BARRIERS TO ADOPTION OF REVERSE LOGISTICS IN MALAYSIAN E - COMMERCE FIRMS.

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ABSTRACT

Reverse logistics has played a significant role in reducing waste and climate impact in line with Sustainable Development Goals (SDG). The growing number of businesses and e – commerce adopting Reverse Logistics (RL) have become an essential part of operation of the supply chain for many businesses and manufacturers. Thus, product recovery has become essential when quality issues arise. Thereby, this study intends to investigate the relationship between barriers in adopting RL among e – commerce firms in Malaysia. In this research, there are two concepts of variables of the barrier: management barrier and financial barrier towards the adoption of RL among e – commerce firms. Questions were distributed to the businesses in top visited e – commerce platforms: LAZADA and Shopee. The research has received feedback from 35 respondents. The analysis was conducted by using descriptive and causal analysis using the IBM Statistical Package for Social Science (SPSS). The results show a negative relationship between the management and financial barriers and the level of adoption of RL. The lack of commitment of top management was the major barrier in management barrier towards RL practices with the highest mean of 3.486 as well as the lowest with a mean score of 3.0571 which the organization is not willing to accept the support from dealers, distributors, and retailers. Lastly, the high investments and less return on investment is a financial barrier for the organization to adopt RL with the highest mean score of 3.743 while the lowest mean at 3.371, the company unwilling to allocate financial resources to Reverse Logistics practices. The results were found to be at moderate level for both variables.

Key Words: Reverse Logistics; Reverse Supply Chain; Supply Chain; E-commerce, Adoption, Malaysia

1.0 Introduction

Reverse Logistics (RL) activity is currently expanding globally, covering all supply chain layers in various industry sectors and it is now become the main ability in the latest supply chains around the world (Brito & Dekker, 2003). According to Hazen et al. (2015), RL refers to the movement of the goods that returned from the consumer side back to the producer within the distribution channel. Allied Market Research (18 March 2020) reported that the global RL market registered at Compound Annual Growth Rate is 4.6% from 2018 to 2025 and it shows that the RL playing a significant role in supply chain world. Many companies previously do not focus on RL but focus on Green Supply Chain (GSC) concept to reduce environmental issues.

Generally, RL is the activities that are related to the reuse of the product. It is the method of reversing the products to the location where they were made, and they will be process for reuse, repair, remanufacture, or recycle to an acceptable usable condition and resold. Thus, RL is important to e-commerce, merchant, and consumers. The number of end-of-life products and parts that need to be transformed and shows a growing trend e-commerce (Lamba, Yadav, Barve & Panda, 2019). Return policies is seen as the tools to increase customer loyalty and many e-commerce retailers provide their customers with free return facilities to boost customer satisfaction and strengthen competitive advantages (Xu & Jiang, 2009). There is not much of research done on the barriers of RL adoption such as Sharma, Panda, Mahapatra, & Sahu (2011) and not widely accepted in some organization in adoption of RL (Sharma et al, 2011).

Organization not paid attention to RL and often overlook the importance of RL activities. Management is usually concerned about the inbound movement of materials and products to ensure that they caneffectively deliver materials through their supply chain at the right cost and within therequired time. As a result, companies are unaware of the importance of handling returned products, and also tend to redirect reverse logistics personnel to forwardlogistics functions when facility demand is high (Rogers & Tibben-Lembke, 1998).

Furthermore, in Malaysia, reverse logistics has not yet attracted attention from the corporate, and most companies have also avoid from implement RL (Abdullah and Yaakub, 2014). One of the reasons that the industry implements the RL in a business due to

environmental aspects. RL is part of the cost of the company, Rogers & Tibbem (2001) estimated that RL costs nearly 4% of the total logistics costs. Thus, many companies do not implement RL due to high logistics cost. This study aims to investigate the barriers in adoption of RL and level among Malaysian e-commerce. Thus, the objectives of this study are:

(b) To examine the relationship between management barriers adoption of RL among Malaysian e-commerce.

(c) To examine the relationship between financial barriers to and level of RL adoption among Malaysian e-commerce.

