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The Dimensions of influence Factor on Reverse Logistics Management

[1]Punyapon Tepprasit, [2]Dr. Natsapan Paopun, [2]Dr. Prangtip Yuvanont, [3]Thirawan Tepprasit.

[1]*Department Logistics and Supply Chain Management, School of Business Administration, Sripatum University, 2410/2 Phahonyothin road, Chatuchak District, Bangkok, Thailand, 10900.*
[2]*Graduate School of Business Administration, Sripatum University, 2410/2 Phahonyothin road, Chatuchak District, Bangkok, Thailand, 10900.*
[3]*Consultant, MVP Consultant, 147 Rardpattana road, Saphansung, Bangkok, Thailand.*

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ABSTRACT

Background: The Reverse Logistics Management (RLM) is the new management concept that development from logistics management (LM) concept. RLM focus on reverse flow from downstream to upstream such as product return, backhaul, reuse, recycle, waste disposal. The trend of RLM is coming to the one of major that show one' capability in social responsibility. **Objective:** To study the dimensions of influence factors on reverse logistics management. **Results:** The result from documentary research, in-depth interview, and focus group indicated that the 3 major dimensions have an influence on reverse logistics management. First, logistics management (LM). Second, Information Technology (IT). The last of major dimensions, corporate citizenship (CC). **Conclusion:** This research aims to study the dimensions of influence factors on reverse logistics management that were used qualitative research. First, documentary research from 412 related research papers. Second, phenomenology approach that data collected from key informants who are the logistics, reverse logistics, and supply chain director of Thai's electronics industry by 21 key informants for in-depth interviews and 15 key informants for focus groups. The result indicated that the dimensions of influence factors on reverse logistics management is 3 major dimensions. If an organization can drive the 3 dimensions in best practice that will support the RLM to efficiency and effectiveness.

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INTRODUCTION

The Reverse Logistics Management (RLM) is the new management concept that development from logistics management (LM) concept. LM focus only on 3 forward flow, such as physical, fund, and information flow (United Nation, 2013). In the other hand, RLM focus on reverse flow from downstream to upstream such as product return, backhaul, reuse, recycle, waste disposal. The trend of RLM is coming to the one of major that show one' capability in social responsibility. Dr. Jame Stock who is the most famous in Logistics management guru, and he's one of the front line who push on the RLM. He reveals one of key success factors is carried on upstream process. Tepprasit & Yuvanont (2015) was revealed in a research paper that the Thailand country must consider on RLM concept to adapt on management way and business, operation process especially in electronics industry, because electronics industry is the major part of export product that make the high values for Thailand economic around 14.3 percent of total export value in last year. The Thai's electronics industry has 5 business categories such as (1) electronics and electrical equipment, (2) component, tools and computer, (3) integrated circuit, (4) component and air conditioner, (5) Television and radio receiver. When the EU commission promulgates the green law that made the huge impact on the electronics industry such as environment tax, and the responsibility to take the garbage, and waste product back to the origin for reuse, recycle or waste disposal. Nowadays, Thailand developing country is losing the price competitive capability that why Thailand needs the how to and new management model that support the high efficiency and effectiveness on RLM for finding the way out.

Objectives:

To study the dimensions of influence factors on reverse logistics management.

Literature Review:

Thai's electronics exporters:

Electronics exporters industry is an important export industry of Thailand. The Thai's government supported more 100 million US dollars for foreign direct investment (FDI) in Thailand. Thai has 5

Corresponding Author: Punyapon Tepprasit, Department Logistics and Supply Chain Management, School of Business Administration, Sripatum University, 2410/2 Phahonyothin road, Chatuchak District, Bangkok, Thailand, 10900.

electronics business categories such as 1) electronics and electrical equipment, (2) component, tools and computer, (3) integrated circuit, (4) component and air conditioner, (5) Television and radio receiver. The total value of electronics export industry in 2013 and 2014 was 33,854.45 and 38,461.12 US dollar per year, that's first rank of Thai' export products (Department International Trade Promotion, 2015). The important market of electronics products are USA, European country, Japan, and etc. (Department of Trade Negotiation, 2015).

