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Promoting Pro-ecological Behavior with Logistics Operators in Poland and Ukraine

Olga Reshetnikova
Department of Economics and Management, Department of Marketing, Poltava State Agrarian Academy, Poltava, Ukraine

Joanna Dyczkowska[*]
Department of Economics, Faculty of Economic Sciences, Koszalin University of Technology, Poland, https://orcid.org/0000-0001-9866-3897

Marcin Olkiewicz
Department of Management and Marketing, Faculty of Economic Sciences, Koszalin University of Technology, Poland, https://orcid.org/0000-0001-6181-6829

Dagmara Paszkowska
Department of International Business, Faculty of Economics, University of Gdańsk, Poland

[*]*corresponding author's e-mail: joanna.dyczkowska@tu.koszalin.pl*

Abstract: Logistics operators are characterized by a high dynamics of an increase of incomes, and hence increased shipping. Owing to a rational policy in the area of the consolidation of production and distribution, they may boast of a better use of the means of transport. The aim of the article is to analyse the promoted behaviours of logistics operators in Poland and in Ukraine. The research methods used in the study include a literature analysis, a comparative analysis and a questionnaire survey of logistics operators' clients in Poland and in Ukraine. Selected items have been evaluated: eco-friendly programs, action for the environment, exhaust emission reports, CSR activities carried out locally, nationally and globally, sustainable development of logistics operators, professional development of employees, innovative technologies implemented by logistics operators and transport safety. The analysis conducted in relation to logistics operators will show similarities and differences in the promoted environmental activities and to what extent this is noticed by customers.

Keywords: logistics operators, pro-environmental, eco-logistics, green logistics, promoting, sustainable supply chain

1. Introduction

When transport systems and logistics systems are formed by logistics operators, finding a certain optimum between aiming at a cost reduction on the scale of these systems and aiming at an appropriate level of customer service while maintaining the rules of eco-logistics is of an essential significance. Both society and customers, suppliers and other participants of the supply chain are beginning to expect a higher level of environmental responsibility on the part of LSP (logistics – service – provider) companies.

Logistics as one of the directions of economic activity contributes to the deterioration of the environmental situation; therefore, logistics as a scientific and practical discipline within its activities must take into account environmental aspects in order to minimize the eco-destructive consequences of logistics operations. Sustainable development policy, while being understood on the highest levels of management with logistics operators and implemented as a key factor of long-term development and maintaining the value of the brand, is frequently defined as a green (sustainable) supply chain. A green (eco-friendly) sustainable supply chain is defined as a process of the use of environment friendly resources and their transformation in such a way that it could be possible to improve their side effects or to perform recycling in the existing environment without disturbing it (Brdulak & Michniewska 2009). In the Polish literature, there is a separation of the notion of eco-friendly logistics (eco-logistics) and green logistics.

Eco-logistics is defined as a formation of feedback flows conditioned with environmental requirements and under the influence of aiming at balancing the interests of the economy and environments, with the dominating decisions taken by the management concerning the environment. Eco-friendly logistics in Ukraine is a type of logistics, a scientific and practical activity which is aimed at taking into account environmental aspects at all stages of the flow of materials and other associated flows in order to optimize resource consumption and to minimize destructive environmental impacts (Mgebrishvili 2016). In the case of green logistics in Poland (Szołtysek & Sadowski 2013), it is defined as formation connected with the productivity of the processes of production, operation and development after the service life, and activities are related to the fundamental flow in the supply chain. A more adapted definition of green logistics is to be found in the foreign literature. Green logistics covers all the activities connected with the selection of the best means of transport, freights, carriers and transport routes in order to reduce pollution and the environmental impact of the whole supply chain (SC) (Murphy & Poist 2000, Abukhader & Jönson 2004).

The aim of the article is an analysis of pro-environmental behaviours promoted by logistics operators in Poland and in Ukraine. The research methods used cover a literature analysis, a comparative analysis and a diagnostic survey

among the customers of logistics operators in Poland and in Ukraine. For this reason, the following hypotheses have been formulated:

H1. A sustainable supply chain is positively connected with the logistics operator's activities.

H2. There is a positive connection between internal environmental management practices and a quality improvement by logistics operators.

H3. Eco-friendly activities used by the selected logistics operators are taken notice of by their customers in Poland and in Ukraine.

