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ICTTE Belgrade 2012 Conference Director's Speech

Ladies and gentlemen, distinguished speakers and guests, dear colleagues,

I am delighted to welcome you to Belgrade and to the International Conference on Traffic and Transport Engineering, 2012. It is a pleasure to be here with you today at the beginning of this two-day conference on traffic and transport engineering.

This conference presents the perfect example of globalization in transportation industry. Nothing illustrates this better than the number of papers from more than 20 countries worldwide. I hope that many conclusions made here will be the key drivers of future development in global transport sector for passengers, cargo and infrastructure.

Naturally, we are ready to share our experience of creating what we think is the world's largest and most successful example of transportation industry in all transport modes.

By providing essential transport links, between ourselves, our companies, universities and countries, we are vital part of global community for integrating and connecting regions all over the world.

International Conference on Traffic and Transport Engineering, ICTTE Belgrade 2012, will be the first conference organized by Scientific Research Center Ltd and its International Journal for Traffic and Transport Engineering (IJTTE). My special thanks and encouragement in their work go to our dear colleagues and friends, key speakers, as well as to our partners: City Net Ltd., South-East Europe Transport Observatory (SEETO), "Kirilo Savić" Institute and Innovation Center - Faculty of mechanical engineering, University of Belgrade. And finally, I would like to mention great support from Center for the promotion of science, and Faculty of transport and traffic engineering, University of Belgrade thanks to which we are jointly hosting this conference.

I wish us all fruitful exchanges during these two days; constructive, testing ideas and identification of the steps we will be taking in the future.

Thank you for your attention.

ICTTE 2012 Director

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IDENTIFICATION OF BEHAVIORAL PATTERNS OF TAXI DRIVERS IN THE CITY OF BOGOTA
SUSTAINABILITY WHEN DEVELOPING RETURN CENTERS

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Abstract: In its very beginnings sustainability was referred only as environmental issue. Supply chain strategies nowadays are green strategies, and the result of the need for a perfectly closed supply chains. Greening the supply chain is a tendency to minimize environmental impact of all activities in supply chain, and can be observed as a foundation for sustainable one. Reversing the supply chain includes activities based on tendency to capture value or to properly dispose goods that were returned to logistic distribution chain. Reverse logistics can provide improved customer satisfaction, raise level of environmental conscience and to keep profit inside company (by reducing costs). Reverse logistics activities are also implemented to keep up with new law regulations. When returning the products, company can implement a return centre, in a form of a new facility or a part of existing warehouse. Development of a return centre can result in optimized processes and can provide maximal possible value for each returned product.

Keywords: sustainable practices, distribution chains, reverse logistics, return centre

1. Introduction

In the area of product returns, one of the key elements of the chain are return centres that can be organized as separate elements or operate within the existing warehouse capacities. The return centres, that unify transport and logistics services, simplify the return procedure and the selection of channels in which the product will achieve the maximal possible value. Return centres organization must be proposed from the aspect of required storage capacity, acceptance, storage, classification and forwarding, must optimize the process for products in return, increase the level of customer satisfaction, and to reduce the amount of products unnecessary directed to landfills.

Every organized return centre must be in co ordination with existing distribution chain and companies reverse logistics strategies. Before defining a reverse logistics chain company should track information about existing return. This information includes amounts and quality of product in return, disposition cycling time and level of consumer’s satisfaction, reverse logistics channels and activities. To develop a return centre should be observed from product in return aspect (its specifications), but also from financial resources aspect. One cannot invest in infrastructure before defining needed activities and potential locations of return centre. Investing in a new return facility can provide unnecessary costs if reverse logistics strategies and activities are not well defined.

2. Sustainability as a foundation for reverse logistics concepts

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. Sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Logistics sustainability is a goal that needs to be achieved. Not only as a business goal, is it a trend and a need because of (over) used resources and amount of everyday environmental impact that must be reduced. From the product return aspect sustainability can be partially achieved by reusing, reselling, recycling everyday products rather than disposing it.

Strategies of sustainable development are directed toward industry because of great impact caused by logistics party. 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.

Today, every company should have at least some parts of their business "greened" because of several reasons. Not implementing the green logistics companies can affect their brand value, miss resources and paying penalties due to more rigorous regulations. There are numerous areas throughout the supply chain where sustainability can be implemented. Implementing sustainability requires a great deal of creativity; however, the benefits that can result are well worth the effort. (Dey, et al., 2010).

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. (Bajor, et al., 2012).

