

CUSTOMERS' REQUIREMENTS AND LOGISTICS PROVIDERS' READINESS FOR MAKING THE SUPPLY CHAINS MORE ENVIRONMENTALLY-FRIENDLY - POLISH EXPERIENCES

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Abstract

In order to reduce the negative effects of logistics services, a lot of attention has recently been directed towards the concept of green transport and logistics. The role of the customer (For the purposes of this paper, the party of the sale-purchase contract who is responsible for initiating a shipment and who bears the cost of transport is considered the customer (purchaser, buyer of the transport / logistics services)) - purchaser of transport and logistic services - is considered to be crucial in the development of green initiatives among freight forwarders and logistics services providers (FF/LSP). Therefore, the main purpose of this paper is to elaborate on the correlation between green requirements of customers, if any, and the readiness of FF/LSP to satisfy such needs and to design logistics operations that are aligned with the environmental objectives and targets.

This analysis is based on desk study research, content analysis as well as a survey among FF/LSP acting in Poland. The questionnaire was designed to give answers to, among others, the following questions: (a) Do the customers express their need or preference for supply chains or specific logistics process with the least negative impact on the environment? (b) Are the FF/LSP prepared to fulfil the green requirements of their customers?

The study revealed that there is a potential for developing green transport and logistic services on the Polish market, however, it is jeopardised by unsatisfactory environmental awareness of both parties of the transport / logistics contracts as well as insufficient infrastructure. Currently, there is no noticeable demand for the green solutions, which are still perceived as burdensome and requiring additional financial resources.

Keywords: Green purchasing, logistics service provider (LSP), green logistics services, customers' green requirements, Polish logistics market

1. INTRODUCTION

Environmental concerns have spread across many areas of human life and activities. The sector of transport and logistics has also been affected by rising environmental requirements, especially due to negative external effects and its contribution to the global environmental problems. Despite a considerably reduction in air pollution from the EU transport sector over the past decade, it is still the largest contributor to NO_x emissions (46% of total EU-28 Emissions), as well as a rising source of GHGs (21% above 1990 levels). [1] The concept of green transport and green logistics, where "green" means the least negative impact on the environment comparing to BAU, is an answer to the problem of air pollution emissions from these sectors.

This research is part of an ongoing project on the state of green transport and logistics in Poland and focuses only on one particular step in the transport / logistic process, namely the purchasing of transport, forwarding or logistics (TFL) services. There is a gap in research of relationships between freight forwarders / logistics services providers (FF/LSP) and their customers with regard to green purchasing. This research gap in green buyer-LSP relationships was also noticed by Evangelista *et. al.* [2] and there are only a few papers that explore this topic, of which none concerns the Polish market.

Therefore, the purpose of the paper is to bridge this gap and elaborate on the correlation between “green” requirements of customers, if any, and the readiness of logistics operators and freight forwarders to satisfy such needs and to design logistics operations that are aligned with the environmental objectives and targets. This research only considers the Polish TFL market.

2. PURCHASING GREEN TRANSPORT AND LOGISTICS SERVICES

The literature offers a lot of definitions for green logistics, starting in the late 1990s, which have evolved over time alongside with the rising importance of environmental concerns and development of such concepts as green manufacturing, green product design, waste management, reverse logistics, and finally the green supply chain management concept. It is enough to refer to the definition provided by Rodrigue and Slack [3], that green logistics is “supply chain management practices and strategies that reduce the environmental and energy footprint of freight distribution. It focuses on material handling, waste management, packaging and transport.”

This is an interdisciplinary topic which may be researched from different points of view as there are different instruments (e.g. legal, technical, organizational) which enable tackling this complex issue. There are also different factors initiating the incorporation of environmental consideration into a decision-making process in logistics. These include governmental and international laws and regulations, organizational green awareness, environmental activists and non-governmental organizations, and finally, customer requirements. [4]

The customer-FF/LSP relationships are particularly interesting with regard to purchasing of green transport and green logistic services and the role of purchaser is considered to be crucial in the development of green initiatives among LSPs. [2] The process of purchasing is that one, where both parties may interact: customers may express their needs for a green service and urge the FF/LSP to provide it, and the FF/LSP may offer green services and try to persuade their customers to buy them. As the environmental concerns are likely to grow in the near future, the importance of the “green” criterion for selecting FF/LSP is also expected to rise. FF/LSP should follow the needs of their customers, e.g. producers / retailers, who pursue their environmental goals and are investing a lot to reduce their environmental impact. [5]

The problem of green purchasing and offerings may be considered and researched from different perspectives. A majority of studies investigates this problem exclusively from the perspective of LSPs [e.g. 6, 7, 8] and their involvement in applying green logistics initiatives in the event of rendering logistics services to its customers. The companies researched have typically already adopted green practices in their transport / logistics business. [9] The customer perspective is elaborated much less frequently, for example, by Sarkis [10] and Martinsen and Björklund [11]. The issue of green purchasing has been researched generally or with regard to the particular domestic TFL market as for example the well-developed Swedish, Italian and Irish markets [2], or still being in the phase of development - the markets in Malaysia [9] or in South Africa [12].