2. Analysis and findings of the literature review

It is not only production companies but also companies from the LSP branch that put an emphasis on the ability of a rational management of natural resources.

The definitions presented herein highlight three key characteristics of SSC (sustainable supply chains). Firstly, more than one entity must be involved in the management of resources, information, and processes that may be beyond a particular company's control. Consequently, the decision-making process includes a number of decision-makers. Secondly, entities partaking in the chain might be working towards contradictory goals, i.e. profit maximization, carbon footprint reduction, or welfare improvement. The third characteristic aspect is the fact that the environmental impact must be considered in the decision-making process. The carbon footprint of the entire span of the chain must be considered, including suppliers, partners, and clients. Moreover, sustainable development requires adopting an interdisciplinary approach as it necessitates an integration of issues and solutions irrespective of functional divisions (Dowlatshahi 2000, Olkiewicz 2020).

The transformations that are taking place in the economy make logistics operators formulate the strategies of future activities taking into consideration among others processes connected with recycling. Reverse logistics was established as an important part of the consensus definition of Supply Chain Management – SCM (Stock & Boyer 2009). Too frequently research focusing on sustainable SCM has failed to explicitly include reverse logistics (Seuring & Müller 2008). Ignoring reverse logistics is inconsistent with the previously developed supply chain frameworks (Lambert et al. 2005). Early in the development of the theory, supporting benefits associated with reverse logistics, the environmental goals of reverse logistics were noted as complementary to economic outcomes (Dowlatshahi 2000). Moreover, a review of the existing sustainable supply chain literature determined that reverse logistics is a part of sustainability due to the aspects of recycling and green supply chain issues (Winter & Knemeyer 2013). Sustainable reverse logistics has also been investigated through a modelling approach where environmental concerns are balanced against other supply chain objectives (Ramos et al. 2014). This approach

is known as CSR: Corporate Social Responsibility, where it is a tool that indicates the need to take into account elements connected with social responsibility and the aspects of natural environment protection at the stage of building company strategies (Wyszomirski & Olkiewicz 2020).

Operationalizing green logistics – Green Logistics (GL) is measured using a two-item scale based on Murphy and Poist (Murphy & Poist 2000) and McKinnon (McKinnon 2010), which covers two items: item one refers to choosing the location of the warehouse/distribution centre while accounting for emission reduction and renewable energy use in the centre (GL_1). This is related to the second item, i.e. using renewable energy/energy efficient lightning, such as sensor lamps and energy-saving lamps, solar power on the roofs, etc. in the warehouse distribution centre (GL_2). In this context, carbon dioxide emissions are frequently cited as a detrimental effect of logistical activities (Abukhader & Jönson 2004, Wong et al. 2015). While the first indicator is more strategic in nature and points to the impact of logistics on the environment, the second one is operational and it is related to day-to-day operations. Together, they allow a meaningful assessment of green logistics constructs. The results obtained from green supply chain management depend on the level of intellectual capital development of companies. A developed IT system, an effective knowledge diffusion inside and outside of the organization (Olkiewicz 2018), having certificates supporting supply chain management, a developed motivation system, long-term contracts with clients, a loyalty of suppliers and many more elements contributing to the intellectual capital, probably facilitate green supply management, and they simultaneously permit obtaining better results in this area (Maryniak 2017a). Therefore, the organizational objectives identified for the implementation of an individual firm's supply chain structure lead to an effective conduct that in turn leads to a potential achievement of operational and financial goals (Defee & Stank 2005). Applying the Supply Chain Planning – SCP paradigm to sustainable SCM, successful reverse logistics programs have been associated with positive performance measures, e.g. logistics performance (Morgan et al. 2016), economic performance and environmental performance (Huang & Yang 2014). We follow Zhu et al.'s (Zhu et al. 2008) approach to measure operational performance by assessing the amount of improvement an individual firm achieves on such logistics outcomes as delivery time, inventory levels, and capacity utilization as a result of implementing a sustainable supply chain strategy. Remanufacturing and recycling often provides cost-effective alternatives when compared to the sourcing of new raw materials for use in the supply chain.