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3. Reverse logistics for products in return

Reverse logistics appears as a concept at the end of 80s of the last century and at the beginning of the 90s activities and flow of goods in return are beginning to be researched. Reverse logistics is defined as the movement of goods (raw materials, components or finished products) in reverse, from the final destination to the source, in order to facilitate the implementation of reverse logistics activities (processing, repair, remanufacturing, refurbishment, reprocessing, reuse, recycling or disposal). In addition to the movement of goods, to the reverse logistics belongs the management of return which means all processes regarding recovery or prevention of the formation of the goods in return, disposal at end of life, sales, etc. (McKinnon, et al., 2010).

In logistic systems two reverse logistics concept are considered, return of packaging and directing the products in return. In contrast to the distribution logistics, part of reverse logistics intended for directing products in return, is involved in evaluating and redistribution of single item and its current condition resulting in higher levels of complexity of managing reverse flow which beginning is usually created by the user (Rogers and Tibben–Lembke, 1998).

Proper selection of activities which are going to be implemented depends on the kind of products that the company offers, and on strategy that is set as the primary objective for company. Companies that are strategically focused on customer satisfaction, profit or monitoring the legal regulations will adjust the activities for products in return to its strategic goal. Any combination of reverse logistics activities should result in one or in businesses at the highest level of the organization reverse logistics, with all three business objectives. When a product is returned, it can be redistributed in order to achieve the highest possible value of the product in one of the channels of reverse logistics. Activities and reverse logistics channels are shown in Fig. 1.

![Basic reverse logistic activities and channels](source: Prepared by the authors)

Location of product returns and unfolding of reverse logistics activities is a prerequisite for organizing the collection centre and it is needed to conduct research on the current location of return in order to determine the capability and manner of introduction. In medium developed logistics systems, such as in Croatia, uniform procedures for the return are not specific, and final costumer often return products to different locations, although the most common location of return is a point of purchase or retail level. At the retail level, 76% of respondents return the product, while 10% of respondents return a product to authorized service provider, as shown in the graph below. Final costumers find it logical to return the product to place of purchase, even though research has shown that from the point of return (retail level), 16.5% of the respondents were directed to return the product to another location. Directing users to perform return at another location, except that increases dissatisfaction of costumer with service users, it affects also the time of disposition. Final costumers, who had to return the product at another location other than dissatisfaction with the service, noted the lack of information about the ways, ie, the procedure in the case of a return. (Bajor, et al., 2012).

![Study conducted on the location of product returns to Croatia](source: Bajor, I., Babić, D., Ivaković, M.: Sustainability through greening and reversing the supply chain)
4. Centralized return centres

Centralized return centres are advanced warehouses specifically modified to oblige the needs of the returned goods processes. These centralized return centres provide efficiently and expeditious performance for each returned product. Every product that is returned because of some reason is immediately directed in one of these centres. When entered the process this product is valued, directed to some of the activities if needed (packaging, refurbishment, etc.), processed and then shipped to the next destination. When constructed, CPC can provide benefits to the entire reverse logistics network from various sources like simplified store procedures, reduced store level costs, reduced shrinkage, reduced landfill, etc. (Rogers and Tibben-Lembke, 1998).

One of the benefits that can affect at the quality of the reverse logistics system when CRC is established is knowledge. When working only in CRC employees have varieties of returned products to deal with, than they would ever experience at a retail store. Employees will in this way develop areas of expertise, which can greatly benefit the firm. Except of the educated personnel this centralized processing model will with unified procedures grant fewer errors. Many of the benefits appear to be due to the fact that this allowed the returns processing staff to focus solely on returns. Reverse logistics issues in Croatia are based on unorganized processes dedicated for handling returned goods from any point of supply chain. When returned product encounters established logistics system it is very often handled inappropriate and preceded to the distributeurs. (Rogić, et al., 2010). Collection centre in Croatia is not recorded, but the products are usually stored in a particular part of the distribution warehouse. In the warehouse activities are not carried out and sometimes product can be stored over a month until further guidance infrequently only to the landfill after a cursory evaluation of the non-educated employees. The results are presented in Fig. 4.

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**Fig. 3.**
The concept of collection centres
*Source: Prepared by the authors*

**Fig. 4.**
Conducted research in Croatia
*Source: Prepared and adapted by the author*
If companies want to improve an existing return system or certain activities, instead of the huge initial investment in building a collection centre, training of employees and changes in the business, the system can be improved in a way by using the services of external service providers, in the form of conducting certain activities (partial) or whole return system. With the application of this principle, companies can save up to 10% of their total costs.

5. Processing in the collection centres
In centralized systems with collection centres four basic processes designed for products in return are held:

Admission means that the company receives a report of damage by the final consumer, and then the product itself and the right to control and direct its future in return. Admission is carried out at the retail level or directly in a collection centre. If the reception is at the retail location, it also includes the transport process of the products in the return to a collection centre.