3. TFL COMPANIES AND THEIR GREEN PRACTICES

There are different rankings of TFL companies that operate in Poland, however, the most recognized is that prepared by H. Brdulak. [13] Its latest, 21st edition, provides information about 62 TFL companies, the biggest ones according to their volume of revenues. These companies, considering their scale of operations, are usually very innovative and may establish certain trends, including green ones. The comprehensive content analysis of their websites, newsletters, reports, etc., with regard to information on their green practices revealed that 37% of these companies do not provide information of such kind. The remaining companies carry out (or write that they carry out) more or less advanced green activities. The table below (**Table 1**) presents the most popular green activities and the number of companies that informs about putting them into practice.

Table 1 The most popular green activities and the number of companies that put them into practice

Green initiative / activity	Number of companies
ISO 14001 Environmental Management Certification	16
CO ₂ Calculator	4
Eco-driving (<i>inter alia</i> : periodical trainings for drivers; eco-driving school; monitoring of eco-driving parameters)	7
Vehicle technology (engines EUR 5 and EUR 6, use of energy saving tires)	9
IT optimized route planning and fleet management	6

Other initiatives that have been mentioned include: e-documents instead of paper documentation; carbon dioxide emissions reporting; environmental policy; improvement of environmental awareness of employees - environmental education for staff; selective waste collection and cooperation with recycling organizations; certification for warehouses.

4. SURVEY FINDINGS

In order to accomplish the purpose of this paper, we decided to conduct a survey among freight forwarders and logistics providers acting in Poland. We decided to evaluate the problem from a FF/LSP perspective while getting to know what the real demand for environmental services is in Poland.

We created a questionnaire using the form template provided by Google Forms and we also used this tool for distribution of the questionnaire as well as for collecting answers. In order to send the questionnaire to as many TFL companies as possible, we asked the Polish International Freight Forwarder Association to place information about the research and a link to the questionnaire in their weekly newsletter. To enrich the survey results, as the number of responses was significantly lower than originally envisaged (the respond rate was 27%), we also decided to conduct an open-ended interview with management staff of well recognized FF/LSPs.

As far as the phase of purchasing transport / logistic services is concerned, the outcome of the survey revealed that:

- Only 1/3 of respondents admitted that customers expressed their requirements with regard to design / perform the transportation / logistics process with the least negative impact on the environment. These requirements are reflected in relevant documents as forwarding orders or contracts.
- However, these requirements are incidental and concerns only a minority of customers, so the share of “green” requirements in the total number of customers / shipping orders is rather scarce and the maximum share according to the answers is 15%. Usually there are only a couple of customers (one or two) interested in green solutions in the total portfolio of customers.
- The large companies, both domestic and international, mainly producers or big retail chains, are the buyers of TFL services that expressed their needs for environmentally-friendly SC. Eco-friendliness is often a condition of signing a contract with an FF/LSP by global companies, which care about their public image (for example, Coca-Cola, Ikea). Usually it is not a single forwarding order but a long-term contract, when the FF/LSPs is inclined to introduce green solutions.
- In the majority of cases (60%) “green” requirements refer to the modes of transport (vehicle technology as EUR 5 or 6 standards or particular means of reducing the consumption of fuel and emissions). Customers also noticed the potential for intermodality and requested reducing the share of road transport in favour of rail transport or short sea shipping; however, the interest in these solutions is far

less (only 20%). According to the respondents, no interest was shown with regard to green warehousing processes.

- We also asked what parameters of TFL services are the most important to their customers. Unsurprisingly, the price of the service received the highest rank (67%), time of delivery as well as time-keeping gain almost of equal importance (about 50% of the highest rank), risk of loss and handling of complaints are factors of less importance. Influence on the environment is a factor of no or very low significance for 73% of respondents.

With regard to FF/LSP readiness for making the transport and supply chain more environmentally-friendly, the responses divulged as follows:

- Slightly more than half (54%) of FF/LSPs are prepared to fulfil the green requirements, however, nearly 1/3 have never been asked to do so. The remaining companies have admitted that they are focused solely on their costs and the quality of their services.
- The green criterion is not considered when choosing a subcontractor, unless it is expressly required by the customer.
- FF/LSPs do not encourage their customers to choose a green solution and do not offer a possibility of greening their service in order to enable them to distinguish themselves from other companies.
- The environmental factor is not considered a competitive advantage or an added value to the logistics services.
- Almost 40% of FF/LSPs predict a rising interest in green solutions, with the remaining part believing the opposite; the latter claimed that there is lack of both: eco-awareness and a willingness to pay for eco-solutions.
- Greening the TFL services is commonly perceived as burdensome and requiring additional human as well as financial resources and specialist know-how.