Logistics Management:

The first definition of logistics management focused only product movement and distribution (Stock & Lambert, 2001; Langley *et al*., 2012). The leading global association in logistics and supply chain management in 1986 name as The Council of Logistics Management (CLM) defined the concept and definition of logistics management was an operation plan process and control in order to make the efficiency and effectiveness on material and product movement, manufacture, distribution. Six years later, the best guru in supply chain management professor "Martin Christopher", he defined the definition of logistics management was the strategic management in procurement and purchasing, movement, storage, inventory management, and information flow between departments of organization of value added on cost reduction as well as effectiveness (Christopher, 1992; 2014). The definition from Martin Christopher conform to Cooper, Lambert, and Page (1997), Bowersox, Closs and Cooper (2012), Mangan & De Marco (2014). In Thailand context, Tepprasit & Yuvanont (2015) defined definition of logistics management was the process of producing, fund, and information flow from the origin point (upstream) to end-user (downstream). Also the value will crease in every activity. In additional, the best thesis paper award from National Institute of Development Administration (NIDA) by Punyapon Tepprasit, he defined the definition of logistics management in one word as "Balance". He also explained the word of balance mean organization supply (Upstream) matching the customer demand (Downstream) (Tepprasit, 2012).

The logistics management has 14 activities that consist of materials movement, storage and warehousing, packaging, transportation, inventory management, order fulfillment, forecasting, time scheduling and manufacturing plan, procurement and purchasing, customer service, location, reverse logistics, sporting activity, waste and remanufacturing (Stock and Lambert, 2001; Langley *et al*. 2012; Christopher, 2011; Bowersox, Closs and Cooper, 2012). But other academician or researcher considered reverse logistics and waste, and remanufacturing wasn't logistics management activities, they defined both of activities in reverse logistics activities.

Reverse Logistics Management (RLM):

The clarity of origin point in reverse logistics theory and the concept was back to the year of 1998 when the 2 famous professor Dr. Dale S. Rogers and Dr. Ronald S. Tibben-Lembke (Rogers & Tibben-Lembke, 1998) both pioneer and driven the concept of reverse logistics. Rogers & Tibben-Lembke (1998) introduced the factors of RLM. First, return policy and procedure. That's the most important factors of RLM, because If any organization don't provide a return policy to business customer or end user that mean zero return (the product return don't happen). Second, remanufacturing or refurbishment. That's process will focus on how to separate good parts from electronics garbage or damage parts for reuse or recycle. The last factor is waste disposal. Organizations must consider in sustainability concept and the law of country, then choose the right way to waste disposal. In next decade, the academicians and researchers such as Kuczenski & Geyer (2012), Turrisi, Bruccoleri & Cannella (2012), JRieck & Zimmermann (2013), Bing *et al.* (2013), Cojocariu (2013), Draskovic (2013), Abdullah & Yaakub (2014) have RLM concept harmonize with the main idea and concept of Rogers & Tibben-Lembke (1998).

Methodology:

Research design:

This study of research was used qualitative research in 2 approaches. First, documentary research from related research papers. Second, phenomenology approach (Creswell, 2013) that data collected from key informants who are the logistics, reverse logistics, and supply chain director from Thai's electronics industry.

Key Informants:

Researchers were used 21 key informants for in-depth interviews and 15 key informants for focus group that are the logistics, reverse logistics, and supply chain director of Thai's electronics industry. Also researchers review from 412 related research and literature papers in the past decade to year of 2015.

Data Collection:

This study of research was used triangulation to data collection that consists of documentary research, in-depth interview, and focus group (Creswell, 2013).

Data Analysis:

Researchers were used content analysis to summarize the dimensions of influence factors on reverse logistics management, and synthesis the related work paper for concluding the research finding. (Miles and Huberman, 2013).

Research Finding:

The result from documentary research, in-depth interview, and focus group indicated that the 3 major dimensions have an influence on reverse logistics management.

