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The Role of Reverse Logistics Capabilities in Improving Trust and Purchase Decision in Indonesian E-Commerce

Anggun Triani[1*], B Anastaqiya[2], Edhie Budi Setiawan[3], Yoanita Octora[4]
[1,2,3,4] Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia
[*]Corresponding author: angguntriani8@gmail.com

Abstract. In e-commerce businesses, reverse logistics services are among those deserving special attention. The aim of this research is to measure the effect of the reverse logistics capabilities on purchase decision and the mediating role of trust. The research method employed was the partial least squares path modeling (PLS-PM) and data were collected by a questionnaire with the involvement of 100 respondents. The results show that reverse logistics capabilities had a positive effect on trust and purchase decision on account of availability of accurate product return or refund information, that trust had a positive effect on purchase decision on account of competent e-commerce vendors, and that trust served as an intervening variable that influenced the relationship between reverse logistics capabilities and purchase decision.

Keywords: reverse logistics, trust, purchase decision

1. Introduction

The ever-evolving technologies and the Internet make everything easier and go faster. Such technological advancements have triggered the advent of e-commerce, which provides us with convenience to fulfil our needs. E-commerce platforms have enabled business transactions to be conducted without the need for establishing any physical stores or face-to-face meetings between sellers and buyers [1]. In 2018, the contribution of e-commerce growth rate to logistics business growth rate at home rose to 10.4% [2]. According to [3], there are 6 household e-commerce vendors established in Indonesia. This popularity is attributed to logistics services, among others.

Table 1. Popular e-commerce platforms in Indonesia

	Blibli.com	Bukalapak	JD.id	Lazada	Shopee	Tokopedia
Fast delivery	7.4%	6.0%	8.6%	10.0%	7.6%	5.8%
Free delivery	13.0%	6.8%	14.8%	10.6%	18.4%	3.2%
Easy return policy	6.5%	5.7%	2.9%	5.4%	4.5%	5.3%
Easy navigation on site	4.6%	7.0%	3.3%	3.8%	3.5%	9.3%
Customer Service	6.4%	14.4%	3.1%	9.3%	11.0%	12.6%
Time taken to delivery item	27.7%	19.9%	30.8%	25.6%	22.4%	21.7%

Source: Processed from https://dailysocial.id/post/e-ecommerce-di-indonesia-2018

Many e-commerce vendors are now introducing reverse logistics services into their business activities to improve their competitive advantage, product and customer security, and product return management as the aforementioned three are believed to be able to increase customer satisfaction [4].

The convenience offered by product return policyis highly influential to customer trust in online stores, both new or existing ones [5]. Meanwhile, trust becomes the leading factor in the success of e-commerce platforms as it induces social and economic interactions, which also exert influence on every possible decision [6]. The good reputation e-commerce vendors gain

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from trust helps customers with purchase decision making [7]. Good reputation is useful in brand building and purchase intention enhancement [8] , thereby raising expectation of future purchases. E-commerce vendors with good reputation are always taken with positive judgment even in the event of possible future unsatisfactory services [9]. In Indonesia particularly, it is interesting to research the role of reverse logistics capabilities in trust building and decision to purchase from e-commerce vendors.

2. Literatur Review

2.1 Reverse Logistic Capabilities

Lately, reverse logistics has assumed a growing importance, with the effectiveness of services in this sector serving as a differentiator in the online market [10]. There has been a growing trend of leveraging reverse logistics for the purpose of improving competitive advantage over the Internet. In the context of e-commerce, reverse logistics refers to product returns services rendered by e-commerce platforms and logistics vendors under their respective returns policies to provide consumers with facilitation in circumstances beyond their control such as damaged goods, shipment of goods to the wrong destination, or non-delivery of goods aimed to improve customer satisfaction and competitive advantage [4].

This study identified the effects of logistics, especially the capabilities of reverse logistics possessed by e-commerce vendors, on trust and purchase decision from customers' perspective. Some reverse logistics services referred to include e-commerce vendors' capabilities in providing return guarantee, refund, return policy, and availability of information regarding return policy. Reverse logistics capabilities positively affect consumer relationship thanks to the product returns services provided [11].

