INVESTIGATION OF FACTORS AFFECTING THE REVERSE LOGISTICS IN AUTOMOBILE INDUSTRY: A CASE STUDY IN COLOMBO REGION

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This paper gives an overview of reverse Logistics practices in automobile industry. The study is done with the objective of identifying factors affecting to reverse logistics and how reverse logistics align with the consumer requirements. And also highlight how the Reverse Supply Chain becomes an important feature in the related industry. There are two sub objectives in order to succeed the task such as; to prove Reverse logistics is matched to the automobile industry with every individual's requirements of Colombo region and to implement suggestions to improve efficient use of reverse logistics in automobile industry and related sub industries. Reverse Logistics is a newly introduced process in Logistics. Reverse Logistics system for Automobile Industry is more popular in present scenario. Due to high initial capital in Automobile Industry using Reverse Logistics is more effective. Reverse Logistics is process is flown from point of consumption to point of origin for the purpose of recapturing value or proper disposal. The reverse logistics process includes manufacturing, refurbishing, recycling, obsolete equipment disposition and asset recovery activities. The process does not consist of huge inventory management process however process transparency is very low. Industries which have larger portion of operational cost tend to have reverse logistics practices. The best example is Automobile Industry. At present Automobile Industry in Sri Lanka has been modernised with emerging market trends. And also Reverse Logistics concept has become a common practice in Automobile Industry since the second hand vehicles are popular in the market. Most importantly, it is needed to look the life cycle of automobiles and what happen to them after reaching to end of life. The iron which is used for vehicles is reusable through considerable amount of time. Without letting them to scrap end customer can send them to again to production line or can repair the defects. The study is based on mainly six categorical factors such as; Demographic factors, future vehicle expectation, purchasing behaviour factor, ownership of vehicle, consumer behaviour factor, customer services factor. The paper is used primary data extracted from the structured Questionnaire Survey with the collection of data with the sample size of 250. The sample of the research would be customers who are the vehicle owners. The main research question could be stated as, What are the factors affecting on customer behavior towards Reverse Logistics practices in Automobile Industry? In the questionnaire, descriptive design research questions permits to ask questions starting from who, what, when, where and how not why. This research also belongs to Descriptive design. Factor Analysis is main analytical method with the aim of identifying relationships among variables. Descriptive Analysis provides the background of demographic factors and reliability test is done using the statistic of "Cronbach's

alpha". Mann Whitney Test and Kruskal-Wallis Test are used to determine significance of determinants found in factor analysis. This is an example which shows feasibility of approaches of reverse logistics to the Automobile Industry. Finally Reverse Logistics factors and Consumer behavioral factors are identified with relate to research question. In conclusion, consumer behaviour on reverse logistics depends on factors of emission levels, the resale value, brand, cost of the vehicle, availability of spare parts. The reverse logistics practices change with according to consumer behavior factors such as age and civil status of consumers in Colombo region ($P < 0.05$). Moreover, the results of this research would help to Automobile manufacturers, sellers, assemblers and related industry people to identify the consumer requirements on reverse logistics practices.

Keywords: Reverse Logistics, Automobile Industry, Reverse Supply Chain, Consumer Behavior, Factor Analysis, Sustainability