2.0 Literature Review

2.1 Introduction of Reverse Logistics

RL is one of the part of return management in supply chain management (Mollenkopf & Closs, 2005) while making a comparison to forward logistics, RL is slow, uncertain, and difficult to manage due to the high-cost reason (Yanyan, 2010) it can then be supported by Rogers and Tibben-Lembke (1998) that they interviewed with RL managers at the United States and the cost to the account and estimated around 4 percent from total logistics costs. Distinguishing between RL and Forward logistics also is important. The practices between Forwards and RL are separated by Rogers and Tibben-Lembke (1998) as shown in Figure 1 below.

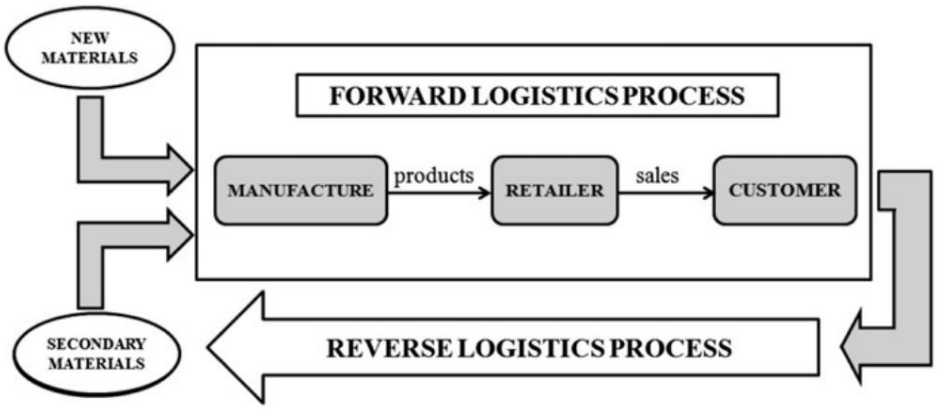

Figure 1: Forward and Reverse Logistics Differences
Source: Rogers and Tibben-Lembke (1998)

Research done in Tunisia by Laribi and Dhouib (2016) stated that many companies having difficulties to implement RL due to multiple barriers while lack of awareness is the main issue. In Malaysia study done by Abdullah Halim, & Yaakub (2014), the adoption of the RL level is extremely low in Malaysia manufacturers and the most influenced on the adoption level was regulatory pressure. Yacob at el., (2012) investigated that low adoption of RL in Malaysia manufacturing firms was because the firm focus on forwards logistics and overlook the importance of RL. Many firms in Malaysia focus on forwards logistics and overlook the importance of RL (Yacob et al., 2012).

2.2 Barriers to adoption of Reverse Logistics

The implementation of RL is difficult in developing countries like Malaysia due to lack of societal pressure, lack of attention to environmental issues, and so on. Successful implementation of RL needs economic and financial support from many parties including the company, government, or partners in the supply chain. Rogers and Tibben-Lembke (1998) investigated a total of 8 of the barriers to RL namely the importance of RL relative to other issues, company policies, lack of systems, competitive issues, management inattention, financial, personnel resources, and legal issue. Then, Ravi and Shankar (2005) further expand it with another three barriers which are problems with product quality, resistance to change to RL, and lack of appropriate performance metrics. Prakash and Barua (2015) categorized these RL barriers into seven categories including management, organizational, economic, legal, technological, infrastructural, and market-related barriers. Abdulrahman et al. (2012) classified the barriers into four groups namely management, financial, policy, and infrastructural barrier. Their study showed that barrier in management is lack of RL experts and low commitment in the organizational category while the main barrier in the financial category based on the finding was lack of initial capital. Thus, this study discusses the barriers in implementing RL into management barriers and financial barriers.

2.2.1 Management Barrier

Birkinshaw, Hamel, and Mol (2008), stated that management refers to a process that aim the organizational goals by working with people and any other organizational resources. Prakash and Barua (2015) stated that management barriers include lack of management support, lack of awareness, less planning, and effort on integrating the business process, lack of change management practices, less focus on extended responsibility, and drafting policies. Then, Patyk et al., (2014) conducted a study in Polish companies found that organizational problems were the biggest barriers among others group (economical, market, government) during reverse logistics implementation. were the biggest barriers among others group (economical, market, government) during reverse logistics implementation.

