

Household Appliance Retailer Reverse Logistics: A Model Test Case at PT. Electronic City Indonesia Tbk.

Andini Indraswari¹, Alya Maulina², I Nyoman Purnaya³, M.Iqbal Firdaus⁴,
Supriyadi⁵

^{1,2,3,4,5} Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia

Corresponding author: alyamaulina9b@gmail.com

ABSTRACT

In this era, the use of electronic equipment is increasing. The increase in sales led to the rise of retail stores of household electronic equipment to meet the needs of the people in Indonesia. When viewed in terms of waste, it has a negative impact on the environment, so the reverse logistics process must be a priority for the company. However, there are still many electronic equipment retail shops in Indonesia that do not understand how the applicative reverse logistics operation model. By conducting this research, we collect data and information about the return process at one of the largest electronic equipment retail stores in Indonesia, namely PT. Electronic City Indonesia Tbk to find out which reverse logistics model is applicable by testing three reverse logistics models (self-managed reverse logistics models, co-managed reverse logistics and outsourced reverse logistics models) that are applied to household electronic products. After doing research, we got a new model called mix-models, or a combination of self-managed that is more customer-oriented and outsourced which is more inclined to the organizational side where the model will be more applicable to electronic equipment retailers in Indonesia.

Keywords: reverse logistics model, household appliance retail reverse logistics, operation model

Introduction

1. Development of electronic households appliances's retail in Indonesia

The electronic households appliances's sales has increased 10 % in 2016 compared to 2015 (source: kemenperin _ ri). Because of the increasing needs of the electronic products for society, we realize

that electronic products has become a basic complementary needs, and as a result, the existence of the electronic store is more well known in the eyes of society. It's very easy to find Electronic stores in every corner of the city, and it will be easier for people to shop without having to go far to get there. Various types of electronic products are coming from local and international producers.

2. Problem Identifications

With the incomings electronic households appliances retail shops in Indonesia, it certainly brings a positive impact on the community to meet their needs. In this modern era, development of technology increases rapidly. People cannot avoid the usage of technology. One of the customer's behavior is changing their technology once the new version is released especially in electronics, these things creates new problems for the environment. Customer do not understand the environmental impact caused by electronical household's waste. Customers usually simply throw it away or sell it to another person. Even though the customers give or sell it to other person, the electronic waste still exists. We should realize the main character of electronical waste contains of harmful chemicals which are unrecyclable. And, we cannot avoid the problem which it could be a primary source of environmental pollution. Moreover, electronic households appliances manufacturers in Indonesia are still not fully aware of the importance of implementing reverse logistics in their business. Most electronic producers only focus on forward logistics to meet market needs.

Low understanding and knowledge about reverse logistics is one of the causes of that problems. Most people (producers and customers) are only seen the reverse logistic as a burden that could decrease the profit of the organization. The society has not fully understood about the amount of environmental impact caused by the waste from electronic components. In General, this things should be a concern for the public about the importance of reverse logistics to reduce and avoid environmental pollution. As an object of research, researchers chose PT. Electronic City Indonesia, Tbk. (ECI) as an electronic equipment retailer in Indonesia that runs the reverse logistics process. Early selection is supported by programs that offered by ECI regarding reverse logistics operations for helping customers to maximize the use of electronic equipment.

3. Literature Review

In general, enterprises who operate reverse logistics activities have their own background and reason, 1) because they have target to get profit from that, 2) because it's a must(there's a regulation) or 3) because the enterprise pay attention to the environment.(Brito & Dekker, 2003). Many enterprises still thinking that the waste from their products has no value at all. Even though, establishing return activities in an organization could attract existing customer or even the new comings. The answer is Revers Logistics, that program could be a differentiator to gain the goodwill of the enterprise.(Executive, 2016). As the implemented in indusry, each enterprises surely implement different step in order to run the return process depending on what activities that engeged in their organization.But, ofcourse the process should be clear on customer-focused(Li &

Olorunniwo, 2014). Not only returning damage products, reverse logistics also inclusive return the seasonal inventory, recalls and overstock. In the retail industry, implementing reverse logistics is a critical part on their business. Reverse logistic is the most visible program and could correct the service failure of work(Olariu, 2014). Handling the electronic waste become a challenge on the global concern of waste management because of fast obsolete in the modern technology improvement thru recycling and disposal activity(Dahlstrom, Nygaard, Dahlstrom, & Nygaard, 2018). Upgrading innovation in electronics,could create high electronical waste and it affect to the increasing innovative act to do recycling of used products(Lau, Chung, & Zhang, 2013)