For instance, third-party firms have begun to offer services to handle, package, and resell returned products. Exploring the impact of secondary market options as structures to manage these goods provides an opportunity for

detailed strategic reverse logistics research (Rogers et al. 2012). These third-party providers can derive profits and reduce environmental costs (Douglas 2017). Future research may investigate how these third-party solutions work with sustainable supply chain strategies to achieve sustainability goals.

Research on the green chain and pro-environmental consumer behaviours has recently been undertaken in the following scope (Maryniak 2017): a general level of the implementation of pro-environmental activities differentiates enterprises in terms of the priority of competitive instruments; an implementation level of pro-environmental activities in each activity type (area) differentiates enterprises in terms of the priority of competitive instruments.

Therefore, an assumption was adopted that the current situation is connected with a low level of knowledge diffusion within the scope of Green Supply Chain Management – GSCM (Maryniak & Strąk 2017). In connection with the above, it seems justifiable to examine the level of knowledge diffusion within the area of these issues and to indicate any troublesome elements connected with it also for logistics operators.

3. Eco-friendly activities with selected logistics operators

In the processes realized by logistics operators, it is not only green logistics that is noticed, where the main problem is carbon dioxide emissions by logistics systems (Dyczkowska 2013) but also urban logistics (Chamier-Gliszczynski & Bohdal 2016, Chamier-Gliszczynski & Bohdal 2016a) and waste management connected with logistics activities. The main activities should focus on the eco-friendly service, the distribution network structure based on a comprehensive use of vehicles, minimization of the negative environment impact of packaging as well as other elements of the life cycle that have an influence on the selection of packaging, the use of the so-called green and renewable energy sources (green energy), energy-saving and passive construction of terminals and sorting plants to enable a reduction of carbon dioxide emissions. It can be noted on the example of logistics operators that many companies are more and more frequently becoming open to innovative solutions in the area of eco-logistics, ecology and whole supply chains. Many entities, which are directly and indirectly involved in the supply chain, derive benefits from this. Firstly, companies benefit from this, which reduce the costs of transport including carbon dioxide emissions while not lowering the level of customer service. What is more, the use of the solution described above also reduces the number of those vehicles that perform deliveries/distribution not only between terminals but also in the area of taking shipment back, thus contributing to a limitation of the traffic of heavy goods vehicles on roads and in cities. Owing to this, the average speed in road transport does not diminish, and logistic companies may perform deliveries within 24 hours. Therefore, it is to be noted that this approach offers an oppor-

tunity to companies to improve effectiveness both over a short and long time span. Therefore, this is an approach that is compliant with the conception of sustainable development. Table 1 presents the basic scope of activities in the area of the ecology of selected logistics operators in Europe.

Table 1. Eco-friendly activities realized by selected logistics operators in Europe

Eco-friendly activities	GLS	DPD	FedEx	DHL	DB Schenker
sustainable development (eco-friendly, warehouses, vehicles and e-documents)	V	V	V	V	V
responsible supply chains (including the security of shipments and information)	V	V	V	V	V
neutral to the environment, for example: reduction of emissions CO_2)	V	V	V	V	V
social responsibility (including taking care of health and development of employees)	V	V	V	V	V
activities for the benefit of the local community	V	V	V	V	V
Summary	5	5	5	5	5

Source: Author's own study based on the websites of logistics operators

All the selected logistics operators provide information on their websites about their eco-friendly activities in a basic scope. Activities in the CSR area are a standard in relation to employees so that the present employees should not change their employer and recruit the best personnel to work.

Their Environmental Policy focuses on finding solutions that reduce their own footprint and inspire action in others. Their enterprise-wide Environmental Management System (EMS) is based on the key elements of ISO 14001 (Olkiewicz et al. 2019). The company provides the project leaders with funds necessary for the implementation of their ideas. An interesting idea, teamwork, including the involvement of customers and suppliers as well as partnership with a local social organization or a public institution are the key factors in order to achieve support. What is special about this programme is the fact that the employees themselves as the members of the local communities in which they live and work decide locally who they want to help in their

community, and on this basis they submit their ideas. Examples of eco-friendly activities include only some of those selected that are realized by logistics operators in Europe and Ukraine.

