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SUSTAINABILTY THROUGH GREENING AND REVERSING THE SUPPLY CHAIN

ABSTRACT

Globalization and the global trend of greening imposed the implementation of different environmentally conscious strategies into existing supply chains. Green strategies are the result of the need for a perfectly closed supply chains and ground for sustainable one. Greening the supply chain is a tendency to minimize environmental impact of all activities in supply chain, when reversing it includes activities based on tendency to capture value or to properly dispose goods that entered again logistic distribution chain. When implementing reverse logistics activities into existing logistics system, one will expect to improve customer satisfaction (to have bonded and returned loyal consumers), to raise level of environmental conscience (as a matter of thinking and a marketing strategy on competitive global market), to keep profit inside company (by reducing costs) and to keep up with new law regulations. Besides reverse logistics, when observing from higher perspective, one can define reducing logistics costs by organizing a better and upgradable green logistics.

KEY WORDS: reverse logistics, green logistics, sustainable supply chain, supply chain management

1. INTRODUCTION

The concept of green logistics includes implementation of logistics operation into the system that aims to minimize environmental impact. In this way, except direct environmental benefits, can be achieved and better market position in relation to companies that do not include mentioned approach. Only as a part of green logistics strategies, one can reduce environmental impact of a part of supply chain by implementing reverse logistics strategies. Combination of reverse logistics and basic green logistics strategies can be a foundation for a construction of a sustainable supply chain. Sustainable supply chains includes green logistics

strategies, but reverse logistics strategies are obligatory because of impossibility of closing the supply chain without including this part of logistics that is dedicated to conduct processes between final consumer and origin of the good that is sent back.

Tendency to completely separate two different channels of logistics on distribution and reverse one results in need to separate them theoretically and physically. Two similar but in many ways completely different channels of logistics have to both be handled extremely precise and expeditiously in behave of controlling and minimizing costs, capturing and usage of maximum possible value and in the end to have a loyal, obliged and satisfied final consumer.[1]

Reverse logistics issues started as a combination of environmental conscience, consumer pressure and as a new strategy to keep the profit inside the company. Already traditionally, different authors observed reverse logistics as a forward logistics only in reverse, reverse logistics operation in many ways determinate different kind of performance for routing, disposition needs, channel requirements (refurbishment, packaging, landfill etc.), information systems support and each product handling. Solving the problem of reverse logistics processes like the forward but only in reverse, can result as a poor management, too long disposition cycling time, wrong valuation of product condition, poor gate-keeping and in the end, loosing profit and customers.

2. STRATEGIES OF GREEN LOGISTICS

Green logistics is relatively young research area, because first concern about the damaging effects of the freight transport on the environment was recorded in 1950s, but most of research dates from mid 1960s. Area of logistics has developed from the original primer definition of movement of finished products to transport, handling systems, storage and supply chain management. As in logistics, same happened in green logistics, which now encompasses greening of the production, warehouses, transport, manipulation, packaging, marketing, and in the end, the customer, trying to green whole supply chain in all of its processes. Except that green strategies can reduce impact of supply chain on the environment, results of the research has shown that „going green“ can bring profit by as much as 10% when compared to a traditional supply chain in logistics industries.[2]

Designing a green supply chain implicates an collection of organized activities (as shown in figure 1.) made to result as a foundation for a sustainable and upgradable green network that consist of planning the green production, green transport, waste reduction, energy savings, space savings, resource savings, planning a green supply chain management and having a green consumer. Green logistics is defined by five categories, including city logistics, reverse logistics, reducing freight transport externalities, green supply chain management and logistics in corporate environmental strategies.[3]

[1] Rogić, K., Bajor, I., Rožić, T.: Reverse Logistics Operation as Element of Warehouse Management, 13th International Conference on Transport Science: Maritime, Transport, and Logistics Science, Conference Proceedings, Faculty of Maritime Studies and Transport, pp 507-511 Portorož, Slovenia, , 2010.

[2] Emmet S. Sood V.:Green Supply Chains – An Action Manifesto Wiley, 2009.

[3] McKinnon, A., Cullinae S., Browne, M., Whiteing, A.: Green Logistics: Improving the environmental sustainability of logistics, The Chartered Institute of Logistics and Transport, Kogan Page, pp 3-68, London, UK, 2010.

Figure 1: Collection of some supply chain activities that need to be strategically planned to create green supply chain
Source: Bajor, I., Božić D., Rožić, T. Influence of Green Logistics Strategies on Reducing Supply Chain Management Costs in Croatia; 14th International Conference on Transport Science, Maritime, Transport and Logistic, Portorož ; Slovenia, 2011.