Over one-third of respondents indicated that company policies negatively affect RL management (Rogers & Tibben-Lembke, 2001). This study showed that the company policies that could prevent RL from working effectively contribute to management barriers (Rogers & Tibben-Lembke, 2001). Conversely, Patyk et al.,(2014) find that only 14% of respondents marked company policies are the barrier to RL because if the company policies too strict and it might affect the RL implementation. According to Sarkis (2009), top management has great power to influence the organization's adoption of green initiatives. It can, therefore, conclude that one of the barriers, when the organization carries out RL activities, is the lack of top management commitment. So, it is good that the study looks deeply to investigate whether financial is once the barrier that firms in Malaysia faced when implementing RL.

2.2.2 Financial Barrier

Abdulrahman et al. (2014) and Sharma et al. (2011) stated that a lack of initial capital to implement the returns monitoring system and handling the returned items is the major barrier to the RL practices. According to Ganjali, Shirouyehzad and Shahin (2014), the RL practices is an unstable practice from the management view as it involves financial aspects that may affect the performance of the organization in long run. A successful RL

operation required a high-end information system that is important to track the returned items which require high resources and capital to start and maintain the RL (Bernon et al., 2011). Apart from that, to make the RL operation effectively, it requires the operator or worker to be trained, as result, it requires strong financial support that management not willing to spend on RL (Sarkis, Zhu & Lai, 2011).

Rogers and Tibben-Lembke (1999) study on the barrier of RL stated that only 18.9% of respondents think that financial resources were the barriers to make the RL activities successful in their firm. Waqas et al., (2018) study showed that financial barriers such as the financial burden of the tax were the top major barrier to RL which similar conducted by Abdulrahman et al., (2014) in which financial barrier like lack of initial capital are the main barriers to the implementation of RL in the manufacturing industry in China. Thus, it is good that the study looks deeply to investigate whether financial is once the barrier that firms in Malaysia faced when implementing RL.

3.0 Research Methodology

This research employed a quantitative approach. Data were collected through the survey questionnaire. A five-point Likert scale of 1 (Strongly disagree) to 5 (Strongly agree) was used to determine the level of agreement to the statement designed in the questionnaire. The study was conducted on the online merchant/seller on both fashion and electronic categories in LAZADA and Shopee where most of the people frequently visited and spent on. Purposive sampling is used to ensure the data obtained are from credible sources.

The sample size for this study used Tabachnick and Fidell (2007) rule. A total of 66 sets of survey questionnaires distributed through the e-commerce platform chat or by email. One of the reasons for the failure to reach the minimum sample size is that the person in charge of the e-commerce account is not the company's management owner and not confident to fill unable to answer the questionnaire on behalf of the company. According to Roscoe (1975), sample sizes greater than 30 are appropriate. Data were analysed by using descriptive and correlation methods.

4.0 Results and discussion

Only 35 respondents provide the feedback from the questionnaire and the response rate is at 53.03%. Generally, the number of respondents hold a top manager position slightly higher than the front-line manager which is 45.71% and 42.86% respectively.

4.1 Management barrier to adoption of RL

Table 1 shows the summary of the management barrier to adopt RL. The result indicated there is lack of commitment from top management is the major barrier in management barrier towards RL practices with the highest mean of 3.486. The lowest with a mean score of 3.0571 is "The organization is not willing to accept the support from dealers, 14 distributors, and retailers". Overall mean score for the management barrier to adoption of RL is 3.3143. Which indicates that it is at a moderate level.

Table 1 Summary of Management Barrier to adoption of RL

Statement	Mean
The organization top management is lack of commitment towards Reverse Logistics practices.	3.486
The organization lack of understanding of the importance of Reverse Logistics.	3.429
The organization management did not pay attention to Reverse Logistics.	3.429
The organization lack of appropriate performance management system towards Reverse Logistics practices.	3.371
The organization lack of waste management practices.	3.343
The organization lack of Reverse Logistics expert at management level.	3.343
The organization is lack of strategic planning and structure of the Reverse Logistics practices.	3.314
The organization faces resistance in the change of Reverse Logistics.	3.314

The organization lack of cooperation with Reverse Logistics professionals.	3.314
The organization lack of management initiatives for transport and logistics to the Reverse Logistics practices.	3.257
The organization lack of support from the logistics providers toward Reverse Logistics practices.	3.229
The organization has a poor organizational culture toward Reverse Logistics practices.	3.200
The organization is not willing to accept the support from dealers, distributors, and retailers.	3.057

Overall Mean: 3.5048

The Pearson correlation recorded -0.412 in Table 2 shows the weak negative correlation between financial barrier and the adoption of RL. with a sig. level of 0.014. Result shows that, when the adoption of RL increases, management barriers will be decreased. Thus, to increase the level of RL adoption, the organisation needs to reduce the barriers in adapting the RL.