First, logistics management (LM). The result from triangulation that can summarize the logistics management to forward logistics management (FLM). It involves the plan process, operation, and the control on purchasing, procurement, movement, storage, manufacturing, customer service, warehousing, distribution, and etc. Also FLM involves 3 process flow that consists of physical, fund, and information flow. All of FLM activities begin from the point of origin (upstream) to the point of consumption. Almost of data call FLM process to inbound, process, and outbound. The start point of reverse logistics begin at the point that customers have un-satisfaction or problem in products, and want to return product to manufacturer or distributor. When customers want to return products they will take product to return point such as the after sales service center, product showroom, and etc. Almost of relate work paper and in-depth interview, also focus group revealed many problems from product that begin from FLM activities such as low quality in materials, manufacturing, damage from transportation, and etc. By the way sometime manufacturer can't find parts or materials that matching with the time scheduling in manufacturing process that impact manufacturer to find urgent new suppliers, maybe some problem will happen when they use parts or material from new suppliers. If any manufacturer have good practice and control in all activities of FLM that influence reverse logistics to reduce waste or any problem from products.

Second, Information Technology (IT). The research finding in IT context reveals the relationship between IT and RLM, because IT support all of activities in forward and reverse logistics management such as product damage data collection, Back haul plan and analysis, product coding, Also, product design, marketing, support all of activities to reduce time, process and cost. In additional, IT will support the operation with enterprise resource planning (ERP) that integrate activities and plan in purchasing, procurement, transportation, distribution, product return, and etc. to efficiency and effectiveness (Such as accuracy, reduce waste, etc.)

The last of major dimensions, corporate citizenship (CC). Why corporate citizenship that because RLM is a major subset of green logistics that have involved with the environmental concept. The core of RLM is an operation process must conform to sustainability concept that consists of environmental, social, and economic with the best practice in cost and how to raise the value to customers. The CC has important when organizations or managers want to change in the way of business do to next level of the new concept "Sustainability Business", because the CC has an influence on organization, board vision and mission. The organization will have positive change and carry on environmental, social, and economic with sustainability concept. When organization would like to go on corporate citizenship that impact the all of process and activities in RLM for positive change in product return policy and procedure, remanufacturing and refurbishment, and waste disposal.

Conclusion:

This research aims to study the dimensions of influence factors on reverse logistics management that was used qualitative research. First, documentary research from 412 related research papers. Second, phenomenology approach that data collected from key informants who are the logistics, reverse logistics, and supply chain director of Thai's electronics industry by 21 key informants for in-depth interviews and 15 key informants for focus groups. The result indicated that the dimensions of influence factors on reverse logistics management is 3 major dimensions.

First, logistics management (LM). LM has activities such as plan process, operation, and the control on purchasing, procurement, movement, storage, manufacturing, customer service, warehousing, distribution, and etc. Some researcher or academician called forward logistics management (FLM) that always involves 3 process flow that consists of physical, fund, and information flow from upstream to downstream. The almost of product return reasons was product un-satisfaction or problem in products (in and out warranty time), and want to return product to manufacturer or distributor. Many problems of product that begin from FLM activities such as low quality in materials, manufacturing, damage from transportation, and etc. By the way, In case of manufacturer have good practice and control in all activities of FLM that influence reverse logistics to reduce waste or any problem from products.

Second, Information Technology (IT). IT is the one of function in organization that support all of activities in forward and reverse logistics management such as product damage data collection, Back haul plan and analysis, product coding, Also, product design, marketing, support all of activities to reduce time, process and cost. Also increasing the organization's efficiency and effectiveness.

Third, corporate citizenship (CC). The corporate citizenship has impact organization, board vision and mission that made the positive change on organization to improve all process to carry on environmental, social, and economic with sustainability concept. When organization would like to go on corporate citizenship that impact the all of process and activities in RLM to positive change in product return policy and procedure,

remanufacturing and refurbishment, and waste disposal.

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