2.2 Trust

Trust means one's willingness to depend on others in whom they have confidence. In the context of e-commerce, trust is a single dimension construct dealing with consumer's assessment that a vendor is trustworthy (p. 410) [12]. Trust allows consumers the comfort in sharing personal information, purchasing, and taking actions on recommendation of vendors over the web, all of which are prominent behaviors necessary for e-commerce expansion [13]. In addition, trust also plays a key role in establishing transactional relationship on the basis of reciprocal expectation and cause-effect relationship between buyers and sellers and in customer retention and loyalty [14].

2.3 Purchase Decision

Purchase decision is an integration process that evaluates two alternative behaviors or more and chooses either one of them [15]. It is also defined as a continuous process, which refers to a thoughtfull, consistent action undertaken to bring about needs satisfication (p. 94) [16]. Consumer behavior shows when end-consumer individuals or households make a purchase of goods or services for personal consumption. Some sorts of behavior involved in purchase decision making are identified, each of which is influenced by habit, brand, situation, and the number of alternatives at hand [17].

2.4 The Effect of Reverse Logistics Capabilities on Purchase Decision

Reverse logistics serves as a crucial factor in customer purchase decision partly due to the convenience in product return or refund offered. The increasing growth rate of online transactions has shifted customers' attention more to online stores' capabilities of providing returns services [11]. Customers are expecting e-commerce platforms and vendors to be able to provide them with returns services. In many cases, they prefer one particular online store over the others for the reason of ease of returns [18].

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Product return and returns policies enable customers understanding that facilitates their purchase decision making [19]. The purchase decisions allowed by reverse logistics capabilities are made based on the long-term benefits offered, for example, product protection and refund guarantee [20]. Earlier studies proved that logistics reverse does have a positive effect on purchase decision. In light of that, we are proposing the following hypothesis.

H_1: Reverse logistics has a positive influence on purchase decision.

2.5 The Effect of Reverse Logistics Capabilities on Trust

The most critical aspect in establishing special relationships in logistics activities, both in real-world and virtual markets, is trust [20]. There are risk and trust elements in vendor-customer relationships in product return activities. Effective product return handling will form the image of an e-commerce platform, and this image will influence the e-commerce platform's online rating and raise confidence. Ultimately, the e-commerce platform will gain trust from its customers [21]. Reverse logistics services in the form refund guarantee and product return when the goods delivered falls short of customers' expectation or when customers are dissatisfied with it have a role in building trust as these services are able to give customers the sense of security [22]. Earlier studies proved that reverse logistics capabilities have a positive effect on trust. In light of that, we are proposing the following hypothesis.

H_2: Reverse Logistics has a positive influence on customer's trust.

2.6 The Effect of Trust on Purchase Decision

Research by some experts found that the security, privacy, design, and content of an e-commerce website influence consumers' trust during an online transaction. Trust is resulted from the relationship between interpersonal and e-commerce components, namely vendors' ability to provide high-quality services for consumers [23]. Purchase decision reflects consumer intention to make a purchase via e-commerce sites. When an e-commerce site is of high quality, it is highly likely to gain consumer interest in making a purchase via that site [24].

Trust positively influences online purchase intention as consumers trust online retailers for their favor and integrity. However, such relationship was researched only in the context when purchases were made during website visits or after [25].

H_3: Trust has a positive influence on purchase decision

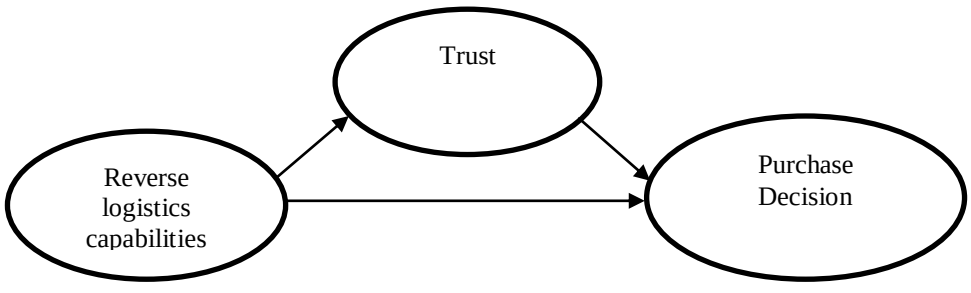

Figure 1. Conceptual framework

3. MATERIALS and METHODS

Data analysis in this research was carried out by the Partial Least Squares Path Modelling (PLS-PM) method. Data were collected by administering an online survey instrument. There were a total of 12 indicators included, 4 for each variable. The indicators used as a reference

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were adopted from previous studies by comparing each of the indicators with the definition and scope applied in this research. The indicators of the variable reverse logistics capabilities were adopted from the study by Jack et al., [11], those for the variable trust were from the study by Gefen & Straub [12], and those for the variable purchase decision were from the study by Shareef et al., [16]. A five-point Likert scale was used for responding to the question items presented. As many as 100 [26] Indonesian respondents of the age of at least 17 years were enrolled in this study. On the table 2, below is list of indicators from each variable that used on questionnaire.