4. Methodology and research limitations/implications

Research using the method of indirect measurements (a direct survey with a computer and Internet access) was carried out to analyse the eco-friendly activities of logistics operators. The research was carried out in Poland (Koszalin, Bydgoszcz) and in Ukraine (Poltava) in the period from February 2019 to March 2020 using a quantitative method based on non-random snowball sampling taking into account opinions expressed by people connected with the TSL branch, logistics and having contact with management and marketing. In Poland, 77 persons participated in the research. Three questionnaires were rejected due to the shortage of some data. In Ukraine, 32 people participated and 4 questionnaires were rejected.

In Poland, the women surveyed constituted 51.35% and men accounted for 48.65%. 36.49% of the respondents live in places with up to 10 thousand of residents, 27.02% in places with up to 50 thousand of residents, 9.46% in places with up to 100 thousand of residents and 27.03% in places with over 100 thousand of residents. 46.67% work in service companies and 53.33% in production companies. In Ukraine, women constituted 64.29% and men 35.71%. All of them are the residents of places with over 100 thousand of residents. They hold managerial positions and work in large and very large service companies connected with the LSP branch.

In Poland, 64.86% of people notice eco-friendly activities in connection with logistics operators; in Ukraine, this is only 28.57% of people. This relation is opposite in the case of the lack of eco-friendly activities in Poland. Responsible supply chains were determined (Table 2) as the most important activities which logistics operators should take into account in the area of social responsibility policy in Poland and in Ukraine.

In Poland, activities connected with carbon dioxide emissions were placed on the second position in the ranking, and active work to the benefit of employees on the third position, while in Ukraine, this was placed on the second position and sustainable development in the form of ecological warehouses, vehicles or e-documents on the third position; in Poland, this was placed on the fourth position as this is considered to be a standard within the implemented savings and applicable regulations related to environmental protection. In both countries, activities to the benefit of local communities were placed on the fifth position only. This could because these are not perceived by companies that cooperate with logistics operators and it is not only them that pursue such campaigns.

Table 2. The most important activities connected with corporate social responsibility policy (CSR) which need to be undertaken by logistics operators in Poland and Ukraine

Eco-friendly activities	Poland	Ukraine
neutral to the environment, for example reduction of CO_2 emissions	II position	IV position
activities to the benefit of the local community	V position	V position
responsible supply chains (including the security of shipments and information)	I position	I position
social responsibility (including taking care of health and the development of employees)	III position	II position
sustainable development (eco-friendly, warehouses, vehicles and e-documents)	IV position	III position

Source: author's own study on the grounds of the research.

In Poland, activities connected with carbon dioxide emissions were placed on the second position in the ranking, and active work to the benefit of employees on the third position, while in Ukraine, this was placed on the second position and sustainable development in the form of ecological warehouses, vehicles or e-documents on the third position; in Poland, this was placed on the fourth position as this is considered to be a standard within the implemented savings and applicable regulations related to environmental protection. In both countries, activities to the benefit of local communities were placed on the fifth position only. This could because these are not perceived by companies that cooperate with logistics operators and it is not only them that pursue such campaigns.

In Poland, the respondents notice promotion related natural environment with as many as 14 companies from the TSL branch including 62.16% in DP DHL; 36.49% in DPD; 33.78% in UPS and 24.32% in InPost and GLS. In the case of the respondents, only three companies were distinguished: DP DHL (the leader of the promotion of environment friendly activities), FM Logistic as well as Nova Poszta, UVK and Intime.

The activities pursued by DHL, which is the leader on the global market, are mainly promoted. The Citylogin project offered by FM Logistic, which was noted by 16.22% of the Polish respondents and 10.72% of Ukrainian respondents, is worth noticing. Such activities as the Citylogin project have been taken up in FM Logistic Group for many years now, and the protection of natural environment is their purpose. Initiatives aimed at supporting sustainable

development policy constitute an element of strategies practically in each of those countries where the operator runs its business. The latest Citylogin project is an example of the involvement of the company in environment friendly logistics. Within the framework of this project, the operator invests in the purchase of cars with hybrid and electric drives. The system of a modern and environment friendly fleet is operated with the use of specialist software, which enables the management of the whole supply chain starting from loading of the car to an optimization of the delivery route, thus enabling a real time control of the vehicles. The satisfactory results of the pilot Citylogin stage encouraged the Management Board of FM Logistic to implement the project in other large European cities. Paris, Madrid, Milan, Cracow, Warsaw, Poznan, Kiev and Moscow were selected in the first stage. By the end of the year 2019, this modern solution is to be also available for customers in Lisbon, London and Amsterdam, Wroclaw and Lviv.