According to Chen Yaping, Zong Junqing and Tang Shiqian, there are three modes of Reverse Logistics operations for Electronic Home Appliances products. (Advanced Materials Research Vol. 488-489, 2012)

The first mode is ***self-managed*** operation(self management). This kind of mode, operates their own enterprise to run the entire activity of reverse logistic system by them self. When an enterprise only manage their own products, they will have a stronger control around them because they could coordinate it well among management to have an comprehensive control. It affect to the fast response of operations and get higher efficiency which can raise the reputation of the enterprise. But, there is a declining risk from self-managed operations. This type of model must balance the forward logistics system with reverse logistics in the company's operational processes. It means, there will be a variety of human resources between forward logistics and reverse logistics activities, so that the company's

financial expenses will be higher. There will be possibility problems between the operations of that both logistics systems, if the enterprise couldn't manage or run it very well. Not only that, the enterprise should implement integrated technology to provide fast information to create a good system.

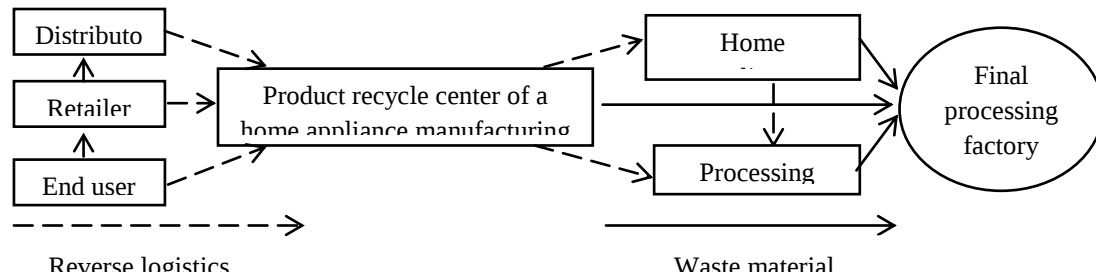


Figure I.

Network structure of self-managed reverse logistics mode

The second mode is **co-managed** operation (managed together). This kind of mode, operates the reverse logistics by do cooperation among enterprises who have same or similar products. The financial and operational risk in **co-managed** operation will be lower than **self-managed** operation, because each enterprise do investment risk sharing. Not only that, each enterprise could processing more quantity and types for reverse logistics operation because it will handled by professional management. Also, there are other things that need to be considered for implementing this mode. It needs good coordination among participants, because each enterprise have different thinking about reverse logistics and have different cooperation purposes in the operating of reverse logistics. To build a good

network, each enterprise relatively should invest higher investment to run this kind of mode effectively.

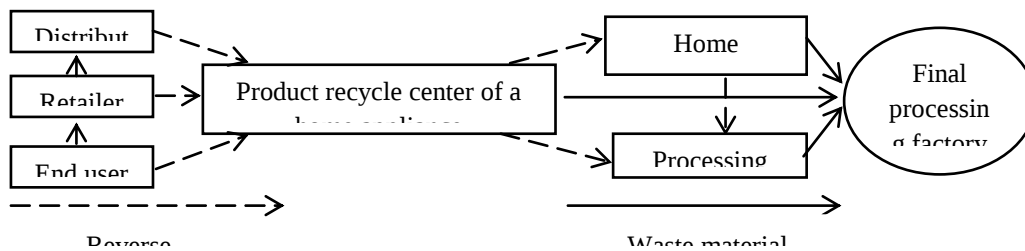


Figure II.

Network structure of co-managed reverse logistics mode

The third mode is **outsourced** operation(outsourcing). The professional reverse logistic company taking over the partial or whole products recycle operations of an enterprise by signing an agreements. An enterprise who do this kind of mode, usually want to focus and developing their core activities, where the non-core activities are given to the third parties. The professional parties dedicated to reverse logistic systems, so the enterprise could improve their service quality even not manage it directly. Enterprise could reduce uncertainty and minimize financial risk because they avoid huge investment for do their own reverse logistics operation.

Things to remember when this mode is operates, the third parties will known very well about the products and probably result the disclosure commercial secrets.