Table 2. List of indicators

NO	Variable	Indicator	Source
1.	*Reverse Logistics Capabilities (RL)*	RL1 : Accuracy information RL2 : Availibility of information RL4 : Timeliness information RL5 : Formatted to facilitate usage	Refer to Jack et al., (2006)
2.	*Trust (T)*	T1 : Promises that they made are likely to be reliable T2 : Vendor is generally trustworthy T3 : Vendor E-commerce is competent	Refer to Gefen & Straub (2004)
3.	*Purchase Decision (PD)*	PD1 : Recomended E-commerce platform PD2 : Purchase frequency PD3 : Overall satisfication PD4 : Purchase intention	Refer to Shareef et al.,(2008)

4. RESULT and DISCUSSION

All of the indicators used in this study have been subjected to validity and reliability testing and were declared valid and reliable. In the following table, the results of the validity and reliability tests on the constructs by the PLS-SEM method are presented.

Table 3. Square root of AVE and correlation between variables

Variable	AVE	Root of AVE
Reverse logistics capability	0.662	0.814
Trust	0.678	0.823
Purchase decision	0.754	0.868

Table 3 shows that the square root of AVE of each variable was higher than the coefficient of correlation between one variable and another. It could be confirmed that every variable investigated had good determinant validity.

Figure 2 below shows an outer loading of > 0.5, meaning that the indicators used in this research were valid.

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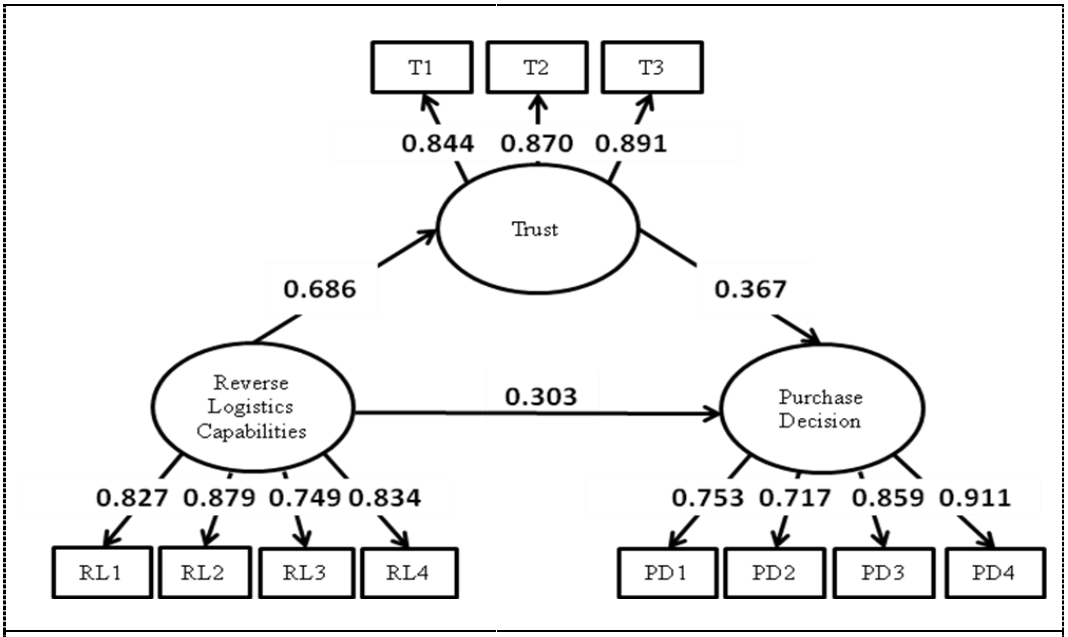

Figure 2. Path Coefficient

The path coefficient and t-value obtained are presented in Table 4.