Table 2 Relationship Between Adoption of RL and Management Barriers

Correlations

		Adoption of RL	Management Barriers
Level of RL Adoption	Pearson Correlation	1	-.412*
	Sig. (2-tailed)		.014
	N	35	35
Management Barriers	Pearson Correlation	-.412*	1
	Sig. (2-tailed)	.014	
	N	35	35

*. Correlation is significant at the 0.05 level (2-tailed).

Lack of commitment of top management are the major management barriers towards RL practices. This finding produced result which corroborates the finding of Ravi and Shankar (2005) that management barriers were statistically significant with the adoption of RL. This study suggests that e-commerce companies must understand RL because the high

level of barriers will contribute to the low adoption of RL. Commitment from top management in the RL is important. However, this study shows the results which the lack of commitment and lack of management support create in the low adoption of RL in the Malaysian e-commerce company. Perhaps the management team is more likely to see the return on investment rather than wasting time on events with a lot of uncertainty. Hence, the management team does not give high support in implement the RL practices.

4.2 Financial barrier to adoption of RL

Table 3 shows the summary of the financial barrier to adaption of RL. Overall, the mean score for the measurement falls between 3.3429 to 3.7429. The result indicated that "High investments and less return on investment." is the barrier for the organization to adopt RL with the mean score of 3.743. The overall mean score of 3.5048 shows that financial barriers to adoption of RL are at a moderate level.

Table 3 Summary of Financial Barrier to RL Adoption

Statement	Mean
High investments and less return on investment be an obstacle for my organization to adopt Reverse Logistics practices.	3.743
High costs of operation in transportation and reprocessing be the obstacle for my organization to adopt Reverse Logistics practices.	3.600
The organization lack of funds for training to adopt Reverse Logistics practices.	3.571
High cost in financial resources is the obstacle for my organization to adopt Reverse Logistics practices.	3.543
The organization lack of funds for return monitoring systems to adopt Reverse Logistics practices.	3.543
The organization lack of funds for storage and handling to adopt Reverse Logistics practices.	3.457

Nonavailability of bank loans to encourage green products/processes be an obstacle for my organization to adopt Reverse Logistics practices.	3.371
The organization lack of initial capital to adopt Reverse Logistics practices.	3.371
The company is not willing to allocate financial resources to Reverse Logistics practices.	3.343

Overall Mean: 3.5048

The Pearson correlation recorded -0.613 in Table 4 shows the weak negative correlation between financial barrier and the adoption of RL. with a sig. level of 0.000. Thus, when the adoption of RL increases, management barriers will be decreased.

Table 4 Relationship Between Adoption of RL and Financial Barriers

Correlations

		Adoption of RL	Financial Barrier
Level of RL Adoption	Pearson Correlation	1	-.613**
	Sig. (2-tailed)		.000
	N	35	35
Financial_Barrier	Pearson Correlation	-.613**	1
	Sig. (2-tailed)	.000	
	N	35	35

**. Correlation is significant at the 0.01 level (2-tailed).

The barriers to adoption of RL among Malaysian e-commerce is at a moderate level with an overall mean score of 2.8118. The result is consistent with the previous study by Abdullah and Yaakub (2017) which studied the adoption of RL among manufacturers in Malaysia and their study showed that the adoption RL is moderate. Nine out of seventeen items are less than average such as product refurbishment, remanufacturing, recycle, provide RL related training, reuse, incorporated RL into the supply chain, repair the returned item, set KPI standards to RL activities is not ready in the Malaysian e-commerce. Among the 17 activities in the measurement, the activities receive customer return for replacement,

exchange, or refund receive was frequently performed by the seller are most often performed by Malaysian. The logistics cost for return is high when the customer needs to return to the seller and the seller re-issues the new item back buyer. This finding further supported the idea of Shaharudin et al. (2015) that return products increase the financial expense in the operations that lead to the company losing their money.