Activities aimed at environmental protection which are implemented by logistics operators, and which are not promoted in Poland but noticed by the respondents include the following: electronic flow of documents (EDI, e-documents); reduction of fumes emissions (a modern transport fleet, organization of the consolidation of freights and optimization of routes); eco-friendly packaging and point collection (e.g. parcel stations, increased shipment safety); supply chain management including reverse logistics and waste management; modern and energy-saving terminals, sorting plants and warehouses; logistics operator as the first choice employer; organization of charity events and cooperation with foundations (e.g. We notice other people), aid offered to casualties in cataclysms.

Those activities that address natural environment protection which, according to the respondents, receive too little attention on the part of logistics operators in Ukraine are as follows: optimization and management of material, financial and information flow; promptness, comfort and cost-effectiveness based on environmental protection rules improvement of supplier-consumer relations, provision of the required services, economic and eco-friendly transport; the tool of a rational organization of streaming processes with minimal expenses, management of material, information and human flows on the basis of their optimization, the right product of the right quality of the right collie at the right time in the right place at the lowest cost; find a shortcut, optimal solution, automate decision making.

Additionally, the “GOGreen” action conducted by DP DHL capital group is worth noting; 18.92% of the Polish respondents and 35.72% of the Ukrainian respondents knew about this action.

5. Conclusions and future research

The world and in the Polish literature includes many references that discuss the sustainable supply chain, green logistics or eco-logistics. In spite of similarities, these notions differ, yet all of them are connected with environmental protection realized by logistics operators. Research has been undertaken concerning the green chain of supplies and corporate social responsibility (CSR) conducted by logistics operators in Poland and Ukraine. It is to be noted that the sustainable supply chain is positively connected with the activities of the logistics operator; in both countries, the following programmes are given as an example: GoGreen – DP DHL and Citylogin – FM Logistic. The respondents observe a positive connection between the internal practices of environmental management and an improvement of the quality of services through such activities as a reduction of carbon dioxide emissions and publishing of the reports on fume emissions (neutral to environment), where the respondents in Poland ranked as second in terms of importance. Responsible supply chains related the safety of shipments and information were determined as the most important activities which logistics operators should take in the scope of the social responsibility policy in Poland and in Ukraine. In both countries, activities to the benefit of local communities ranked on the fifth position only. This could be because they are not visible to those companies that cooperate with logistics operators and it is not only them that pursue such campaigns. In Poland, 64.86% of the respondents observe environmentally oriented activities among logistics operators; in Ukraine; this is merely 28.57%. In spite of the implementation of many programmes connected with environmental protection by logistics operators, there is no promotion. This can only be seen only on the websites of logistics operators and in trade press. This causes customers to be unfamiliar with them. Due to the regulations, TSL companies in Poland implement environmentally oriented behaviours considerably faster than in Ukraine, such as e-documents or parcel stations. Without an introduction and later promotion of CSR among customers, in spite of the expenditures and efforts incurred, logistics operators will be perceived as companies that pollute air, which can especially be observed in Ukraine. In the future, the research needs to be repeated to see whether there has been an improvement in the promotion of environmentally oriented activities by logistics operators in Poland and especially in Ukraine; these activities will have to be compared with those in West European states. Additionally, it should be determined what new environment friendly elements have been introduced by logistics operators and whether they have an impact on the quality of services provided by them. In the future, Green Logistic will contribute to the solution of many local problems connected with urban traffic. At this moment, this is on the last position in the ranking. The environment friendly policy will have an impact on the profitability of management processes (a better use of vehicles, an

optimization of routes), which will constitute a new quality in the modelling customer service processes and the sustainable supply chain management. Logistics operators should promote their investments in the scope of environmental protection using such tools as public relations and sponsorship of local activities aimed at an improvement of the company's image. The effectiveness of the investments realized cannot be directly assessed considering the unavailability of data. An introduction of the ISO 14001 Standard in their corporations brought about procedural transformations, and those subcontractors that provide transport services in a logistic chain have to replace their means of transport with more environment friendly ones.

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