Table 4. Path coefficient and t-value

Effect	Path Coefficient Value	T-Statistic	Decision
Reverse Logistics Capabilities →Trust	0.686	2.472	Significant
Reverse Logistics Capabilities →Purchase Decision	0.303	13.599	Significant
Trust→ Purchase Decision	0.367	2.767	Significant

Reverse logistics was found to have a positive effect on trust as demonstrated by the t_{count} (2.472) being higher than the t_{table} (1.96). This suggests that reverse logistics capabilities were able to improve customer trust. This was largely due to the availability of detailed information regarding product return/refund as shown by a value of 0.879 for this indicator. Moreover, convenience in product return/refund also showed a positive effect as shown by a value of 0.834 for this indicator. Complete, detailed information and convenience in product return reflect high-quality services capabilities which eventually improved consumer trust.

Reverse logistics was also found to have a positive effect on purchase decision as demonstrated by the t_{count} (13.599) being higher than the t_{table} (1.96). As with the case of the reverse logistics-trust relationship, the positive effect was attributed to the availability of detailed information regarding product return/refund and convenience in product return/refund with values of 0.879 and 0.834 each. Some e-commerce platforms provided detailed, yet concise information around product return/refund, including the information of short refund time, which helps with purchase decision.

Lastly, trust had a positive effect on purchase decision as demonstrated by the t_{count} (2.767) being higher than the t_{table} (1.96). This was attributed to e-commerce vendor's good capabilities and trustworthiness with values of 0.891 and 0.870 each. For an e-commerce

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platform, having good reputation and image may build trust, which will influence purchase decision.

Table 5. Indirect Effect

Effect	Coefficient of Influence
Revers Logistics Capabilities → Trust→ Purchase Decision	0.686 x 0.367 = 0.252

Table 5 above presents the results of the Sobel test that was aimed to find out whether the trust-mediated effect of reverse logistics on purchase decision was significant. This test yielded a value of 2.756 (p-value: 0.006), which was higher than the t_{table}. It was confirmed that trust was an intervening variable that mediated the effect of logistics capabilities on purchase decision.

From the above calculations, the total effects can be seen in table 6 below.

Table 6. Total Effects

Relation	Effect		Total
	Direct	Indirect	
Reverse Logistcs Capabilities → Trust	0.686	-	0.686
Trust → Purchase Decision	0.367	-	0.367
Reverse Logistcs Capabilities → Purchase Decision	0.303	0.252	0.555

5. CONCLUSSION

5.1. Conclussion

Reverse logistics capabilities positively influenced consumer trust in e-commerce transactions. In other words, reverse logistics capabilities could improve consumer trust. This was due to the availability of detailed information on product return/refund.

Reverse logistics capabilities also positively influenced purchase decision. This shows that reverse logistics was able to improve purchase decision. Similar to the reverse logistics' effect on trust, detailed information on product return/refund also influenced the effect of reverse logistics on purchase decision.

Trust also had a positive effect on purchase decision. This means trust was able to improve purchase decision. It was due to e-commerce vendors' good capabilities of rendering product return/refund services. Lastly, it was concluded that trust served as an intervening variable that significantly mediated the relationship between reverse logistics and purchase decision.

5.2. Managerial implications

- E-commerce platforms in Indonesia are expected to improve service quality in returning products and refunding customer money.
- Increase a trust by using product and service information that is useful and relevant for customer to predict the quality as well as the utility of a product and service that offered by online shop.
- Forming a customer support system on online shop website for helping customer if there are things that customer don't understand from refund/return policy, it will be more comfortable and easier for them if they want to do refund/return product.

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Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

References

[1] J. Joong-Kun Cho, J. Ozment, and H. Sink, "Logistics capability, logistics outsourcing and firm performance in an e-commerce market," *Int. J. Phys. Distrib. Logist. Manag.*, vol. 38, no. 5, pp. 336–359, 2008.

[2] REPUBLIKA.CO.ID, "No Title E-COMMERCE DAN INFRASTRUKTUR TOPANG LAJU INDUSTRI LOGISTIK," 2018.

[3] dailysocial.id, "No TitleLanskap E-commerce di Indonesia dari Perspektif Konsumen," 2018.

[4] R. G. Richey, S. E. Genchev, and P. J. Daugherty, "The role of resource commitment and innovation in reverse logistics performance," *Int. J. Phys. Distrib. Logist. Manag.*, vol. 35, no. 4, pp. 233–257, 2005.

[5] M. E. Ketzenberg and R. A. Zuidwijk, "Ketzenberg&Zuidwijk_2009_Optimal pricing, ordering, and return policies for consumer goods_poms.pdf," vol. 18, no. 3, pp. 344–360, 2009.