3. IMPLEMENTATION OF REVERSE LOGISTICS

When implementing reverse logistics strategies, interaction of forward and backward logistics should be strictly separated because when combined forward logistics issues inside company are always primer. This is one of the reasons why reverse logistics requires the development of transport modes that are compatible with the already existing forward logistics system. The disposition of the goods inside reverse processes includes the return of goods to the warehouses for storage purposes, return of goods to the original manufacturer for the return purposes, sales of goods on a secondary market, recycling of goods or combination thereof which will result in maximal value of the key product.[4]

Reverse logistics methods have ability for recovering value of returned products. Recovering value or the need for freezing it until the product is sold or just passed over to the next level market can have positive tone for the company and/or for the customer. Reverse logistics strategies can be observed from two sides, from the satisfied customer point of view, or from the company profit point of view. Difference between culture, way of thinking and economy status of the country can affect on reverse logistics development and even existence.

A good reverse logistics program for every company starts with good return authorization processes. Well defined procedures, strategically developed policy can affect company profit, actually can make considerable savings. Making strategic plans for the company business can improve not only profit of the company but even customer satisfaction. Implementing appropriate gate keeping methods will ensure that unauthorized, invalid and unwanted returns will not be accepted.

Although there is a huge difference between forward and backward logistics there is a connection not only in the same products that they are processing – one to the customer, one from it. The speed in processing those products is one of the crucial characteristics that affect the quality of the chain. Disposition cycling time (DCT) is a reverse logistics process that

[4] Ivaković, Č., Bajor I., Rožić T.: The Concept of Disposition of Returned Goods in Reverse Logistics Channels, 13th International Conference on Transport Science: Maritime, Transport, and Logistics Science, Conference Proceedings, Faculty of Maritime Studies and Transport, pp 195-199, Portorož, Slovenia, 2010.

effects on the recovered value of the returned product that entered reverse logistics chain. If reduced and strategically implemented, DCT can improve companies profit by providing the highest return rate. One of the ways to enhance the disposition value of refurbished goods is through speed.

4. CONSTRUCTION OF THE SUSTAINABLE SUPPLY CHAIN

According to the 1987 Brundtland Report, sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

As in other industries, sustainability is a goal that needs to be achieved. Not only as a business goal, it is a trend on the global market and it is a need because of resources (over)used and amount of everyday environmental impact that must be reduced.

Except being socially, economically and environmentally focused (as shown in figure 2.), strategies of sustainable development are directed toward industry because of great impact caused by this party. Sustainable development plays a role in supply chains. Different authors implicated that reverse logistics is a foundation for construction of sustainable logistics, but it is only one aspect and congregation of processes that needs to be sustainably developed in a way to support it.

Foundation of sustainable logistics is green logistics that includes greening the processes of all parts of supply chain. Creation of sustainable processes inside manufacturing, manipulation, transport, packaging, etc. will ensure greening the supply chain.

Figure 2: Upgrading processes can result in logistics concepted as sustainable
Source: Authors

Also, when defining sustainable supply chain, different authors implicated that sustainable supply chain is synonym for a green supply chain, but green supply chain only has environmental aspect, while sustainable one is focused as environmentally, also socially and economically aspect in supply chain processes.

Sustainability in supply chains can be reached by playing the green logistics strategy, but it cannot be created without organizing reverse logistics processes. Greening the distribution (forward) logistics can reduce impact of this part of logistics on the environment, but it cannot assure that all the logistics processes will not have negative impact when consumer decides to return or not properly dispose owned goods, or by using environmentally unfriendly transport packaging. Importance of these reverse processes is rarely seen from the higher perspective and often these processes are not included in company's green logistics strategies, but are playing the same key role as green one.

5. CONCLUSION

Strategically implemented reverse logistics processes reduce company's costs and can improve logistics management. One of the strategies is reducing disposition cycling time (DCT) which is a process that effects on service quality and highest recovered value of the product. Extended DCT can result in unnecessary logistics cost, finance issues (poor management), extended decision making about the condition of the returned product, lost opportunities and business, inefficient warehousing and dissatisfied and lost customer. Except being customer and profit oriented, reverse logistics processes assure environmentally friendly concept reducing the amount of returned goods improperly and unnecessary disposed.

Environmental impact should be a primer issue regarding every aspect of logistics and is recognized as a strategic approach of green logistics. Green logistics is a research objective for many years, implicating the significance of environmentally sensitive approach of transport, warehousing, production etc. Through the literature, one can define lack of procedures for implementing green strategies into logistics business and lack of information about the importance of implementing it. Although there are many roles in defining a perfectly closed supply chain, some of them can be slightly excluded and not defined as obligatory. To define sustainable supply chain, key role is to be focused on green logistics, but one cannot be defined by perfectly organized reverse logistics processes because those are the processes that will make a final closing of closed supply chain.

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