One of the answers from our respondents is an excellent illustration of the general attitude of FF/LSPs to the development of environmentally-friendly services in Poland: "Unfortunately (underlining added), we expect a rising interest from our potential clients in "green" solutions. We think that our sector is not yet prepared for introducing the green solutions. We are still far away in terms of infrastructure, as well as with regard to the environmental awareness. We are still trying to achieve Western standards and always something new disturbs our pursuit of normality."

5. DISCUSSION

The lack of a broader interest in green TFL services on the Polish transport and logistics market may be attributed to its relative immaturity. The Polish TFL market is a very young market when comparing to markets of Western European countries. It is continuously being developed since the beginning of the 1990s alongside with the process of transformation of the Polish economy to the market rules and further accelerated in 2004 after joining the EU. Currently, there are tens of thousands of road transport companies registered in Poland and several dozens of companies that hold a licence for the carriage of goods by rail. As far as forwarding companies are concerned, it is difficult to provide their exact number, because forwarding is often regarded and registered as additional to the core activity of a TFL company. They include global, foreign-owned companies and smaller ones of mixed or Polish capital. Green solutions are usually implemented by medium and large-sized enterprises of sufficient financial capability and an international organizational culture that foster development of environmentally-friendly practices. The smaller LSPs are willing to do so mainly in the perspective of long-term cooperation with a significant customer which pursues its environmental objectives and has enough financial resources to put it into practice.

Some authors claim that "adoption of green logistics initiatives also varies according to the type of services a company provides" [9]. Close examination of the range of services provided by LSP on the Polish market

revealed that a majority of them offers from 1 to 9 of different logistics-type services [13] and there isn't any correlation between the number or type of rendering services and implementation of green logistics and transport solutions.

The Polish TFL sector still encounters problems connected with the liner infrastructure inherited after the period of the centrally planned economy. The "infrastructure gap" is gradually diminishing and the network of motorways is being developed (at the moment there are 1,631 km of motorways in Poland). However, the environmentally-friendly modal split is hindered by the condition of railway and inland waterway infrastructure accompanied by an insufficient number (only 30) of modern intermodal terminals. The same problem concerns warehouses. The majority of modern warehouse spaces in Poland does not foster the development of a green modal split, especially due to the lack of access to railway infrastructure, as well as to inland waterways.

Lots of changes are taking place in the area of warehousing. Modern warehouse spaces which were built in recent years have already incorporated other green solutions and 25 of them are also eco-certified (18 warehouses with BREEAM and 7 with LEED certificates) [14]. It is not an impressive amount, considering the fact that there is a total of 10.5 million square meters of modern, commercial spaces in Poland. This could be the reason for LSP's limited opportunities for incorporating green warehouse services into their offer.

6. CONCLUSION

Although currently the demand for green transport and logistics services is not noticeable on the Polish market, there is a real potential for their development, and some of the FF/LSPs have already noticed a rising interest in green solutions. This potential may be supported by both: environmentally aware customers and LSPs that have already adopted or are ready to adopt green logistic solutions. They are aware that the green factor may also differentiate them from other companies on the market and should be considered as a competitive advantage.

Greening of the Polish TFL market is still in its early stage of development, but the process must be continued. Polish TFL companies do not operate in a business vacuum, they are actors in global supply chains and the lack of commonly known or implemented eco-standards on a mature market may put them out of business and result in re-configuration of such a supply chain in the future.

The phase of purchasing is crucial for incorporating green criteria into the particular forwarding order or the contract. The negotiation between customer and FF/LSP creates a space to exchange ideas as well as enables "mutual green education". The importance of green purchasing should be acknowledged with regard to the development of green services on the Polish TFL market. However, in the current state of its maturity, the level of knowledge about green practices as well as the eco-awareness of FF/LSPs and their customers are far from satisfactory. Moreover, it also happens that even management staff of the largest TFL companies do not care about green practices and do not recognize their importance.

The greening of transport and supply chains should be regarded as an important issue, especially because it is in line with countries' commitment to reduce global GHG emissions as is stated in the Paris Agreement and it is also subject to social supervision (e.g. tracing the carbon footprint). The relevant law and regulations, eco-education, dissemination of green know-how may foster implementation of green solutions in transport and logistics on the Polish market. Otherwise, greening will continuously be perceived as burdensome and costly.

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