[6] D. Gefen, "E-commerce: the role of familiarity and trust --> Start: Rückwärtssuche," *Omega*, vol. 28, no. 6, pp. 725–737, 2000.

[7] D. E. S. Jeunes and D. En, "Formation Et Accompagnement a L ' Entrepreneuriat," vol. 38, no. 4, pp. 675–699, 2007.

[8] E. B. Setiawan, "The Role of Word of Mouth in Increasing Purchase Intention of Low Cost Green Car," *Adv. Transp. Logist. Reasearch*, pp. 88–96, 2018.

[9] B. Jin, J. Y. Park, and J. Kim, "Cross-cultural examination of the relationships among firm reputation, e-satisfaction, e-trust, and e-loyalty," *Int. Mark. Rev.*, vol. 25, no. 3, pp. 324–337, 2008.

[10] M. Shaik and W. Abdul-Kader, "Performance measurement of reverse logistics enterprise: A comprehensive and integrated approach," *Meas. Bus. Excell.*, vol. 16, no. 2, p. 12, 2012.

[11] E. P. Jack, T. L. Powers, and L. Skinner, "Reverse logistics capabilities : antecedents and cost savings," 2006.

[12] D. Gefen and D. W. Straub, "Consumer trust in B2C e-Commerce and the importance of social presence: Experiments in e-Products and e-Services," *Omega*, vol. 32, no. 6, pp. 407–424, 2004.

[13] C. Bianchi and L. Andrews, "Risk, trust, and consumer online purchasing behaviour: A Chilean perspective," *Int. Mark. Rev.*, vol. 29, no. 3, pp. 253–275, 2012.

[14] S. J. Yoon, "The antecedents and consequences of trust in online-purchase decisions," *J. Interact. Mark.*, vol. 16, no. 2, pp. 47–63, 2002.

[15] T. Ozawa, F. Yoshizaki, Y. Niwano, M. Kohno, and K. Saito, "Extensive screening for herbal extracts with potent antioxidant properties," *J. Clin. Biochem. Nutr.*, vol. 48, no. 1, pp. 78–84, 2010.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

[16] M. Shareef, U. Kumar, and V. Kumar, "Role of different electronic commerce (EC) quality factors on purchase decision: a developing country perspective," *J. Electron. Commer. Res.*, vol. 9, no. 2, pp. 92–113, 2008.

[17] F. Ghanimata, "Analisis Pengaruh Harga, Kualitas Produk, Dan Lokasi Terhadap Keputusan Pembelian," *Skripsi*, pp. 1–54, 2012.

[18] L. R. Skinner, P. T. Bryant, R. G. Richey, and L. R. Skinner, "Examining the impact of reverse logistics disposition strategies," 2012.

[19] P. C. Science *et al.*, "Available online at www.sciencedirect.com," vol. 60, pp. 1506–1515, 2015.

[20] F. Authors, "Are collaboration and trust sources for innovation in the reverse logistics ? Insights from a systematic literature review," 2019.

[21] P. J. Daugherty, M. B. Myers, and R. G. Richey, "1338Fdef35Ae2Efe85Dee74E37a53Eb7393106D36F72549Ae5E67182a36840Af," vol. 23, no. 1, pp. 85–106, 2002.

[22] L. Breen, "Give me back my empties or else! A preliminary analysis of customer compliance in reverse logistics practices (UK)," *Manag. Res. News*, vol. 29, no. 9, pp. 532–551, 2006.

[23] D. Gomez-Mejia, Luis and Balkin, "Article information :," *J. Manag. Dev.*, vol. 23, no. 7, 2007.

[24] F. Liu, B. Xiao, E. T. K. Lim, and C. Tan, "The art of appeal in electronic commerce Understanding the impact of product and," *Internet Res.*, vol. 27, no. 4, pp. 752–771, 2017.

[25] R. Piarna, "Pengaruh Sumber Informasi dan Kualitas Website terhadap Kepercayaan Pelanggan dalam Menentukan Keputusan Bertransaksi pada E-commerc e (Studi pada Pelanggan E-commerc e di Indonesia)," *J. Apl. Manaj.*, vol. 12, no. 1, pp. 10–21, 2014.

[26] J. Hartono, *KONSEP DAN APLIKASI STRUCTURAL EQUATION MODELING BERBASIS VARIAN DALAM PENELITIAN BISNIS*. Yogyakarta: UPP STIM YKPN, 2011.