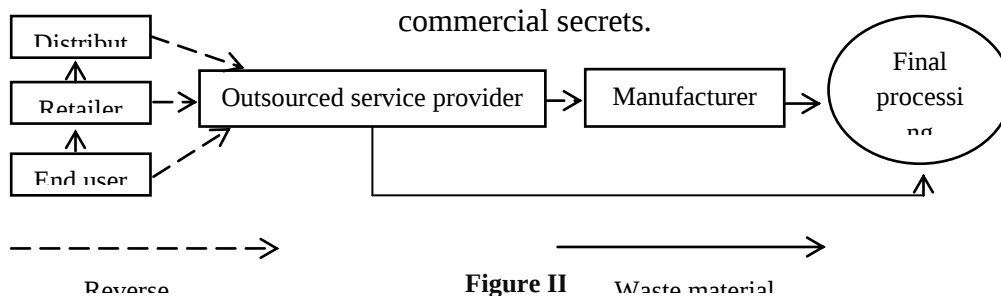


Figure II

Network structure of outsourced reverse logistics mode

4. Research objectives and contribution of research results

This study intend to conduct an applicative test of the three reverse logistics models presented by Chen Yaping, Zong Junqing and Tang Shiqiang, to retail companies of electronic households appliances's products in Indonesia. Researchers limit the discussion of problems in reverse logistics processes for air conditioner, refrigerator, television and washing machines. The results of this study are expected to provide the ability to identify applicable models, for retailers and producers of electronic households appliances's products in Indonesia.

Method

This research was carried using the method of literature study and interviews with logistics actors at PT. Electronic City Indonesia Tbk as the object of research. Retrieval of data and information to prove reverse logistics models that are in accordance with retail companies of household appliances electronic equipment in Indonesia

The process of collecting data and information is preceded by literature study, which aims to obtain and compare reverse logistics models that are applied to retail companies of household appliances electronic equipment, and then decide on the model to be tested on the object of research.

Researchers continue the process of collecting data and information by conducting interviews with informants that are directly related to the implementation of reverse logistics in the object of research. The interviews

focused on reverse logistics problems that have been carried out by the research object, including the product return process carried out by consumers to the object of research and the return of products that carried out by the object of research to the supplier.

Discussion and Result

Self-managed reverse logistics operation of home appliance retail

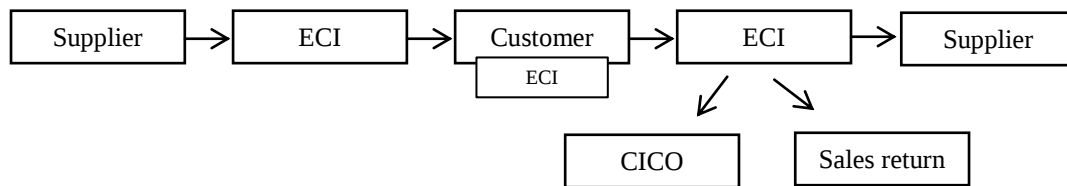


Figure. IV

Network Structure of self-managed reverse logistics operation mode in PT. Electronic City Indonesia Tbk

Points of return process in ECI :

1. CICO (Claim In Claim Out)

Damaged products from customer will received by PT. Electronic City Indonesia Tbk, this activity called as Claim In or incoming damaged goods. ECI will give the same and new article(products) to the customer, this activity called Claim out. So, the damaged product will be traded with exactly the same new product.

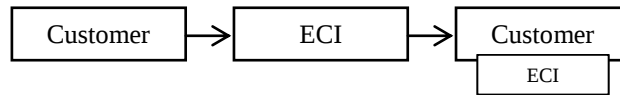


Figure V.

Network structure of CICO process in PT. Electronic City Indonesia Tbk

2. Sales Return

Sales return will functionate, if the article is not available in the store but customer claim that product. PT. Electronic City Indonesia Tbk will offer the other products to customer. If customer accepted this kind of way, the product that could returned is higher price than the previous products, and the extra charge will be paid by customer. But also, if customer couldnt accept it, PT. Electronic Indonesia Tbk will return the money for that previous product to the customer.

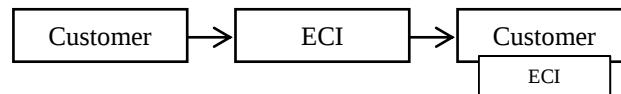


Figure VI.

Network structure of Sales Return process in PT. Electronic City Indonesia Tbk

3. Purchase Return

The previous point are talking about return activity from the customer side. In this point, we will talking how PT. Electronic City Indonesia Tbk do return process to the supplier itself. Products that are returned to the supplier, are products from customer, which is damaged in function. In this business process, PT. Electronic City Indonesia Tbk will inform that damaged product to supplier(in the

implementation, supplier will take the product back) and PT. Electronic City Indonesia Tbk will cut the supplier's bill of that product.