Processing products include checking documentation, fulfilment of the necessary documentation, obtaining of necessary information if the existing are insufficient, and further directing entity. When processing, the employees can make the decision to compensate the final customer in the form of a new product or in refund. Processing of the products is very important for verifying the supporting documentation and collection of data relevant to the monitoring of trends and the amount of return. Verification of supporting documents is relevant to the justification of further guidance and input into the tool storage system (gate keeping).

Sorting is a process which involves the physical management of product in return. The process includes inspection, categorization of products in return and assignment of temporary storage location.

Disposition means the final process in a collection centre for products in return, where on the basis of processing (documentation) and sorting (inspection and classification) decisions is made about their future guidance. The product can be sent directly to the reverse logistics channels or certain activities can be carried out on them. Reverse logistics channels are organized different in different companies and their selection and choice of reverse logistics activities depends largely on the type of product in return and their potential for further guidance. In this process it is possible to return a product to sale, repack it, fix it, direct it to the secondary markets, delay it, etc.

Defining potential reverse logistics activities and channels in which products in return will be directed for achievement of the highest possible value, depends on the type of product recovery and state of goods.

The life cycle of the product is also conditional on the selection of the concept of return. From the standpoint of the level of value deterioration it is necessary to adapt the activities in a collection centre and return chain for the product in return. The products are divided into two basic categories, shown in Fig. 5. The first category consists of products with a high level of value loss per unit of time, such as computers, while the second consists of products with low value loss per unit of time. Product category with low loss values represents products such as refrigerators with a life expectancy in households with up to five years.

Products in return various categories are returned to the collection centre and it is necessary for them to provide a variety of activities and define the optimal concept of return, as shown in Fig. 6 which will be consistent with the achievement of the maximum possible added value. For products with high level of value deterioration is necessary to adapt all activities to reduce the time of disposition, whereas for products with low loss values is necessary that activities in a collection centre are efficient and not time limited.

Fig 5.
Life cycle of two product categories
Source: Prepared and adapted by the author
Fig. 6.  
Organization of reverse logistics activities to optimize the aspect of the product value deterioration  
Source: Prepared and adapted by the author

The life cycle of the product complies with the accompanying warranty that usually guarantees the correctness of the product in its first stage of the life cycle, and the possibility of product failure is extremely small, i.e., it decreases from the moment of putting the product on the market. The level of possible malfunction of the product at the beginning of the first phase is high, then declines constantly in the second phase, and in the third phase is continuously growing.

The collection centre, the products in return are returned to the system at various stages of the life cycle, and it is necessary for all potential phases to allocate a possible channel and reverse logistics activities designed to achieve the maximum possible added values of product.

Product evaluation is performed by educated employee on whom further guidance to the activities and channels of reverse logistics in which the product in return achieve maximum possible value depends. Trained employees must know the specifications of potential products in return, and the value of product when placing it on the market, outlet, etc.

6. Conclusion

Because of the specificity of return systems for processing a single item, the aim is to harmonize the process that is more complex when the decision about the status of the product is made at the retail level due to the mixing of distribution and return processes, motivation and education level of the key personnel.

This harmonization is achieved by organizing a collection centre in which activities of reverse logistics will be carried out (it is possible to introduce and lock channels) for products in return. In systems, typical for Croatia, large quantities of completely non-defective defectives products and products that because of the various reasons should not enter the system (insufficient documentation, return in the wrong system, etc.) come to entry points of return systems. In addition to large quantities of the product in the system, because of poor organization of flow and channels of reverse logistics and non-educated employees, the return of the product at the retail level increases the number of transport and handling processes, costs of company, reduces the possibility of reuse (product or its components) and affects the level of customer satisfaction due to the extension of disposition time.

If the investment in the organization collecting centre is considered unnecessary, the company may use the services of external providers. The advantages of using external service providers is the fact that they have developed a network for potential stock purchase that allows them to sell large quantities of goods and avoiding prolonged disposition time. Because of the basic activities, collection centres in the form of external service providers automate the processing, sorting and disposition, and track product bar codes in order to shorten the disposition time and track products in return.

Key elements of green and sustainable logistics include sources reduction/conservation (minimal use), recycling (reuse), substitution (use of environmentally friendly products) and proper disposal. Sustainability is possible if it is based on environmentally friendly concept that has the ability to upgrade. In addition to organizing sustainable business foundation, it is necessary to educate final costumers so they can be actively included in creation of long term environmentally friendly green logistics chain.

Organization of return centres as green processing points can result with benefits because a set of small movements will create and lead to major advantages providing safety for the environment and sustainable upgradable reverse chain.
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