REVERSE LOGISTICS AND ITS IMPORTANCE IN THE SUPPLY CHAIN

Abstract
The paper deals with a highly topical issue of Logistics which is called Reverse logistics. The flows of products in supply chains don't end in the moment when they reach the customer. Many products lead second, third or even fourth life after accomplishing their original function. It means that products can generate the value in supply chain more than once. To capture this value we must expand the original supply chain to include new processes that we call reverse logistics. The key to maximizing the value is coordinating the successive product uses in supply chain.

INTRODUCTION
In recent years, more and more emphasis placed on the logistics as part of the business. It is not seen as a necessary component of factory organization, but gradually developed into the so-called. supply chain (supply chain), which is based on cooperation of entities with a focus on meeting customers' needs efficiently and improve quality and productivity processes.

"Council of Supply Chain Management Professionals' defines logistics as that part of supply chain management that plans, implements and controls the efficiency and quality of direct and reverse flows and storage of products and services, and related information between the point of production and place of consumption in meeting customer requirements [1].

1. LOGISTICS AND SUPPLY CHAIN
According to the authors Ghiant, Laporte and Musmanno [7] consists of all supply chain activities associated with the flow and transformation of raw material to the finished product for the customer. The supply chain is also moving with the flow of information related to products.

Wood [17] argues that supply chain management (Supply Chain Management) includes the planning and management of all activities involved in the supply, procurement, production and logistics management activities. We also need coordination and cooperation with partner bodies, which is meant suppliers, dealers, service providers and customers. Supply chain management combines the management of supply and demand within the enterprise and across different organizations.

To supply chain management involves the following business processes [9]:
a) Customer Relationship Management - Customer Relationship Management - provides support for creating and maintaining relationships with customers.
b) Customer Services Management - customer service - an important point of direct contact with customers and business resource for customers.
d) Order Fulfillment - Equipment orders - includes all activities from defining customer requirements to meet them while minimizing the total cost.
e) Manufacturing Flow Management - Management of the production process - includes all activities related to the acquisition and implementation of manufacturing flexibility and motion control products during the manufacturing supply chain.
f) Supplier Relationship Management - Managing relationship with suppliers - provides support for developing and maintaining relationships with suppliers.
g) Product Development and Commercialization - Product Development and Promotion - Provides support for new product development and marketing.
h) Returns Management - reflows - includes all activities related to the return transportation, entrance control, but also avoid the reflux.

The company, which intends to become a functional part of the supply chain must necessarily re-evaluate their perception of supplier-customer relations [2].

2. REVERSE LOGISTICS A REVERSE FLOWS

The issue of reverse logistics recycling for their products (or liquidation) has long been neglected. Countries therefore began to introduce into their legislation measures that force businesses to at least partial recycling of used products and packaging. Businesses to take responsibility for their product throughout its life cycle, in some cases, even after its completion. Following the flow of the products, packaging and other materials, this problem started to deal with logistic theory, resulting concept was backward (reverse) logistics. Its main task is to promote alternative uses of the products or packaging that can no longer be sold.

In the literature, the concept of reverse logistics (reverse logistics, logistics reflows) began to appear in the 70th the 20th century in the management of product distribution in the U.S.. Reverse flows were in the company initially focused on the area where there is some value to be within the company could be re-used [4]. To prominence began to receive more and more the importance of conservation and sustainable development, resulting in reverse logistics began to heavily involve the ecological aspect. Thanks to the interest of the public and various international stakeholders are gradually changing the legislation of each country. They began to develop efforts to minimize the negative impacts of human activity (and especially those businesses) on the environment [10]. There is already a lot of tools in the form of regulations, laws, national and international programs that stimulate and regulate the activities of enterprises. Such measures for environmental protection and sustainable development, while giving the company that manages them, a certain competitive advantage [8].

Logistics is nowadays an important part of business activities. It contributes to value-added goods and services, increases the competitive advantage of enterprises, and is also the major cost. Current trends lead to the "chaining" of logistic processes of individual entities within the supply chain (eg in relation supplier - manufacturer - customer).

At the end of the 90th 20th year century authors and Rogers Tibben-Lembke [12] define reverse logistics with an emphasis on goal and logistics processes: "It processes of planning, implementation and control, cost-effective flow of raw materials, in process inventory and related information from point of origin to point of consumption for to znovuzvodnotenia or appropriate disposal. "the authors also emphasize value creation in reflows and waste disposal not included in the reverse logistics.
According Skap [14] is the primary concern of reverse logistics (reverse logistics) collection, sorting, dismantling and processing of the products, parts, by-products, excess inventory and packaging materials, the main objective is to ensure the use of new materials and assess the manner environmentally friendly and economically attractive.