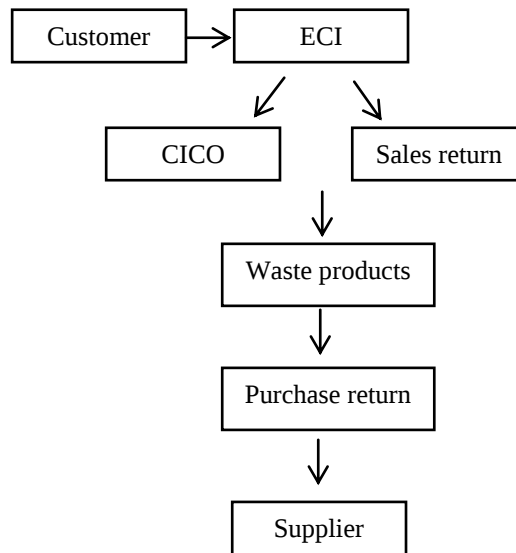


Figure VII.

Network structure of Purchase Return process in PT. Electronic City Indonesia Tbk

Outsourced reverse logistics Home Appliances

1. Extended Guaranty

PT. Electronic City Indonesia Tbk provides facility to do repair products called Extended Guaranty. PT. Electronic City Indonesia Tbk offering this facility when customer buy the products. If the customer buy this guaranty, the product will secured even it's exceeds the due of supplier's guaranty, which is one year. The business unit who managed the reparation of PT. Electronic City Indonesia Tbk's product called Service City (PT. Graha Karunia Trading).

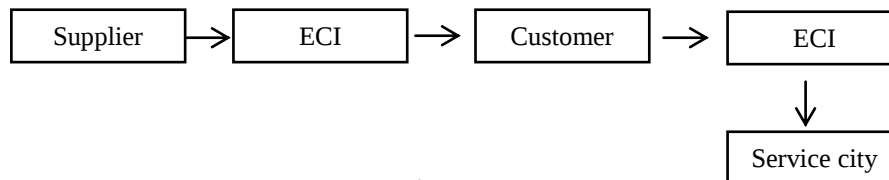


Figure VIII.

Network structure of Extended Guaranty process in PT. Electronic City Indonesia Tbk

In this business process, the damaged product from customer to the store, will be located in waste location. After that, PT. Electronic City Indonesia Tbk will inform to the service city by system. Service city will take that product to be repair soon.

2. Trade-In

In the implementation of sales, PT. Electronic City Indonesia Tbk do a periodic program called Trade-in. Customer has opportunities to return their used products to get voucher and other promotion from PT. Electronic City Indonesia Tbk. This kind of used products, will be bought and handled

by Service City. The service city do repair on it and sell it whether in one product or by components.

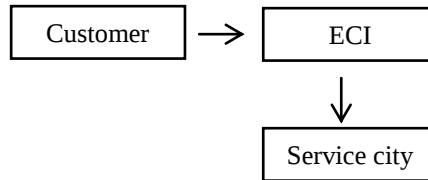


Figure IX.

Network structure of Trade In process in PT. Electronic City Indonesia Tbk.