The relationship between financial barriers and level of RL adoption is found to be a negative relationship. The finding agrees with Shaharudin et al. (2015) finding, which showed that lack of financial support is the main barrier for firms in adopting RL practices. The financial barriers are limiting the ability of the firm to adopt RL practices. The analysis from previous sections indicated that high investments and less return on investment be a barrier for the organization to adopt RL with the highest mean score of 3.743 and the study was consistent with the study by Garg, Luthra, and Haleem (2016). The results might be the high cost to implement RL in the organisation and do not want to spend huge capital on RL for long – term with no profitable of rate of return.

5.0 Conclusion

This study aims to investigate the barriers to adoption of RL among Malaysian e-commerce. In general, the lower the barrier level, the easier it will be for e-commerce to adopt RL, and the higher the barrier level, the more difficult it for e-commerce sellers to adopt RL. The findings from this research contribute to the e-commerce industry and the finding can be used as a reference by several related parties such as e-commerce, policymakers, and researchers. In conclusion, it is hoped that the finding from this research may be beneficial to society and provide an understanding of RL to both practitioners and academics.

REFERENCES

Abdullah, A. H., Hamzah, M. H., Hussin, R. H. S. R., Kohar, U. H. A., Abd Rahman, S. N. S., & Junaidi, J. (2017, December). Teachers' readiness in implementing science, technology, engineering and mathematics (STEM) education from the cognitive, affective and behavioural aspects. In 2017 IEEE 6th International Conference on Teaching, Assessment, and Learning for Engineering (TALE) (pp. 6-12). IEEE.

Abdullah, N. A. H. N., & Yaakub, S. (2014). Reverse logistics: pressure for adoption and the impact on firm's performance. International Journal of Business and Society, 15(1), 151.

Abdullah, N., Ab Halim, N., & Yaakub, S. (2014). REVERSE LOGISTICS: PRESSURE FOR ADOPTION AND THE IMPACT ON FIRM'S PERFORMANCE. International Journal of Business & Society, 15(1).

Abdulrahman, M. D., & Subramanian, N. (2012). Barriers in implementing reverse logistics in chinese manufacturing sectors: an empirical analysis. In Proceedings of the POMS 23rd Annual Conference Chicago. Illinois: POMS.

Allied Market Research. (18 March 2020). Reverse Logistics Market Size, Share and Opportunity Analysis by 2025. Retrieve from: https://www.alliedmarketresearch.com/

Borgers, W. G. B., Ng, S. I., Chew, B. C., Lau, T. C., Ong, D. L. T., Nadarajah, D., . . . Mamat, M. N. (2017). Business Research Methods. Selangor, Malaysia: SJ Learning.

Chan, F. T., & Chan, H. K. (2008). A survey on reverse logistics system of mobile phone industry in Hong Kong. Management Decision.

Cohen, J., & Kupferschmidt, K. (2020). The coronavirus seems unstoppable. What should the world do now. Science, 25.

de la Fuente, J., Estrada-Pena, A., Venzal, J. M., Kocan, K. M., & Sonenshine, D. E. (2008). Overview: ticks as vectors of pathogens that cause disease in humans and animals. Front Biosci, 13(13), 6938-6946.

Dissanayake, D., & Singh, M. (2008). Managing returns in e-business. Journal of Internet Commerce, 6(2), 35-49.

Dowlatshahi, S. (2000). Developing a theory of reverse logistics. Interfaces, 30(3), 143-155.

Fernando, Y., Sharon, S. S. T., Wahyuni-Td, I. S., & Tundys, B. (2017). The effects of reverse logistics on cost control abilities: an insight into manufacturing companies in Malaysia. International Journal of Value Chain Management, 8(4), 285-306.

George, D., & Mallery, P. (2016). IBM SPSS Statistics 23 Step by Step: A Simple Guide and Reference (13th ed.). New York: Routledge.

Gravetter, F. J. & Wallnau, L. B. (2012). Statistics for the behavioral health sciences (9th

ed). Belmont, CA: Wadsworth.