Reverse logistics is mainly focus on the recovery flows that provide some value through reuse of products. It is necessary to distinguish between retroactive and so. Green logistics that deals exclusively minimizing the impact of logistics on the environment [14]. We can say, however, that some activities of green logistics are just as applicable for reverse logistics (eg recycling of products and packaging waste).

The authors of the 90 between perceived reverse logistics in two ways. The first group sees it in terms of recovery and obtain a new value of the returned product. The second group of authors, among which we include for example. Lambert also understands reverse logistics from the perspective of environmental (waste disposal and recycling). Current literature combines both these currents and reverse logistics seen in a broader sense. Are taken into account economic and environmental aspects, but also corporate policy.

Manageme reflows part of supply chain management (Supply Chain Management) and its method depends on the type of business activity. Reverse flows occur not only within the company but also between each other and between businesses enterprises and suppliers. Re-verse logistics is part of a business strategy and thus has an impact on the profit. Most businesses now perceived as' reflows. necessary evil and not given them dostatčenú attention. Simultaneously with the growth of competition, but they start giving increasing importance.

Refloows that are filling reverse logistics can be divided according to their origin flows [4]:
1. the manufacturer - claims, rejects, surplus materials, by-products and residues from the production
2. the distributor - overstocks, unmarketable products, defective delivery, complaints, cases and defective products withdrawn from the market
3. on-site - claims, products end of life, returned products due to lack of interest or non-compliance with requirements, products at the end of life, excess inventory, and so on.

However, members of their can also according to the type of product which contains re-verse flows are mainly raw materials, building materials, materials, oil, packaging, components, chemicals, parts distribution facilities, transportation funds and other consumer products.

According to the authors Škapa and Klapalová reflows and include complaint services, waste, plants and the like. As part of the management of return flows also regarded as waste management and so. Green Logistics [15].

Lambert [10] defines reverse logistics as the often overlooked area of materials management, which is considered secondary. He speaks of it as a surplus disposal, waste, recyclable materials and obsolete. Lambert goes on to say that reverse logistics is gaining in importance lately mainly due to an increased focus on the environment and the possibilities that the use of reverse flow of materials can bring. The main emphasis is on companies that are able to waste and packaging materials to classify and assess the possibility of re-use and its negative impact on the environment.

According Skap [14], the main aim of managing reverse logistics limitation wasting re-sources, achieving longer life of the product and its components, and, if possible, as well as recycling. The use of older parts, waste materials and reusable packaging not only has a positive impact on the ecology, but also to businesses themselves, because:
- Reverse logistics costs can be reduced and thus achieve competitive advantage
Returned products provide feedback on product and customer requirements,
Willingness and helpfulness in the complaint process can also be a competitive advantage of the company,
For reverse logistics can be used and outsourcing.

Škapa [14], and sees reverse logistics in three ways:

First
Reverse logistics as activities associated with repackaging and reselling returned goods or redistribution of unsellable goods in specialized stores (to sales) and less demanding markets. Reverse logistics in this case performs particularly sales and marketing function and monitors the economic objectives.

Second
Reverse logistics activities are supporting material recycling and aimed at minimizing waste production and packaging (exceptionally consumed products). Reverse logistics is most closely connected to the waste management business and environmental goals through satisfies legal requirements of the State.

Third
The basis for the reverse logistics processes, organization and management of recovery of older products (processing, repairing, dismantling, to use some of the parts). Synchronization is important in the production, provision of resources and products used outlets for them.

Reverse logistics is closely linked with technically competent company to take back packaging claims, crates or damaged goods, as well as the legislative amendment reverse logistics country.

3. THE INCLUSION AND IMPORTANCE OF REVERSE LOGISTICS

Lambert [10] lists 14 major logistics activities, which are necessary for the smooth flow of products from point of origin to point of consumption. These activities are:
- Customer Service
- Forecasting (planning) demand
- Management of inventory
- Logistic communication
- Materials Handling
- Handling of orders
- Packaging
- Support Service and Parts
- Determination of the place of manufacture and storage
- Procurement (Purchase)
- Handling of returned goods
- Reverse Logistics
- Traffic and Transportation
- Storage

Lambert says the reverse logistics of how the logistics activities, the function of which is the removal and disposal of waste material. Usually, however, a temporary storage, transport, treatment, reuse or recycling.

Goldfinch [13] divided by functional logistics business logistics systems. The first two phases consist of the purchase and production logistics and material together are called logistics. The third stage is then logistics distribution, which is also called a marketing or business.
In the last phase, then mentions Stehlik logistics recycling and disposal, which is a part of the reverse logistics:

"In the fourth phase, the flow of goods in the opposite direction. It is composed of damaged or incorrectly dispatched goods to be returned to the supplier. It also covers the return packaging, returnable parts exchange, waste destined for disposal, as well as goods for reuse or recovery. This part is called logistics logistics recycling and disposal."[13].