Reverse Logistics Process based on product category

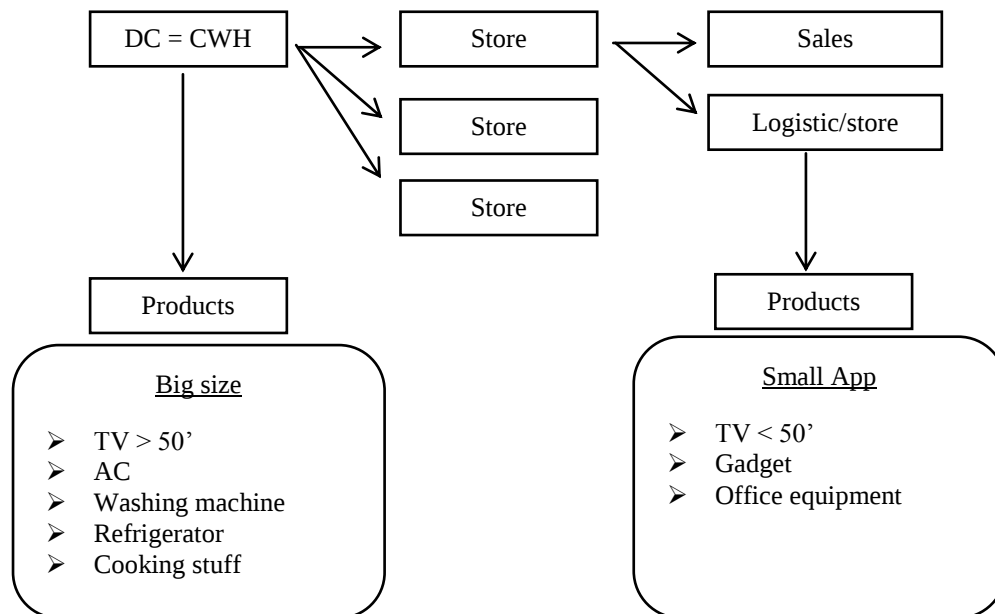


Figure X.

*Network structure of Forward and Reverse Logistics process in PT. Electronic City
Indonesia Tbk based on product category*

PT. Electronics City Indonesia Tbk has 1 Distribution Center and 53 warehouses in each of its stores. Distribution centers store quite large items, such as TV > 50 ', air conditioner, washing machines, refrigerators and cooking equipment (stoves). Differ at the sale of products in stores, product that store for sale are small size items, such as TV <50 ', gadgets and office equipment. Sales to customers are officially the rights of each store depending on the inventory of goods in each warehouse. However, each store has the same opportunity to sell items which still available in the distribution center by looking at the availability of goods on the system.

When customer do a purchase process through the store, customers can take the products directly. It is different from the process of purchasing products that available in the distribution center, the items will be sent directly to the customer's address from the distribution center. The way of how customer get the product will affect to the reverse logistics process. If there is a problem with the product in a functional manner, the customer can return the product according to the process of acquiring the item. Returns can be made directly if the customer buys it at the store, while the company will take back the item that has been sent to the customer's address.

The dominant product returned by the customer

PT. Electronic City Indonesia Tbk sells many types of products with many variations, in this case we focus on household goods. Namely: TV, Refrigerator, AC and Washing Machine. Of the four products, the product

most complained and returned by customers is air conditioning. There are various factors that lead to dominating the AC return process to the company. AC installation carried out in installation is one of the factors, because these activities require an installer in the process. Not only that, AC products have two sides of the product, namely Indoor and Outdoor. Where there are various possible factors of product damage that will occur.

Washing machines and refrigerators have almost the same presentation in the process of returning from customers, repairs will be made if there is damage to the function, so the process of returning products to the company is rare. The last product is TV, this product is rarely complained and returned by customers. So, the product sequence that dominates reverse logistic activities is AC, then washing machine and refrigerator, and the last is TV.

Table I. Purchase Return data in PT. Electronic City Indonesia Tbk in periode of 2017

PURCHASE RETURN VENDOR													
SITE	0001- SCBD												
Sum of Qty	Colu mn Label s												

Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
AC	8	2	9	7	8	16	8	10	13	12	14	18	125
Washing Machine					3	6	12	11	8	6	10	12	68
Refrigerator					8	11	6	7	8	9	6	8	63
Television	8	6	6	4	4	5	4	4	3	5	4	9	62
Grand Total	16	8	15	11	23	38	30	32	32	32	34	37	318

Human Resources Logistic Department

As we know, the forward logistic process is very contrary to the reverse logistic process. Forward logistic is the process of sending goods from a company (retailer) to customers, while reverse logistics is the process of returning goods from customers to the company. Because these two things have different processes, different skills are usually needed. However, in PT. Electronic City Indonesia Tbk management, human resources in the logistics department have the task of "multitasking". Where, employees have responsibility for forward and reverse logistics processes at once.

Analysis of Data

In accordance with the data and information that has been collected regarding the return process activities at PT. Electronic City Indonesia Tbk and tested and compared with the theory of three reverse logistics models (self-managed reverse logistics models, co-managed reverse logistics models and outsourced reverse logistics models) that are applied to household electronic products, are as follows.

Replacement of new products of the same type, for products that are claimed to be damaged by function are called Process Claim In Claim out. In detail, product returns from customers to the store are called Claim In. Meanwhile, the replacement of new products for the exchanged goods is called Claim Out. In this activity, ECI sets a maximum period of 14 days, starting from the time and date of purchase for customers who want to exchange the damaged product. If it is still within that period, customers can perform the return process directly at the store purchasing the product. When we compare the Claim In Claim Out Process with 3 reverse logistics theory models, we conclude that the CICO process is a self-managed model.