Hazen, B. T., Overstreet, R. E., Hall, D. J., Huscroft, J. R., & Hanna, J. B. (2015). Antecedents to and outcomes of reverse logistics metrics. Industrial Marketing Management, 46, 160-170.

Jayaraman, V., & Luo, Y. (2007). Creating competitive advantages through new value creation: a reverse logistics perspective. Academy of management perspectives, 21(2), 56-73.

Jindal, A., & Sangwan, K. S. (2011). Development of an interpretive structural model of barriers to reverse logistics implementation in Indian industry. In Glocalized solutions for sustainability in manufacturing (pp. 448-453). Springer, Berlin, Heidelberg.

Khan, A., & Subzwari, M. (2009). Reverse logistics in Pakistan's pharmaceutical sector. South Asian Journal of Management Sciences, 3(1), 27-36.

Khor, K. S., & Udin, Z. M. (2013). Reverse logistics in Malaysia: Investigating the effect of green product design and resource commitment. Resources, Conservation and Recycling, 81, 71-80.

Lamba, D., Yadav, D. K., Barve, A., & Panda, G. (2019). Prioritizing barriers in reverse logistics of E-commerce supply chain using fuzzy-analytic hierarchy process. Electronic Commerce Research, 1-23.

MCMC. (2019). e-Commerce Consumers Survey. Retrieved July 01, 2020, from https://www.mcmc.gov.my/en/resources/statistics/e-commerce-consumers-survey

Ngadiman, N. I. B., Moeinaddini, M., Ghazali, J. B., & Roslan, N. F. B. (2016). Reverse logistics in food industries: A case study in Malaysia. International Journal of Supply Chain Management, 5(3), 91-95.

Prakash, C., & Barua, M. K. (2015). Integration of AHP-TOPSIS method for prioritizing the solutions of reverse logistics adoption to overcome its barriers under fuzzy environment. Journal of Manufacturing Systems, 37, 599-615.

Ravi, V., & Shankar, R. (2005). Analysis of interactions among the barriers of reverse logistics. Technological Forecasting and Social Change, 72(8), 1011-1029.

Rogers, D. S., & Tibben-Lembke, R. (2001). An examination of reverse logistics practices. Journal of business logistics, 22(2), 129-148.

Rogers, D. S., & Tibben-Lembke, R. S. (1998). Going backwards: reverse logistics trends and practices (Vol. 2). Pittsburgh, PA: Reverse Logistics Executive Council.

Roscoe, J. T. (1975). Fundamental research statistics for the behavioral sciences [by] John T. Roscoe.

Shaharudin, M. R., Zailani, S., & Tan, K. C. (2015). Barriers to product returns and recovery management in a developing country: investigation using multiple methods. Journal of Cleaner Production, 96, 220-232.

Sharma, S. K., Panda, B. N., Mahapatra, S. S., & Sahu, S. (2011). Analysis of barriers for reverse logistics: an Indian perspective. International Journal of Modeling and Optimization, 1(2), 101.

Steven, M. (2004). Networks in reverse logistics. In Supply chain management and reverse logistics (pp. 163-180). Springer, Berlin, Heidelberg.

Stock, J. R. (1992). Reverse logistics: White paper. Council of Logistics Management.

Stock, J., Speh, T., & Shear, H. (2006). Managing product returns for competitive advantage. MIT Sloan management review, 48(1), 57.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). Using multivariate statistics (Vol. 5, pp. 481-498). Boston, MA: Pearson.

Yacob, P., bin Mohamad Makmor, M. F., Zin, A. W. B. M., & Aziz, N. S. B. (2012). Barriers to reverse logistics practices in Malaysian SMEs. International Journal of Academic Research in Economics and Management Sciences, 1(5), 204.

Yacob, P., bin Mohamad Makmor, M. F., Zin, A. W. B. M., & Aziz, N. S. B. (2012). Barriers to reverse logistics practices in Malaysian SMEs. International Journal of Academic Research in Economics and Management Sciences, 1(5), 204.

Ye, T., & Zhenhua, Y. (2014). Reverse logistics network: A literature review. Journal of Chemical and Pharmaceutical Research, 6(7), 1916-1921.