen in the bolded value. This shows that latent constructs predict indicators in their blocks better than indicators in other blocks.

Besides evaluating the validity value of the indicators, the evaluation of the measurement model is also seen in the results of the construct reliability and validity. The reliability of a construct can be assessed from the Composite Reliability value, Cronbach's Alpha, while the construct validity is assessed from the Average Variance Extracted (AVE) value and compares the AVE square root value with the correlation value between constructs and other constructs in the model. The construct has good reliability if the Composite Reliability value and Cronbach's Alpha value are above 0.7. the construct has good validity if the AVE value is above 0.5 (Table III).

Table 3. The Values of Composite Reliability, Cronbach's Alpha, and AVE

Constructs	**Cronbach's Alpha**	**Composite Reliability**	**AVE**
Business Performance	0.859	0.905	0.704
E-Commerce Adoption	0.706	0.871	0.771
Perceived Direct Benefit	0.815	0.915	0.844
Perceived Indirect Benefit	0.730	0.844	0.643

Based on Table III, all constructs are very reliable. All constructs have Composite Reliability and Cronbach's Alpha values above 0.7. All constructs are valid. This can be seen from all constructs that have AVE values above 0.5.

b) Evaluation of Structural Model

Evaluation of the structural model also looks at the relationship between constructs and their significance value as indicated by the p-value at the 5% significance

level (0.05) based on PLS output. Based on the results, the path coefficient of all relationships has a p-value below 0.05 which means significant (Table 4).

Table 4. Path Coefficient

Relationship	Coefficients	T-Statistic	P-Value	Results
ECA →BP	0.544	8.856	0.000	Significant
PDB → ECA	0.226	2.202	0.014	Significant
PIB → ECA	0.574	6.310	0.000	Significant

Evaluation of the structural model also can be seen from the R-Square value. The model of the influence of perceived direct and indirect benefits toward e-commerce adoption gives an R-Square value of 0.577. The model of the influence of e-commerce adoption towards business performance gives an R-Square value of 0.296.

B. Discussion

a) The Effect of Perceived Direct Benefits on E-Commerce Adoption

Perceived direct benefit positively affects the adoption of e-commerce, with a construct coefficient of 0.226. The positive effect of the perceived direct benefit on the adoption of e-commerce proved to be significant, with a p-value below 0.05. This means that the perceived direct benefits affect the adoption of e-commerce by micro-enterprises.

Micro enterprises feel the increased timeliness of information becomes one of the direct benefits of adopting e-commerce. They easily inform the products offered to customers quickly. They also feel that saving time becomes another direct benefit of adopting e-commerce. This is because, with information technology, all limitations of facilities, distance, and transaction time can be overcome easily.

Reference [5] shows that the perceived direct benefits have a significant positive effect on the adoption of information technology. The higher the direct benefits perceived, the higher the adoption of information technology by business actors. Reference [6] also shows that small businesses' direct benefits significantly affect the use of information technology, such as helping businesses accelerate the application process.

b) The Effect of Perceived Indirect Benefits on E-Commerce Adoption

Perceived indirect benefits positively affect e-commerce adoption with a construct coefficient of 0.574. The perceived indirect benefits proved significant to the adoption of e-commerce because of the p-value below 0.05. This shows that the perceived indirect benefits affect the adoption of e-commerce by micro-enterprises.

Micro enterprises feel that improved customer service becomes one of the indirect benefits of adopting e-commerce. They also feel that improved competitive advantages become another indirect benefit of adopting e-commerce. The increased business image as online enterprises that follow the changing times also makes them adopt e-commerce.

Reference [7] shows that the perceived indirect benefits have a positive and significant influence in deciding the adoption of information technology. The higher the indirect benefits perceived, the higher the adoption of information technology. Moreover, the adoption of e-commerce nowadays can easily be done via a smartphone. Mobile commerce has become the best choice for micro-enterprises because it is inexpensive and affordable [21].

c) The Effect of E-Commerce Adoption on Business Performance

The adoption of e-commerce positively affects business performance with a construct coefficient of 0.544. The effect of e-commerce adoption on business performance has proven significant because of the p-value below 0.05. This shows that the adoption of e-commerce positively influences business performance by micro-enterprises.

Micro enterprises feel the increased revenue and the increased sales due to the adoption of e-commerce. They also feel the expansion of marketing due to the adoption of e-commerce. The marketing area extends to other regions using social media as e-commerce media. The product was also ordered by consumers who are domiciled everywhere. About customers, e-commerce helps and facilitates convenient purchasing activities. Customer satisfaction increased because customers will save a lot of time than buying offline.

Reference to [9], [10] show that the adoption of e-commerce has a significant positive effect on business performance. The higher e-commerce adoption will lead to higher business performance. The use of e-commerce by enterprises can expand the marketing area and increase customer satisfaction [10].

The adoption of new technology will impact geographical segment expansion [22]. Social media support the expansion in the market that micro-enterprises use to adopt e-commerce. Social media becomes the right tool for marketing because an enterprise can achieve widespread communication [23].

V. CONCLUSION AND LIMITATION

A. Conclusion

The adoption of e-commerce by micro-enterprises is affected by perceived direct and indirect benefits. Micro enterprises feel that the perceived direct benefits, such as the increased timeliness of the information and saving time, become factors that make them adopt e-commerce. The perceived indirect benefits such as improved customer

service, improved competitive advantages, and increased business image become factors that make them adopt e-commerce.

Furthermore, the adoption of e-commerce by micro-enterprises influences business performance. The higher e-commerce adoption will lead to higher business performance. Micro enterprises who adopt e-commerce using social media feel that the revenue is increased, the sales are increased, the marketing area is expanded, and customer satisfaction is increased.

B. Limitation

This study has limitations. Therefore, further study can then add other constructs besides the construct that has been used in this study. In addition, the next researcher is also expected to be able to examine specifically the effect of the perceived direct benefits, using indicators discarded, i.e., the reduced operational costs, the reduced paper usage, and the reduced information dissemination cost, on the adoption of e-commerce and its impact on business performance with the addition of moderating, intervening, or antecedents variables.

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