Manage of reverse logistics in the world is gradually becoming a priority for all businesses that seek to increase efficiency, reduce costs and achieve a better level of customer service. However, there are many companies that reflows significance and management, yet not understood. The issue has already been made by several studies (eg, Rogers and Tibben-Lembke, 1998; Shankar, 2005, Chan and Chan, 2008). The results of these studies are very similar and speak of reflows misunderstanding, indifference and restrictive policy managers of companies with respect to reverse logistics. Moore (2006) also speaks of the ignorance of the business cost of the logistics process, and the main reason is considered an incorrect definition of the process and poor information support. Often even the very design of the products is tailored to his return, reprocessing or disposal.

Control reverse flow is important for several reasons. First, for economic reasons. There is a company that can use the control flow back in your favor, and such, increasing competitiveness, or even in the form of higher profits. The result usually does not show up immediately, but it affects the future of the company (eg preparation of the legislation in the field of reverse logistics, prevent competitors copying proprietary technology and so on.). Reverse logistics company can thus bring direct economic benefits (eg, raw materials, cost reduction, recovery of value added tax) and indirect economic benefits (expectation legislation, the image of "green business", to improve relationships within the supply chain, defense market from new competitors ). Firms have to manage return flows and legislative reasons - laws which they often employ such. the compulsory collection of used products, mandatory recycling, packaging or regulation.

The basic elements of reverse logistics [14]:
– Products used by consumers - it is usually a product that is returned because it is wrong, or at the end of its life.
– Waste and material losses associated with the production - remains raw materials, intermediates and by-products.
– Returned goods (including packaging) - unsold products, which the manufacturer agreed to take back, seasonal items, old type of products.

3.1. Relationship reverse logistics and supply chain management (SCM)

Vaněček [16] defines the logistics chain as "a set of tangible and intangible flows taking place in a number of downstream (upstream and downstream) Articles (sub), whose structure and behavior are derived from the requirement of a flexible and cost-effectively meet the need of the final article. Processes in the logistics chain should be planned and managed on the basis of total points of view, that is integral. Power output string is determined by the weakest link."

Logistics is defined as "the planning, timing, execution and control of material and information flow within the enterprise and between enterprises themselves from the supplier to the customer" [1].

Reverse logistics is part of the traditional logistics. For inclusion in the supply chain is essential to integrate. One way this can be a model of integration SCOR (Supply Chain Operations Reference model), which states Baumgarten [1]. This model implements the intertwined
processes of SCM, logistics and reverse logistics. It is based on four main processes: planning, procurement, production and delivery. The most recent version of this model includes the process of returning. Count, however, the other reverse logistics activities such as reprocessing, reuse, salvage materials and the like. Therefore, it is necessary to modify the SCOR model in respect of each of those activities.

CONCLUSION

Nowadays, characterized by a predominance of supply over demand, each firm seeks to achieve an advantage over their competitors. One of the ways to positively distinguish itself from other companies on the market, and the effective management of reverse flows. In the future, because this issue will still pay more attention, whether in literature or in legislation. Businesses have the opportunity to prepare in advance for the anticipated regulations and laws.

Products in today's business environment, and the current supply flows can produce value more than once. To achieve this value, however, companies must take a proactive stance and make sense of the management of return flows. The aim of this paper was to bring the reader to the issue of return flows and reverse logistics, and their importance in the environment of businesses.

The contribution is processed as an output of a research project 1/0931/12 Uplatnenie Teórie obmedzenia (TOC) v logistickom riadení výroby podniku registered by VEGA MŠ and SAV.

BIBLIOGRAPHY

REVERSE LOGISTICS AND ITS IMPORTANCE IN THE SUPPLY CHAIN

Abstract

This paper describes and explains the means of reverse logistics in Supply Chain. Reverse logistics is part of the traditional logistics. Manage of reverse logistics in the world is gradually becoming a priority for all businesses that seek to increase efficiency, reduce costs and achieve a better level of customer service. However, there are many companies that reflows significance and management, yet not understood. Reverse logistics is mainly focus on the recovery flows that provide some value through reuse of products. It is necessary to distinguish between retroactive and so. Nowadays, characterized by a predominance of supply over demand, each firm seeks to achieve an advantage over their competitors.

Authors:
Ing. Peter Majerčák, Ph.D., Department of Economics, Faculty of Operation and Economics of Transport and Communications, University of Žilina in Žilina, 010 26 Žilina, Slovakia
E-mail: peter.majercak@fpedas.uniza.sk

Ing. Eva Majerčáková, Department of Railways, Faculty of Operation and Economics of Transport and Communications, University of Žilina in Žilina, 010 26 Žilina, Slovakia
E-mail: eva.majercakova@fpedas.uniza.sk