After we compared the 3 reverse logistics models with the process returns that occur in ECI, the self-managed process applied by ECI next is Sales Return process. If the customer returns a damaged product to ECI within 14 days from the date of purchase, ECI is responsible for exchanging the item for a new item of the same type. However, if the item is not available, ECI will offer the exchange process directly with items of another type and at a higher price. If the customer accepts the offer, there will be a direct exchange process called Sales Return.

Damaged product functionally claims and returned by the customer to the store, of course it will be returned to the supplier. In this case, the store will exchange new products available in store warehouses for the damaged products to customers. After that, the store will return the defective item to the supplier. Claim product returns will be harmonized by cutting the bill by the store to the supplier for the item. When we compare this Purchase Return Process with 3 reverse logistics theory models, we conclude that the Purchase Return process is a self-managed model.

ECI provides a special facility for customers by providing additional guarantee time called Extended Guaranty. If the defective item has passed the guarantee time from the supplier, the item can be repaired if the customer buys the Extended Guaranty facility. In detail, after the customer returns the product to ECI, ECI will provide information through the system to a business unit called Service City. Then, Service City will take over the item for repair. After we compare the Extended Guaranty process with 3 reverse logistics models, this process applies an outsourced model because this process involves a third party, namely Service City.

In its business activities, ECI offers trading activities for used products owned by customers. Customers who exchange their items will get vouchers or other promotions. In this case, ECI only facilitates the exchange of used products. Broadly speaking, ECI sells the used product to Service City and then the product will be taken over by Service City for the next repair process. When we compared this Trade-In Process with the theory of 3 reverse logistics models, we concluded that the Trade-In process is an outsourced model.

In its business activities, ECI as an electronic equipment retailer has an important role in approaching customers, because all activities carried out involve selling goods directly to customers. Service to customers is the responsibility of ECI. One example is the return process activity provided by ECI to facilitate customer complaints. In the activity of Claim in Claim out, Sales Return and Purchase Return, where the activity is closely related to the customer, ECI applies a self-managed model, because ECI determines and manages the activity independently.

In the world of Electronic Equipment Retail, ECI is working with many suppliers to become a place to sell suppliers' products to customers. Not only from the Forward Logistic side, ECI also cooperates with business units that manage the improvement of ECI customer electronic equipment problems on the Reverse Logistics side, namely Service City (PT. Graha Karunia Trading). In the Extended Guaranty and Trade In activities, the implementation of the performance between the two parties is connected through the system, so that customers get fast service for the products purchased. Extended Guaranty and Trade In are closely related to Service City, so ECI applies an outsourced model.

Conclusions and Suggestions

Based on the analysis of data and information collected and testing with three models of reverse logistics operations namely self-managed, outsourced, and co-managed it can be concluded that the three models are not applicable in the implementation of reverse logistics for electronic equipment retailers and manufacturers of home electronic equipment

products. stairs in Indonesia. The use of appropriate models is mix-models or a combination of self-managed who are more likely to be customer-side and outsourced who are more inclined to the organizational side and use third parties to take over. Thus, the implementation of reverse logistics will be more applicable if electronic equipment retailers in Indonesia use the latest model.

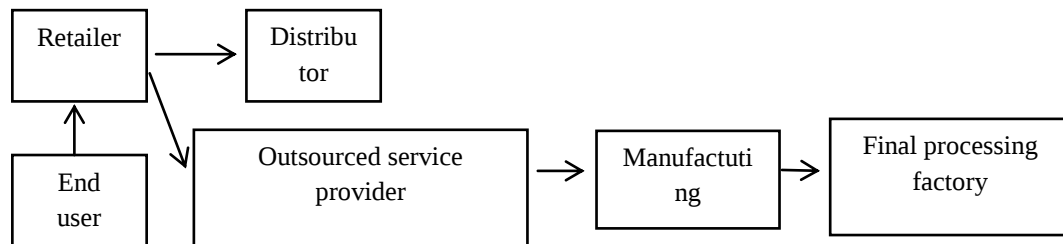


Figure XI.

Network structure of mix-models reverse logistics

In this article, researchers limit the discussion of retail electronic equipment to reverse logistics processes related to four products, namely air conditioning, refrigerator, television and washing machine. Further research is expected to discuss the reverse logistics process experienced by other parties such as the factory and its processing and further researchers are expected to be able to use different research methods to obtain more accurate data.

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